Inequality in the risk of job loss among young and prime-aged workers – is it explained by human capital or structural factors?

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Abstract

We aim at identifying the determinants of the gap in the risk of job separation between the young and prime aged workers. Using a Oaxaca-Blinder type of decomposition for binary outcomes and data from Polish Labour Force Survey, we disentangle to what extent the age heterogeneity in the risk of job separation is shaped by differences in the composition of young and prime age workers with respect to their individual and job characteristics, and to what extent it is driven by different risks of job separation associated with those endowments.

According to our results, the differences in the composition of young and prime age workers and differences in the returns to these characteristics in terms of employment stability contribute to similar extent to the gap between young and prime age workers. Differences in the composition of workplace characteristics between youth and prime aged workers explain a considerable share of the overall gap in the risk of jobs loss, because young people tend to find jobs that are associated with higher risk of job security. At the same time, overall, the diverging effects of workplace characteristics close rather than raise the gap in job security between young and prime age workers. In other words, the jobs that are "on average" precarious, do less harm or provide more benefits to youth.

JEL codes: J13, J21, J42, J63

Keywords: unemployment, job separations, youth

1. Background and research objectives

The aim of this paper is to identify the factors that drive inequality in the risk of job loss among young and prime age workers and to quantify the magnitude of their impact. We build on recent research that emphasizes the role of structural influences for labour market inequalities (DiPrete & Nonnemaker, 1997; Gerber, 2002, 2012; Gerber & Hout, 1998; Shin, 2007). We examine to what extent the gap in employment stability of youth and prime age workers may be explained by the differences in skills and experience of these two groups and we compare the role of these endowments with the impact of workplace characteristics as well as macro-level structural changes. Moreover, we assess if the individual endowments protect youth and prime age workers to different extent. Finally, we explore if different types of workplace characteristics or macro-level structural changes imply diverging risk of losing a job in case of youth and prime age workers.

This paper contributes to the debate on the patterns of labour market inequality in postsocialist societies. So far, research on this topic has focused on the effects of skills, experience or access to social networks (Cao & Nee, 2000; Wu & Xie, 2003; Zhou, 2000). Nevertheless, empirical studies on determinants of employment career dynamics (Gerber, 2002; Zhou, Tuma, & Moen, 1997) and income (Clarke, 2002; Gerber, 2006) suggest that structural factors may actually exert stronger influence on individual labour market chances than skills, experience and social capital. Especially in countries undergoing rapid restructuring processes, workers' employment perspectives may be determined above all by the specific situation of their firm, branch of the economy and region where it is located. Moreover, in such context the expansion or contraction of particular industries or classes of occupations may actually have more pronounced impact on individual career, than individual resources.

For our empirical analysis we consider Poland, a country that has made a successful transition from centrally planned to market economy(Woo, 1994). Unlike Russia or China, the two case studies that have been so far commonly used in empirical research on the stratification in postsocialist societies, Poland has become a democratic country with market rules working in virtually every sphere of economy. Moreover, many problems typical for countries from the former soviet bloc, such as overregulation, corruption and nepotism, economic activity concentrated in shadow economy, have been alleviated with the proper reforms. Economic transition has led to rapid reallocation of labour within and across industries and occupations. Dynamic sector-specific expansions and contractions make Poland a very good laboratory for research on the mechanisms through which the structural factors affect individual opportunities and risks.

We focus on the age dimension in inequality of job loss. Young people tend to be disadvantaged on the labour market as compared to the prime-age workers because they have less working experience and access to social networks. This applies especially to Poland which stands out with an extremely high level of youth unemployment among other European countries (Scarpetta, Sonnet, & Manfredi, 2010). Moreover, over the whole period of transition from centrally planned to market economy, job losses among youth were higher than the lay-offs of prime age workers and additionally were responding more strongly to the macroeconomic conditions (Baranowska-Rataj & Magda, 2013). Given that a poor start at the early working career stage increases the risk of joblessness in the future and hence negatively affects individual well-being even in late life course phases (Gregg &

Tominey, 2005; Stewart, 2007), it is of overriding importance to explore the reasons for these inequalities.

2. Postsocialist transition and labour market in Poland

Poland experienced pronounced economic and institutional changes over last three decades. The transition to a market economy started in the beginning of 90ies with radical and comprehensive reforms aimed at eliminating detailed state intervention in both labour and product market (Aghion & Blanchard, 1994). These reforms were launched simultaneously and proceeded with fast pace. Increasing competition, restructuring and privatization necessitated massive layoffs. However, Poland started to recover from the transitional recession already in 1992 and in mid 90ies employment increased. Further growth was brought to a halt by the Russian crisis that broke out in 1998, which combined a devaluation of the Russian currency, a default on both domestic and foreign debts and a collapse of the stock market (Lokshin & Ravallion, 2000). The Russian crisis was followed by the economic slowdown in 2001-2002, during which unemployment rates rose to a level of over 20%. The late economic recovery in 2005 brought substantial improvements in the labour market. The worldwide economic downturn in 2008 was again accompanied by a surge in unemployment, with the overall rate rising to 10% in 2011.

Transition from centrally planned to a market economy implied deep structural changes. Among others, it involved reallocation of labour across industries, from sectors that were less competitive and remained large mainly due to state subsidies to those that used to be underdeveloped during socialism and could grow only after the fall of the iron curtain. At the beginning of the transition to a market economy, Polish economy was characterized by a large share of agricultural employment, exceeding 23%, and predominance of heavy industries as well as underdeveloped services. Immediately after the transition, and also after the outbreak of the Russian crisis, agricultural employment was a source of secondary income and an employment opportunity of last resort for laid-off workers and pensioners. Moreover, insufficient skills of farmers reduced labour mobility out of this sector. Still, employment in agriculture decreased down to 13% in 2011. The share of industrial sector in total employment remained rather stable at the level of about 30% throughout the course of transition, but there were important changes within this sector: it recorded a steep decline in heavy, textile and leather industries and development of more modern industries. The employment in service sector has been steadily increasing from less than 40% in the early 90ies up to 57% in 2011. Employment growth in services can be ascribed to growth in trade and repair, financial services, as well as hotels and restaurants among others (Kwiatkowski, Socha, & Sztanderska, 2001; Newell & Socha, 2007). The structure of occupations changed as well: the share of skilled manual workers has declined, while the shares of professional and sales workers have increased. The rates of job reallocation across industries and occupational groups were relatively high throughout the 1990s as compared to other developed countries (Rutkowski, 2002).

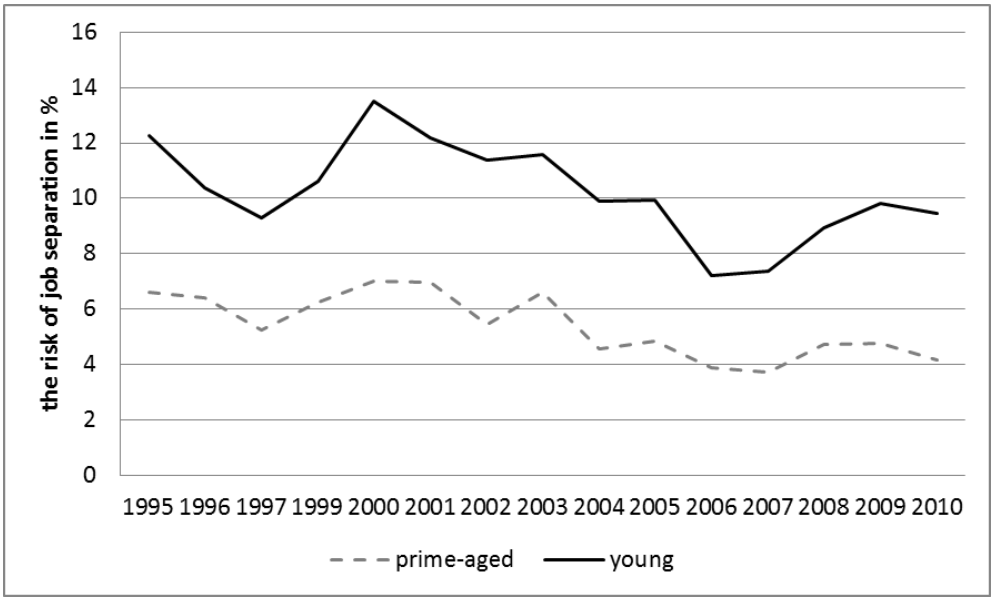
Remarkable changes could be also observed when it comes to the ownership structure on the Polish labour market (Jackson & Mach, 2009). In line with the socialist ideology, ownership of private companies has been very restricted, but not completely abolished. At the beginning of 90ies, private sector would encompass less than 20% of employment. The privatization law of 1990 followed by dynamic development of private entrepreneurship as well as a collapse and privatization of state-own companies spurred the expansion of the private sector. The proportion of employees working in

private companies rose up to 66% in 2011. Moreover, the firms ownership and its size were an important determinant of the degree of job creation and destruction (Faggio & Konings, 2003).

Poland saw as well increased flexibility of labour market arrangements. Until the end of the 1990s, full-time work performed on employers' premises within a permanent contract was the prevailing employment arrangement. This was related to the rigid labour regulations inherited from the socialist system. However, the labour laws were reformed at the end of 1990s, and were adjusted to the needs of a modern economy (Kwiatkowski et al., 2001). Since then, comparative studies examining the rigidity of labour regulations showed that Poland has neither very restrictive nor exceptionally liberal labour laws (Venn, 2009). In 2002, as a response to the high unemployment rate, the Polish government liberalized the use of fixed-term contracts. Fixed-term contracts became increasingly common, and their share in the total employment increased from 12% in 2001 to 28% in 2011.

The transformation of the Polish economy has brought about important changes for the range of opportunities and risks that young people meet at the beginning of their employment careers. On the one hand, the shift from the centrally planned economy to a market economy meant that graduates could strive for career goals, which were beyond the reach of previous generations. On the other hand, those who were not able or willing to invest in education before their labour market entry had to struggle with much greater difficulties in finding stable jobs, than was the case before the transformation. As shown on Figure 1, in general, while job separation rates among young people followed similar patterns as job separation rates of prime-age workers, the dynamics of inflow into unemployment in this group was much higher among young people. Poor macroeconomic conditions in early 90ies, after Russian crisis and during the most recent economic downturn would lead to much stronger increase in the risk of losing a job among youth than in the prime-age group.

Figure 1 Job separations among young and prime-aged workers



Source: Polish LFS data.

While higher sensitivity of youth employment prospects to macroeconomic changes is evident, it is not entirely clear what were the main drivers of these changes. The literature on the causes of youth

labour market disadvantage in Poland has emphasized most of all the role of inadequate education and limited work experience of young people. It has been stressed that despite tertiary education expansion, which should have led to an increase in human capital among younger cohorts, youth in Poland lack job-specific skills. Concerns have been raised that due to rocketing enrolment rates, higher education institutions had to lower the standards of their services and the value of the credentials that they would offer was subject to inflation (Hildebrandt-Wypych, 2012). Moreover, it has been argued that young people who pursue tertiary education tend to choose fields of study that do not necessarily match the structure of labour demand and focus on social sciences or humanities rather than more practically oriented subjects such as engineering (Sztanderska, 2008). Perhaps related to this, empirical studies have shown that youngest cohorts of employees face a high risk of persistent overeducation (Kiersztyn, 2012). In parallel to tertiary education expansion there was a rapid decline in the number of vocational education students that lead to decrease in the number of graduates with technical skills (Kogan, 2008).

In the discussion on youth labour market disadvantage many studies have also blamed increasing flexibility of employment relationships, which would affect young people to more extent than workers in other age groups (Szafraniec, Boni, & Arak, 2011). Since reforms increasing availability of term contracts usually affect mostly labour market entrants, and young people are overrepresented in this group, obviously the proportion of workers with fixed term contracts among young employees became much higher than in the prime age group. This must have made employment rates of young people much more susceptible to macroeconomic changes because employers usually first stop prolonging or renewing fixed term contracts and only in the next step make decisions to dismiss workers with permanent contracts. It is much less known however whether and in what way other characteristics of jobs, such as firm size or sector of ownership as well as occupation- or industry-specific dynamics in the economy might have mediated the risk of job separation across age groups.

3. Data and methods

In our paper we employ the recently developed extension of the Oaxaca-Blinder decomposition method to the discrete dependent variable models (Powers et al. 2011), which allows for decomposition of the nonlinear probability of job loss. We compare the difference in the determinants of losing a job among two population groups - young and prime age workers. We can attribute the differences in the level of risk of losing a job to the: (1) differences in characteristics of youth and prime age group, such as differences in skills and experience, or structural factors driving allocation to different types of firms (2) differences in "returns" to these characteristics. The latter concerns the differences in which skills and experience protect young and prime age groups against the job loss. It also encompasses the difference in which structural forces imply the risk of unemployment for young and prime age workers.

Formally, we assume there is a latent variable of the risk of job loss which is specified as follows: $Y_i^* = X_{i\beta} + u_i$ (we suppress the age group-specific subscript).What we observe is a dummy variable Y_i of actually experiencing a job loss, whose value is one if $Y_i^* > 0$ and zero otherwise. The likelihood of losing a job for *i*-th worker ($Y_i = 1$) is estimated by $F(X_i\beta)$, where F is the logistic cumulative distribution function, that is $F(X_i\beta) = 1/[1 + \exp(-X_i\beta)]$. The differences in the risk of losing a job

among the two population groups, young (group A) and prime-age workers (group B), can be decomposed in the following way:

$$\bar{Y}_A - \bar{Y}_B = \left[\overline{F(X_A\beta_A)} - \overline{F(X_B\beta_A)}\right] + [\overline{F(X_B\beta_A)} - \overline{F(X_B\beta_B)}],$$

where the first and the second components in the right hand side represent the characteristics effect and coefficient effect, respectively, whereas the $\bar{Y}_A$ and $\bar{Y}_B$ denote the values of sample averages of the risk of job loss among young and prime-age workers.

Employing the decomposition approach chosen in this paper has a number of advantages. First, any comparison of the impact of individual and structural characteristics on the labour market outcomes is a complex issue if these outcomes can be measured by discrete variables, as it is in case of job loss. The coefficients from commonly used nonlinear models (such as logit models or hazard models) cannot be directly compared. The decomposition proposed by (Powers, Yoshioka, & Yun, 2011) explicitly takes into account the discrete nature of the dependent variable, allowing quantifying and comparing the magnitude of the impact of specific characteristics on labour market inequalities. Second, most studies in the literature on stratification in postsocialist societies have not investigated in detail the differential effects of individual or structural characteristics. At the same time, exploring the heterogeneity of their impact is recommended as a promising direction of further research in the most recent contributions to the literature (Gerber, 2012). Finally, the decomposition developed by (Powers et al., 2011) has advantage over other decomposition methods in so far as it allows to solve the problem of normalization of dummy variables. We know it from the econometric literature that the results of a detailed decomposition, assessing the contribution of every covariate, are sensitive to the choice of the reference category (Oaxaca & Ransom, 1999). Our chosen decomposition method uses transformation algorithm advanced by (Yun, 2005) that averages the coefficient effects of a set of dummy variables while permuting the reference groups.

The analyses will be based on the micro-data from the Polish Labour Force Survey (PLFS) covering the period from the mid 1990s until 2012. PLFS has a number of advantages from the point of view of analysis carried out in this paper. First of all, it provides the most contemporaneous data source, covering the recent crisis. Second, this survey is regarded as the most reliable source of information about the labour market developments in Poland. Due to the supervision of ILO and EUROSTAT, PLFS is standardized and internationally comparable. The design of its rotating panel tracks individuals for two consecutive quarters in two consecutive years, allowing us to observe those entering and exiting employment at quarterly and/or yearly intervals. Finally, PLFS provides very rich information about both individual characteristics and workplace features of employees and simultaneously it allows generating macro-level data on job creation and job destruction in industries and occupations.

In our analysis we incorporate information on employees' gender, since there is a large literature on gender differences in labour market outcomes which shows that, for many reasons, women face a higher risk of exit out of employment, especially those in the early reproductive age. Among individual characteristics that we use in our analysis, we also distinguish measures of individual resources that are crucial for labour market chances: education and experience. Education attainment in general measures individual resources that prevent separation from job (Mincer, 1991). However, the risk of exit from employment may depend not only on the level, but also type of completed education. For example, vocational education may decrease the risk of job loss as compared to other forms of secondary education, because it provides workers with occupation-

specific qualifications. From the point of view of employees, occupation-specific skills increase the cost of changing jobs (Blossfeld & Mayer, 1988; Ivančič, 2000; Shavit & Müller, 1998). One can also argue that occupation-specific skills raise also the costs of dismissing workers, because they cannot be easily replaced with employees who have more general skills. The open question remains whether in Poland, a country where the system of vocational education has eroded and provides labour market entrants with very obsolete skills, occupation-specific qualifications give any advantage on the labour market, especially among younger cohorts that participated in education already after the collapse of the educational system.

Regarding the working experience, PLFS provides detailed information on workers' tenure, i.e. the number of years worked at the given workplace. Hence, tenure captures accumulated knowledge and skills that are specific for the given workplace (McCall, 1990; Weiss, 1984). In the Polish context tenure may affect the job loss risk also for reasons related to labour law regulations, which impose higher firing costs for employees with longer tenure. Those employed for more than three years are entitled to a three-month notice period (compared to one month for the shorter-term employees) and a three times higher severance pay. While in general tenure should decrease the risk of job loss, there may be differences in the effects of this job-related experience among young and prime-age workers. The tenure accumulated among prime age workers may have a lower impact on job security because it would be usually acquired during socialist times, meaning that it may have different value in the market economy. We include a variable that measures having a tenure that exceeds 2 years of tenure[1].

Workers' productivity in the given workplace may depend not only on individual endowments but also the way they match the requirements of the given job. Workers whose skills do not meet specific occupational standards may face higher risk of job loss (Breen, 1992). However, elevated risk of exit from employment may also concern overeducated employees, whose qualifications exceed the requirements at their workplaces (McGuinness & Wooden, 2009). Skill mismatch - both undereducation as overeducation - usually implies a wage penalty (Hartog, 2000), which increases workers' willingness to search for a new job. Indeed, overeducated and undereducated workers were found to have greater job mobility (Sicherman, 1991). Therefore, we include in our analysis measures of skill mismatch as potential determinants of job separations.[2] We identify overeducated and undereducated workers by looking at the distribution of years of education in the occupations one holds (at ISCO - 3 digit level) and assigning an skill mismatched status to those, whose individual number of years spent in education exceeds (or is lower than) the mean number +/- a standard deviation.

While earlier studies on the risk of job exit have focused on the role of individual resources, more recent literature emphasizes that the research on the impact of workplace characteristics and structural changes should be integrated into the analysis of labour market inequalities (Gerber, 2002, 2012; Shin, 2007; Uunk, Mach, & Mayer, 2005).

[1] We tested more detailed specifications with a set of dummies for each year of tenure, but the results did not differ, clearly the impact of tenure differed most of all at the threshold of 2 years.

[2] Ideally, we would also like to take horizontal mismatch into account, especially given the common concerns on the discrepancy between the fields of study among the graduates and the actual structure of demand for labour (Sztanderska, 2008). However, the data regarding fields of study in Polish LFS are only available starting from 2005. Also, Reimer, Noelke, and Kucel (2008) as well as Baranowska-Rataj and Unt (2012) show that in general in CEE countries fields of study matter surprisingly little when it comes to labour market chances.

First of all, we consider the role of the type of contract that individuals have. Previous research has shown that workers with non-standard working arrangements, such as fixed-term contracts, part-time jobs or those who actually work without any written contract, are more likely to quit their jobs (Buddelmeyer & Wooden, 2011; D'Addio & Rosholm, 2005). We also consider the role of the firm size. Previous research suggests that firm-size may play an important role for job separations, because large firms are likely to have resources that allow them to cope with rapid changes in macroeconomic environment more easily and hoard labour (Carroll & Mayer, 1986; A. L. Kalleberg & Mastekaasa, 1998)). Some empirical studies suggest that employment in a large firm shelters workers from job loss, especially those with more limited individual resources (Gerber, 2002). We also incorporate information on the type of sector (private/public) where individuals are employed in, as jobs are also better protected in the public sector (Anghel, de la Rica, & Dolado, 2011; Clark & Postel-Vinay, 2009).

The gap in the risk of job loss can also be largely attributed to differences in the composition of young and prime-age workers related to workplace characteristics. One the one hand, young workers may sort into expanding occupations and industries, where new jobs are being created while prime age workers may instead be overrepresented in declining industries. On the other hand, young workers in Poland often start their working career with non-standard jobs, less well-paid jobs that often do not match their skills, and which are changed quickly. Hence, it is not evident a priori if the differences in the composition of young and prime-age workers are favourable for the former group.

We expect to find diverging benefits from allocation of young and prime age workers to the jobs in specific workplaces and in different occupations and industries. On the one hand, contraction of industries may make employers dismiss young and inexperienced workers in the first place. On the other hand, reductions among employees in certain occupations may be related to employers' expectations regarding further career prospects of employees. For example, employers may expect that young workers have a longer working horizon and are cheaper to fire, and hence favour this group in whenever job cuts are necessary. In other words, the structural influences may disproportionally raise young workers' risk of losing a job and this way contribute to the inequality of job stability between generations.

We define young age group as employees aged 18-29 and prime age workers are those aged 30-54, older workers are excluded from analysis in order to avoid the potential bias resulting from earlier labour market withdrawal to inactivity. As we study job separations we limit the sample to those who are working in the first period. We further limit it and include employees only, as both the helping family members and self-employed (especially those working in the agricultural sector) do not fall under a strict definition of workers and potential job losses (and do not allow us e.g. to include information on the type of contract they would have). Thus, our final sample amounts to approximately 350 000 observations. Table 1 presents the final sample's structure.

Table 1 Sample structure

	prime age	young
Women	49%	43%
Tertiary education	20%	20%
Secondary education	37%	43%
Vocational education	34%	30%
Lower education	9%	7%
Overeducated	15%	22%
Undereducated	13%	10%
No educational mismatch	72%	68%
Tenure : 3 years +	78%	39%
Fixed term contract	13%	33%
Part time workers	5%	8%
Public sector employment	53%	29%
Large firm (100+)	37%	27%
Medium firm (11 - 100)	37%	34%
Small firm (0-10)	26%	39%
Managers	6%	2%
Professionals	16%	12%
Technicians, associate professionals	15%	13%
Clerical support workers	9%	12%
Service and sales workers	9%	18%
Skilled agricultural, forestry and fishery workers	1%	1%
Craft and related trades workers	21%	24%
Plant and machine operators, and assemblers	12%	11%
Elementary occupations	11%	8%
Industry-specific layoffs	6.83	7.65
Industry-specific hirings	6.84	7.95

Source: Polish LFS data.

Men are slightly overrepresented in the group of young employees. There are no strong differences among young and prime age workers when it comes to the share of tertiary education. However, among prime age workers the proportion of individuals with vocational secondary education is larger whereas among younger employees general secondary education is more common. Consistently with findings of (Kiersztyn, 2012), young workers are more likely to be overeducated for the jobs they hold. They are also more than twice more likely to hold fixed term contracts. They also count more part timers, although in this respect the difference in structure of workers is not that remarkable. Prime age workers are overrepresented in large firms and in the public sector as well as in managing and professional positions. Finally, there are differences in the composition of young and prime age workers across industries with high/ low job separations and hiring - youth is clearly more likely to work in those sectors, where either job separations or job accessions are more common (or both coincide). It is rather intuitive that young people work more often in industries where many new jobs

are created. Intense job destruction in industries with higher proportion of young people may seem less clear, but in fact this may be related to the fact that some industries face high turnover or are more sensitive to macroeconomic changes and react more strongly by dismissing their workers, young workers may be relatively more likely to find jobs in such sectors than in sectors that undergo no changes at all.

4. Empirical findings

Logit models of job exit

We start our analysis with estimation of logit models where we examine the impact of a set of individual and structural characteristics on the individual risk of job loss among young and prime age workers. At this step we cannot compare the differences between the magnitudes of impact of these characteristics among the two groups (Allison, 1999; Mood, 2010), but still we can get some first impressions on factors that raise the overall risk of job separations. Table 2 summarizes these findings.

Table 2 Results from logit models of job loss risk

	Prime-age		**young**	
	b	se	b	se
Women	0.24***	0.02	0.56***	0.03
Tertiary education	-0.40***	0.05	-0.43***	0.06
Vocational education	0.19***	0.03	0.04	0.04
Primary education	0.51***	0.06	0.42***	0.09
Overeducated	0.03	0.04	-0.23***	0.04
Undereducated	0.09**	0.04	-0.08	0.07
Tenure : 3 years +	-0.71***	0.02	-0.51***	0.03
Fixed term contract	0.61***	0.02	0.58***	0.03
Part time workers	0.35***	0.03	0.47***	0.04
Public sector employment	0.04*	0.02	0.16***	0.03
Large firm (100+)	-0.11***	0.02	-0.25***	0.03
Small firm (0-10)	0.05**	0.02	0.12***	0.03
Managers	0.02	-0.07	-0.22	0.14
Technicians, associate professionals	0.23***	-0.06	0.31***	0.08
Clerical support workers	0.37***	-0.06	0.63***	0.08
Service and sales workers	0.36***	-0.06	0.61***	0.08
Skilled agricultural, forestry and fishery workers	0.27**	-0.11	0.57***	0.09
Craft and related trades workers	0.48***	-0.07	0.70***	0.10
Plant and machine operators, and assemblers	0.31***	-0.07	0.51***	0.09
Elementary occupations	0.53***	-0.07	0.94***	
Industry-specific layoffs	0.10***	0.00	0.10***	0.00
Industry-specific hirings	-0.02***	0.00	-0.03***	0.00
Constant	-3.78***	0.07	-3.70***	0.09
Log likelihood	-49061.1		-25785.5	
N	262 485		87 614	

Source: Polish LFS data. Reference group: Men with secondary education, jobs with no mismatch, tenure shorter than 3 years, in permanent full time jobs in the private sector, medium sized firms (10-100 workers), in professional occupations.

First we discuss the role of individual characteristics, with special attention paid to the various measures of job-related skills. Women have higher risk of job separation than men. Not surprisingly, tertiary education decreases the risk of job loss as compared to secondary education. At the same time, vocational education raises the risk of job loss among prime age workers but - somewhat surprisingly – seems to have no significant effect among youth (as compared to secondary education). Obviously, people with primary education have the highest risk of exit from employment. Interestingly, it is not only the level of education that matters, but also the quality of match between attained education and the job that an employee has. Young people, whose qualifications are above the educational standard in a specific occupation, are less likely to exit employment. It is difficult to even speculate about this very specific pattern, but it corroborates the results of (Kiersztyn, 2012) on the persistence of overeducation among young people. This factor is not relevant for prime age workers, who in turn are more likely to exit jobs if they are undereducated. Consistently with previous research on the role of working experience for labour market chances, employees with longer tenure are significantly less likely to lose their jobs.

While the above discussed results demonstrate that the level and type of skills clearly matters for employment stability, we were particularly interested in more in-depth insight into the role of characteristics of jobs. In line with the literature of precariousness of flexible employment forms (Kalleberg, 2009), fixed term contracts and part time work raise the risk of exiting employment. Interestingly, so does employment in the public sector, which in most counties is regarded as a relatively more secure labour market segment (Anghel et al., 2011; Clark & Postel-Vinay, 2009). In the Polish context, as explained in Section 2, the pattern of increased risk of job loss among employees in public sector may be related to the jobs reallocation from the public to the private sector. Very interesting results are revealed when it comes to the firm size. Job separations are less likely to occur among workers in large firms and more likely to take place in the small firms. It could be that larger companies have more resources to retain workers under adverse macroeconomic conditions, whereas small and medium companies need to react to decreasing sales more flexibly and cannot afford labour hoarding.

Regarding the role of the occupational groups, having a job in a category of either managers or professionals is associated with the lowest risk of job separation. All other categories of occupations are associated with higher risk of exit from employment. According to our results, industry-specific job destruction raises individual-level risk of job layoff, whereas job creation rates decrease it.

Decomposition of the risk of job separation

In the next step, we decompose the logit models' results, with the aim of assessing to what extent the gap in the job separation rates among young and prime aged workers can be attributed to the differences in the composition of these two groups and to what extent they are accounted for by different returns to the characteristics of these two groups in terms of employment stability.

Overall, the raw difference in the risk of job loss among the young and prime age workers (0.046) is accounted for slightly more by differences in composition of workers regarding their individual and workplace characteristics (0.026) than by differences in the returns to these characteristics in terms of employment security (0.019). In other words, almost 60% of the gap in the risk of job loss between young and prime age workers can be explained by the fact that young workers have different type of education, less experience and tend to be employed in different jobs than prime age employees. At

the same time, 40% of the gap can be attributed to the fact that youth education, experience and certain characteristics of jobs offer relatively lower employment stability to young than to prime age workers.

Looking at the firm perspective, which is our main interest, it turns out that workplace determinants account for over 60% of the difference in the risk of job loss (among youth and prime age workers) that is due to endowments. In other words, almost 40% of that total difference results from the fact that youth is more likely to be employed in jobs with higher probability of job loss. At the same time, the contribution of ”returns" to workplace characteristics is marginal- and negative, showing that these are in fact prime age workers who, from an individual perspective, are more likely to be disadvantaged at firm level and have less job-related employment security.

We discuss the above findings in detail below. According to the general results of our decomposition, both components of the gap in job separation risk: composition of young and prime age workers and differential effects of their characteristics play an important role. We provide the results from this decomposition in Table 4 and 5.

Table 3 Decomposition of job loss risk - summary

	Coef.	**Std. Err.**	**P>|z|**
Endowments	**0.027**	**0.001**	**0.000**
Individual	0.010	0.001	0.000
Firm-level	0.017	0.001	0.000
Coefficients	**0.019**	**0.001**	**0.000**
Individual	0.013	0.001	0.000
Firm-level	-0.003	0.001	0.000
constant	0.009	0.001	0.000
Raw	**0.046**	**0.001**	**0.000**

Source: Polish LFS data.

Table 4 presents more detailed results of the decomposition referring specifically to the role of differences in the composition of young and prime age workers with respect to their individual characteristics and characteristics of their workplaces for the risk of job separation. Positive coefficients displayed in this table indicate that a given factor raises the gap in the risk of job separation between young people and prime age workers due to higher propensity of the former group to have characteristics (or workplaces with characteristics) that elevate the probability of exit from employment.

The differences in the gender composition of both age groups of workers decrease the gap in risk of job separation, because women are underrepresented among younger employees and as we have previously shown, being a women is associated with higher risk of job separation. We find no large impact of the composition with respect to educational attainment on the overall gap in the risk of job loss between young and prime-age workers. Only the smaller share of those with the lowest levels of education among youth slightly decreases the gap. Furthermore, the fact that youth are more likely to be overeducated combined with the overall low risk of job separation among overeducated

workers, decreases the gap in the job loss risk among prime age and young workers. In turn, the difference in the composition of young and prime age workers with respect to tenure is an important reason for youth labour market disadvantage. Unsurprisingly, this seems to be the most important factor that drives the gap in the job loss risk when it comes to differences in the composition of young and prime age workers. It accounts for more than half of the influence of the contribution of compositional differences (and one third of the total difference in the raw gap in the job loss risk between youth and prime age workers).

Regarding workplace characteristics, the differences in the composition of employment of young and prime age workers with respect to type of contracts (fixed term versus permanent) plays a very important role. It is actually the second most important "compositional" factor. Youth are more often employed within fixed term contracts, which – as we have shown - are associated with substantially higher risk of exit from employment. The differential distribution of jobs by type of contracts in the group of young and prime age workers explains about 20% of the total gap. Regarding another "atypical" employment form, i.e. part time work, again, prime age workers are at more advantaged position. They are more likely to be working full time which decreases their overall risk of job loss, and this compositional difference contributes to the gap in the risk of job separation between youth and prime age workers. The contribution of differences in composition regarding working time is much smaller than differential propensity to have fixed term contracts.

Finally, the distribution of young and prime aged workers across firms with different size matters for the overall gap in job loss risk as well. Young workers are overrepresented in smaller firms and this places them at disadvantage because large firms seem to dismiss workers less often. Differences in the occupational structure between the young and prime age workers account for a very low share of the overall gap in the risk of job loss. The structure across industries seems to play a much more important role. Youth are much more likely to work in sectors where both high job creation and job destruction can be observed, but it seems that the effect of job destruction prevails over the advantages of higher job creation.

Table 4 Decomposition of the job loss risk: the effects of differences in composition of workers.

	Coef.	Std. Err.	P>|z|
Men	-0.001	0.000	0.000
Women	-0.001	0.000	0.000
Tertiary education	0.000	0.000	0.000
Secondary education	0.000	0.000	0.858
Vocational education	0.000	0.000	0.219
Lower education	-0.001	0.000	0.000
No mismatch	0.000	0.000	0.000
Overeducated	-0.001	0.000	0.001
Undereductaed	0.000	0.000	0.442
Tenure 3+	0.014	0.001	0.000
Fixed term contract	0.009	0.000	0.000
Part time workers	0.001	0.000	0.000
Public sector employment	-0.003	0.001	0.000
Large firm (100+)	0.001	0.000	0.000
Medium firm (11 - 100)	0.000	0.000	0.013

Small firm (0-10)	0.002	0.000	0.000
Managers	0.002	0.000	0.000
Professionals	0.001	0.000	0.000
Technicians, associate professionals	0.000	0.000	0.002
Clerical support workers	0.000	0.000	0.000
Service and sales workers	0.001	0.000	0.000
Skilled agricultural, forestry and fishery workers	0.000	0.000	0.318
Craft and related trades workers	0.000	0.000	0.000
Plant and machine operators, and assemblers	0.000	0.000	0.188
Elementary occupations	-0.001	0.000	0.000
Industry-specific layoffs	0.006	0.000	0.000
Industry-specific hirings	-0.002	0.000	0.000

Source: Polish LFS data.

The second part of results from decomposition shows whether there are any differences in returns to individual or workplace characteristics in terms of lowering the gap in job loss between young and prime age workers. These detailed results are presented in Table 5. Positive coefficients displayed in this table mean that a given factor raises the gap in the risk of job separation between young people and prime age workers due to lower return in terms of job security among youth.

According to our findings, young men clearly have a lower risk of job exit than their prime age colleagues, but female workers are more exposed to the risk of job loss if they are young. This could be attributed to voluntary job exits after childbearing, but it could be also related to discriminatory practices of employers against women in childbearing age[3].

Differential effects of tertiary and secondary education seem to slightly raise the gap in the job loss risk. However, the impact of the differences in the returns to education for the overall gap in job loss risk is rather small and not significant. Thus, it appears that education has the same return for young and prime age workers when it comes to protection against job separation. This contrasts the commonly expressed concerns about declining quality of education and decreasing value of educational credentials (Hildebrandt-Wypych, 2012). Interestingly, consistently with what could be inferred from logit models presented earlier in this section, it seems while vocational education is associated with raised risk of job separation among prime age workers, it does not have such a negative effect on job stability of youth. This difference in the effects of vocational education decreases the gap in overall risk of job separation between young people and prime age workers. One of the potential explanations is related to the fact that the expansion of tertiary education was related to a shift from vocational education to general secondary education (the latter being a port of entry to the universities, see Kogan 2008), leading to a decline in the number of graduates from vocational schools. As there are relatively few labour market entrants with this type of education, they might enjoy relatively better labour market opportunities.

Another interesting finding concerns the role of over- and undereducation. Overeducation translates into a relatively lower risk of job separation for younger workers as compared to the prime aged group. We can only speculate about the underlying reasons: it could be related to crowding out of

[3] Unfortunately, more in-depth inquiry regarding the role of childbearing is not possible here because the variables identifying mothers and their children in household grid are available in PLFS only starting from 2005.

workers with lower qualifications by workers with better degrees (Pollmann-Schult, 2005; Teulings & Koopmanschap, 1989). Regarding undereducation, while the logit models presented earlier suggested that prime age workers are more likely to exit jobs if they have skills that are lower than required in the given job, these differential returns to undereducation do not account for a large part of the gap in the job separation risk and their impact turns out to be non-significant.

Interestingly, when it comes to differences in returns to individual level characteristics in terms of decreasing the risk of job separation, again the most important factor is job tenure. According to our findings, tenure protects workers against job loss differently: it has much stronger positive impact on job security among prime age workers than for young workers. Hence, it does not seem that the tenure accumulated among prime age workers mostly during socialist times has a lower value in the market economy. It remains to be investigated in more detail why job-related experience does not decrease the risk of job loss to the same extent among young people as among prime age workers. We can only speculate that the experience gained via precarious job positions such as fixed-term contracts or jobs with requirements that go beyond individual skills may be less beneficial. Given that youth often end up in jobs of this kind, it could explain their lower returns from such job experience in terms of employment stability.

Holding a fixed term contract implies the same risk of exiting employment in case of prime age and young workers. Hence, while fixed term contracts in general mean a raised risk of exit out of employment, it's not the case that they have a differential impact on job stability among prime age workers and youth. The same applies to part time work.

Sector of ownership of enterprises, which was quite relevant from a compositional perspective, contributes also to the gap in the job loss risk among workers: it seems that being employed in public firms means higher job stability for prime-age workers but not necessarily so for young workers. It seems that public companies apply differential human resources strategies depending on employees' age. A different picture emerges when we look at the impact of size of the firms: large firms seem to be more likely to retain young workers rather than prime age ones. While young people are more likely to find jobs in small and medium enterprises, these are actually larger firms that may offer them higher employment stability.

An interesting pattern emerges when we compare the differences of the job separation rates across occupations. The jobs in occupation groups such as managers and professionals seem to provide relatively more employment stability for young people than for prime age workers. Elementary occupations in turn seem to offer relatively higher employment stability for prime age workers. There are no statistically significant differences among the young and prime age workers in the risk of job separation related to the intensity of industry-specific job destruction. The impact of job creation indicates in turn that young workers are less likely to lose jobs in the sectors that have the highest rates of job creation. This suggests that employers may be more willing to retain them knowing that it may be more difficult to find new employees.

Table 5 Decomposition of job loss risk: the effects of differences in the coefficients of workers' and workplaces' characteristics.

	Coef.	Std. Err.	P>|z|
Men	-0.004	0.001	0.000
Women	0.004	0.001	0.000
Tertiary education	0.001	0.001	0.496
Secondary education	0.001	0.001	0.038
Vocational education	-0.001	0.001	0.039
Lower education	0.000	0.000	0.580
No mismatch	0.005	0.001	0.000
Overeducated	-0.001	0.000	0.013
Undereducated	0.000	0.000	0.893
Tenure 3+	0.009	0.002	0.000
Fixed term contract	0.000	0.000	0.335
Part time workers	0.000	0.000	0.018
Public sector employment	0.003	0.001	0.002
Large firm (100+)	-0.002	0.001	0.000
Medium firm (11 - 100)	0.000	0.000	0.277
Small firm (0-10)	0.001	0.000	0.000
Managers	-0.001	0.000	0.003
Professionals	-0.001	0.001	0.067
Technicians, associate professionals	-0.001	0.000	0.127
Clerical support workers	0.000	0.000	0.055
Service and sales workers	0.000	0.000	0.062
Skilled agricultural, forestry and fishery workers	0.000	0.000	0.340
Craft and related trades workers	0.001	0.001	0.271
Plant and machine operators, and assemblers	0.000	0.000	0.481
Elementary occupations	0.002	0.000	0.000
Industry-specific layoffs	-0.002	0.002	0.279
Industry-specific hirings	-0.004	0.002	0.042
Constant	0.009	0.003	0.008

Source: Polish LFS data.

5. Conclusions and policy implications

The recent economic crisis led to soaring youth unemployment rates, far above those observed for the prime age workers, bringing back questions on the reasons behind this age disparity in labour market outcomes. Thus, the issue of youth unemployment is again on top of the policy agenda. The proper, well designed identification of the factors driving the inequality in the risk of job loss is crucial for the design of an adequate policy response. In this paper we aimed at identifying the factors behind the gap in the risk of job loss between the young and prime aged workers. In

particular, our objective was to disentangle the effects of differences in the composition of young and prime age workers with respect to their individual and job characteristics from the impact of their different risks of job loss associated with those endowments. According to our results, both the differences in the composition of young and prime age workers and differences in the returns to these characteristics in terms of employment stability contribute - to similar extent - to the gap between young and prime age workers.

Regarding characteristics related to individual human capital endowments, we find that – in contrary to anecdotal evidence – neither differences in distribution nor differential effects of education attainment place young people at disadvantage. Despite expansion of tertiary education, we do not find that young people with tertiary education diploma have lower returns to their credentials, at least when it comes to returns measured in terms of employment stability. At the same time, we find that tenure plays a very important role for the gap in the risk of job separation between young and prime age workers. First of all, as it could be expected, young people are at higher risk of losing their job because they are less experienced on average. Second, the returns to tenure in terms of employment stability are lower among young people than among prime age workers. In our view more in depth investigation is needed in order to understand why job-related experience does not translate into higher employment stability among youth to the same extent as among prime age workers. Our working hypothesis is related to the types of jobs that young people tend to get on the Polish labour market: we find that young people have higher propensity to have jobs for which they are overeducated and they also relatively more often work under fixed-term contracts that are often associated with lower opportunities for accumulation of job-specific capital (Cutuli & Guetto, 2013).

Regarding the role of workplace characteristics or macro-level structural changes, we find that overall they actually favour young employees instead of making them disadvantaged. Indeed, young people are likely to become temporary workers (rather than to be offered permanent contracts), they tend to find jobs in more volatile, smaller enterprises, in private sector that reacts more strongly to changing economic conditions as compared to public sector, and in industries with high rates of job turnover. This specific allocation of young workers to jobs makes them more likely to lose jobs as compared to prime age workers. However, we find that job positions such as fixed term contracts do not seem to be “traps” for labour market entrants. Large enterprises – once they employ young workers – tend to offer them more employment stability than to prime age workers. Finally, there are no statistically significant differences among the young and prime age workers in the risk of job loss related to the intensity of job destruction in the sectors they work in.

Moreover, the long term structural changes on the Polish labour market such as a shift from public towards private sector is likely to bring further improvement for young workers’ labour market chances. We found that public sector offers jobs for youth less often than the private sector and it appears to introduce age inequality in the job dismissal procedures. However, its role in the overall employment on the Polish labour market diminishes.

Differences in the composition of workplace characteristics between youth and prime aged workers explain a considerable share of the overall gap in the risk of jobs loss, because young people tend to find jobs that are associated with higher risk of job security. At the same time, overall, the differential effects of workplace characteristics close rather than raise the gap in job security between young and

prime age workers. In other words, the jobs that are "on average" precarious, do less harm or provide more benefits to youth.

What requires further research is the interplay between access to knowledge intensive jobs for young people and their employment stability in these jobs. We can observe that the changes in the structure of jobs on the Polish labour market follow the direction implied by the technological change, with increases in the proportion of jobs that require high qualifications. An the same time, it seems that for some reasons young people face barriers in access to these jobs and they tend to find themselves in jobs for which they are overeducated. Combined with our finding of surprisingly low risk of job separation among overeducated youth, it gives an impression of overcrowding processes on the Polish labour market. Definitely, this issue requires more attention in further research.

These findings offer new hints and recommendations for the public policy targeted at young people. Firstly, we evidence the crucial role of job experience for lowering the risk of job exit, thus policies helping to accumulate this experience should be supported with great priority. Secondly, fixed term contracts do not disadvantage youth with regard to labour market chances (while they might help them to gain the crucial job experience). Therefore, actions aimed at limiting access to these jobs might from this perspective do more harm than good. Finally, there is the question of regulatory framework regarding the access to jobs with high educational requirements which calls for more evidence-based policy discussions, allowing judging to what extent is this access overregulated, hindering youth job prospects and protecting experienced insiders.

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References

Aghion, Philippe, & Blanchard, Olivier J. (1994). On the speed of transition in Central Europe *NBER Macroeconomics Annual 1994, Volume 9* (pp. 283-330): MIT Press.

Allison, Paul D. (1999). Comparing logit and probit coefficients across groups. *Sociological Methods & Research, 28*(2), 186-208.

Anghel, Brindusa, de la Rica, Sara, & Dolado, Juan J. (2011). The Effect of Public Sector Employment on Women's Labour Market Outcomes.

Baranowska-Rataj, Anna, & Magda, Iga. (2013). Decomposition of trends in youth unemployment– the role of job accessions and separations in countries with different employment protection regimes *Institute of Statistics and Demography* (Vol. 26). Warsaw: Warsaw School of Economics.

Baranowska-Rataj, Anna, & Unt, Marge. (2012). Is it worth becoming an engineer in Central and Eastern Europe? The evidence from Poland and Estonia. *European sociological review, 28*(6), 717-728.

Blossfeld, Hans-Peter, & Mayer, Karl Ulrich. (1988). Labor market segmentation in the Federal Republic of Germany: An empirical study of segmentation theories from a life course perspective. *European Sociological Review, 4*(2), 123-140.

Breen, Richard. (1992). Job changing and job loss in the Irish youth labour-market: a test of a general model. *European Sociological Review, 8*(2), 113-125.

Buddelmeyer, Hielke, & Wooden, Mark. (2011). Transitions Out of Casual Employment: The Australian Experience. *Industrial Relations: A Journal of Economy and Society, 50*(1), 109-130. doi: 10.1111/j.1468-232X.2010.00627.x

Cao, Yang, & Nee, Victor G. (2000). Comment: Controversies and evidence in the market transition debate. *The American Journal of Sociology, 105*(4), 1175-1189.

Carroll, Glenn R, & Mayer, Karl Ulrich. (1986). Job-shift patterns in the Federal Republic of Germany: The effects of social class, industrial sector, and organizational size. *American Sociological Review*, 323-341.

Clark, Andrew, & Postel-Vinay, Fabien. (2009). Job security and job protection. *Oxford Economic Papers, 61*(2), 207-239.

Clarke, Simon. (2002). Market and institutional determinants of wage differentiation in Russia. *Industrial and Labor Relations Review*, 628-648.

Cutuli, Giorgio, & Guetto, Raffaele. (2013). Fixed-Term Contracts, Economic Conjuncture, and Training Opportunities: A Comparative Analysis Across European Labour Markets. *European Sociological Review, 29*(3), 616-629.

D'Addio, Anna Cristina, & Rosholm, Michael. (2005). Exits from temporary jobs in Europe: a competing risks analysis. *Labour Economics, 12*(4), 449-468.

DiPrete, Thomas A., & Nonnemaker, K. Lynn. (1997). Structural Change, Labor Market Turbulence, and Labor Market Outcomes. *American Sociological Review, 62*(3), 386-404. doi: 10.2307/2657312

Faggio, Giulia, & Konings, Jozef. (2003). Job creation, job destruction and employment growth in transition countries in the 90s. *Economic Systems, 27*(2), 129-154.

Gerber, Theodore P. (2002). Structural change and post-socialist stratification: Labor market transitions in contemporary Russia. *American Sociological Review*, 629-659.

Gerber, Theodore P. (2006). Getting Paid: Wage Arrears and Stratification in Russia. *American Journal of Sociology, 111*(6), 1816-1870.

Gerber, Theodore P. (2012). The structural perspective on postsocialist inequality: Job loss in Russia. *Research in Social Stratification and Mobility, 30*(1), 17-31.

Gerber, Theodore P, & Hout, Michael. (1998). More Shock than Therapy: Market Transition, Employment, and Income in Russia, 1991-1995. *American Journal of Sociology, 104*(1), AJSv104p101-150.

Gregg, Paul, & Tominey, Emma. (2005). The wage scar from male youth unemployment. *Labour Economics, 12*(4), 487-509.

Hartog, Joop. (2000). Over-Education and Earnings: Where Are We, Where Should We Go? *Economics of Education Review, 19 2*, 131-147.

Hildebrandt-Wypych, Dobrochna. (2012). Post-Secondary Schools and the Expansion of Higher Education in Poland–Post-Secondary Vocational Education in Crisis? *International Perspectives on Education and Society, 17*, 129-152.

Ivančič, Angela. (2000). Education and shifts between labour-market states in the transition from the socialist to the market economy: The Slovenian case. *European Sociological Review, 16*(4), 403-425.

Jackson, John E, & Mach, Bogdan W. (2009). Job creation, job destruction, labour mobility and wages in Poland, 1988–19981. *Economics of Transition, 17*(3), 503-530.

Kalleberg. (2009). Precarious Work, Insecure Workers: Employment Relations in Transition. *American Sociological Review, 74*(1), 1-22. doi: 10.1177/000312240907400101

Kalleberg, Arne L, & Mastekaasa, Arne. (1998). Organizational size, layoffs, and quits in Norway. *Social Forces, 76*(4), 1243-1273.

Kiersztyn, Anna. (2012). Stuck in a mismatch? The persistence of overeducation during twenty years of the post-communist transition in Poland. *Economics of Education Review*.

Kogan, Irena. (2008). Education systems of Central and Eastern European countries. *Europe enlarged: A handbook of education, labour and welfare regimes in Central and Eastern Europe*, 7-34.

Kwiatkowski, Eugeniusz, Socha, Mieczyslaw W, & Sztanderska, Urszula. (2001). *Labour market flexibility and employment security: Poland*: ILO Geneva.
Lokshin, Michael, & Ravallion, Martin. (2000). Welfare impacts of the 1998 financial crisis in Russia and the response of the public safety net. *Economics of Transition, 8*(2), 269-295.
McCall, Brian P. (1990). Occupational matching: A test of sorts. *Journal of Political Economy*, 45-69.
McGuinness, Seamus, & Wooden, Mark. (2009). Overskilling, job insecurity, and career mobility. *Industrial Relations: A Journal of Economy and Society, 48*(2), 265-286.
Mincer, Jacob. (1991). Education and unemployment: National Bureau of Economic Research.
Mood, Carina. (2010). Logistic regression: Why we cannot do what we think we can do, and what we can do about it. *European Sociological Review, 26*(1), 67-82.
Newell, Andrew, & Socha, Mieczyslaw W. (2007). The Polish wage inequality explosion1. *Economics of Transition, 15*(4), 733-758.
Oaxaca, Ronald L, & Ransom, Michael R. (1999). Identification in detailed wage decompositions. *Review of Economics and Statistics, 81*(1), 154-157.
Pollmann-Schult, Matthias. (2005). Crowding-out of unskilled workers in the business cycle: Evidence from West Germany. *European Sociological Review, 21*(5), 467-480.
Powers, Daniel A, Yoshioka, Hirotoshi, & Yun, Myeong-Su. (2011). mvdcmp: Multivariate decomposition for nonlinear response models. *Stata Journal, 11*(4), 556-576.
Reimer, David, Noelke, Clemens, & Kucel, Aleksander. (2008). Labor Market Effects of Field of Study in Comparative Perspective An Analysis of 22 European Countries. *International Journal of Comparative Sociology, 49*(4-5), 233-256.
Rutkowski, Jan J. (2002). *Job Creation and Job Destruction in Poland (1993-1999)*: National Bank of Poland.
Scarpetta, Stefano, Sonnet, Anne, & Manfredi, Thomas. (2010). Rising youth unemployment during the crisis. *OECD Social, Employment, and Migration working papers, Paris, 106*, 1-27.
Shavit, Yossi, & Müller, Walter. (1998). *From school to work*: Clarendon Press Oxford.
Shin, Taek-Jin. (2007). The impact of structural dynamics on job mobility rates in the United States. *Social Science Research, 36*(4), 1301-1327.
Sicherman, Nachum. (1991). " Overeducation" in the Labor Market. *Journal of labor Economics*, 101-122.
Stewart, Mark B. (2007). The interrelated dynamics of unemployment and low-wage employment. *Journal of Applied Econometrics, 22*(3), 511-531.
Szafraniec, Krystyna, Boni, Michał, & Arak, Piotr. (2011). *Młodzi 2011*: Kancelaria Premiera.
Sztanderska, U. (2008). Kierunki zamawiane z perspektywy rynku pracy. *Warszawa: Uniwersytet Warszawski, Wydzial Nauk Ekonomicznych*.
Teulings, Coen, & Koopmanschap, Marc. (1989). An econometric model of crowding out of lower education levels. *European Economic Review, 33*(8), 1653-1664.
Uunk, Wilfred, Mach, Bogdan W., & Mayer, Karl Ulrich. (2005). Job Mobility in the Former East and West Germany: The Effects of State-Socialism and Labor Market Composition. *European Sociological Review, 21*(4), 393-408. doi: 10.1093/esr/jci027
Weiss, Andrew. (1984). Determinants of Quit Behavior. *Journal of Labor Economics, 2*(3), 371-387. doi: 10.2307/2534947
Venn, Danielle. (2009). *Legislation, collective bargaining and enforcement: Updating the OECD employment protection indicators*: OECD.
Woo, Wing Thye. (1994). The art of reforming centrally planned economies: Comparing China, Poland, and Russia. *Journal of Comparative Economics, 18*(3), 276-308.
Wu, Xiaogang, & Xie, Yu. (2003). Does the market pay off? Earnings returns to education in urban China. *American Sociological Review, 68*(3), 425-442.
Yun, Myeong-Su. (2005). A simple solution to the identification problem in detailed wage decompositions. *Economic Inquiry, 43*(4), 766-772.
Zhou, Xueguang. (2000). Economic transformation and income inequality in urban China: Evidence from panel data. *American Journal of Sociology*, 1135-1174.

Zhou, Xueguang, Tuma, Nancy Brandon, & Moen, Phyllis. (1997). Institutional change and job-shift patterns in urban China, 1949 to 1994. *American Sociological Review*, 339-365.