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Inequality in the risk of job loss between young and prime-age workers: Can it be explained by human capital or structural factors?

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Abstract

In this paper we identify the determinants of the gap in job stability between young and prime-age workers. Using recently developed decomposition techniques and the panel dimension of data from the Polish Labor Force Survey, we examine to what extent age heterogeneity in job stability is shaped by differences in the composition of young and prime-age workers with respect to individual and job-related characteristics, and to what extent it is driven by different effects of those characteristics on the risk of job separation.

Our results show that while differences in education and experience between young and prime-age workers are important, these differences explain only one-third of the gap in job stability. A substantial part of the gap is related to the propensity of young people to work in the most volatile segments of the labor market. Young workers are more likely than prime-age workers to work under a fixed-term contract in a small firm in the private sector, and in an industry that has high rates of both job creation and destruction. Because large numbers of young people have a job in this relatively narrow segment of the labor market, their employment opportunities are very sensitive to changing economic conditions. We also find that the public sector offers prime-age workers a higher level of employment protection than the private sector, but that young people who work at state-owned firms are at higher risk of losing their job than their counterparts who are employed by private firms. This asymmetric effect of public sector employment substantially increases the gap in job stability levels between young and prime-age workers in Poland.

Keywords: youth; job stability; job separations; structural perspective

JEL: J21, J24, J63

CONTENTS

I. Background and research objectives

The aim of this paper is to identify the factors that drive the inequalities in the risk of job loss among young and prime-age workers, and to quantify the magnitude of their impact. Having difficulties at the very start of his or her employment career may have a scarring effect on a worker's career prospects later in life (Gregg and Tominey 2005; Stewart 2007; Luijkx and Wolbers 2009; Mroz and Savage 2006), cause a deterioration in health (Álvaro and Garrido 2003), and lead to the postponement of important life course decisions (Mills and Blossfeld 2005). Thus, it is crucial that we examine the mechanisms behind the youth labor market disadvantage.

Previous research on labor market inequalities has been strongly focused on the role of skills, experience, and access to social networks (Cao and Nee 2000; Wu and Xie 2003; Zhou 2000). However, recent studies have argued that the characteristics of the firm and industry that are offering the job may have an even stronger influence on an individual's employment chances than his or her human or social capital (DiPrete and Nonnemaker 1997; Gerber 2002, 2012; Gerber and Hout 1998; Shin 2007; Zhou et al. 1997). Especially in countries undergoing massive structural changes, such as a transition from a centrally planned to a market economy, a worker's employment opportunities may be determined above all by the specific situation of his or her employer, including the company's size, ownership sector, and industry. In this study, we build on this strand of research, emphasizing the role of factors pertaining to firms and industries as key determinants of employment career dynamics. We seek to determine what portion of the gap in employment stability between young and prime-age workers can be explained by the differences in their skills and experience, and we compare the effects of those factors to the effects of workplace characteristics and of macro-level structural changes. Moreover, we look at the question of whether individual and workplace characteristics and macro-level structural changes protect young and prime-age workers to varying degrees.

We use data for Poland, a country that recently shifted from having a centrally planned to having a market economy. This transition led to a rapid reallocation of labor across occupations, economic sectors, and industries. These dynamic changes make Poland a very good laboratory for conducting research on the mechanisms through which structural factors affect individual opportunities and risks. Many problems that could be observed in other countries of the former Soviet bloc—such as overregulation, corruption, nepotism, and the shadow economy—have been alleviated in Poland through reforms. Nevertheless, the Polish labor market still faces a number of challenges, especially when it comes to the level of youth unemployment, which remains quite high relative to the levels in other European countries (Scarpetta et al. 2010). While the chances of moving from unemployment to employment were higher among young people than among prime-age workers over the whole period of transition from a centrally planned to a market economy, job stability was lower among young people (Baranowska-Rataj and Magda 2013). Hence, the risk of losing employment becoming unemployed is one of the key dimensions of the youth labor market disadvantage in this country.

The contribution of our study to the literature is threefold. First, we provide evidence on the role of the characteristics of jobs for youth employment stability. Second, we show how the recently developed analytical methods can be applied to examine labor market inequalities and to understand the sources of the disadvantages observed among young people. Specifically, we compare young people with the group of workers who have the most favorable labor market opportunities in order to disentangle whether the types of jobs that young people are most likely to find affect their employment stability, and whether the types of jobs that offer high levels of employment stability for prime-age workers have a similar shielding effect for young people. Finally, we provide evidence of how the importance of structural factors varied over the transformation period, highlighting their differing intensities in the business cycle.

II. THEORETICAL BACKGROUND

The youth labor market disadvantage can be attributed to large degree to the limited job-related skills and experience of young people. Moreover, because they have little or no work experience, members of this group tend to have limited social networks that could be helpful in maintaining a job or finding a new one. Finally, because the first job a young person finds after graduation often does not match his or her preferences and qualifications, the individual's early labor market career is often a period of trial and error, which may not produce a good worker-job match until after some time has passed (Wolbers 2003; Gesthuizen and Dagevos 2008).

While there is a large body of literature on youth labor market integration that discusses the role of individual resources in employment chances, less attention has been paid to the characteristics of these jobs and their location in specific industries and sectors of the economy. According to the structural perspective, the shifts in the allocation of resources across different economic sectors, the expansion or the contraction of particular industries, and the classes of occupations may actually have more pronounced effects on an individual's career than his or her skills or social networks (Gerber 2002, 2012; Kye 2008; DiPrete and Nonnemaker 1997). We build on this theoretical framework, but assume that the structural factors may affect labor market careers in a different way (Baron and Bielby 1980).

In order to gain a more in-depth understanding of the reasons why young people are disadvantaged in the labor market, we consider two main explanations for the divergence in levels of employment stability. First, young people may be more likely than prime-age workers to have the kinds of jobs that have high levels of turnover. Hence, the fact that young and prime-age workers tend to have different types of jobs may explain the gap in employment stability. Second, the same types of jobs may offer lower levels of employment protection to young workers than they do to the more advantaged group of prime-age workers.

For example, jobs with fixed-term contracts are associated with lower employment stability because they have a predefined date at which they terminate. Empirical research has

shown that workers who have been employed under fixed-term contracts have more interruptions in their working histories than workers on permanent contracts (D'Addio and Rosholm 2005; Gagliarducci 2005). In virtually all European countries, including in Poland, young workers are more likely than prime-age workers to be employed under a fixed-term rather than a permanent contract (Baranowska and Gebel 2010). Hence, the fact that young and prime-age workers tend to be employed under different types of employment contracts could explain a large part of the overall gap in employment stability between the two groups. However, working under a fixed-term contract may also have different effects on younger and older workers. On the one hand, being employed under a fixed-term contract may do greater damage to the labor market chances of young people, as they have shorter working careers and are therefore more sensitive to the potentially scarring effect of precarious employment than older workers. On the other hand, it is possible that potential employers are less likely to view these arrangements negatively if a job candidate is young because fixed-term and part-time forms of employment are common among students and recent graduates. Therefore, these arrangements may be less stigmatizing for young people. By contrast, working under a non-standard employment contract may be interpreted as a sign of failure for a prime-age worker.

Employment stability may be related not only to the terms of the contract that regulate the employment relationship, but also to the economic sector of the employer. The ownership structure of the employer may affect stability, as the public sector offers stronger employment protection than private companies (Anghel et al. 2011; Clark and Postel-Vinay 2009; Bandelj and Mahutga 2010). State-owned companies have fewer budget constraints, because even if they fail to remain profitable, the state usually subsidizes their economic activity. The question is whether this protection offered by the public sector covers all employees. It may be expected that state-owned enterprises—which are not strongly oriented toward maximizing profits and retaining the most efficient and best qualified workers—give preferences to employees with longer tenures and stronger network ties, rather than to young people who are new to the organization. Collective bargaining power also tends to be stronger among prime-age workers

than among young people, which may contribute to the more favorable position of older workers in the public sector (Ebbinghaus 2002).

The size of the employer may also play an important role in employment stability, as small, medium, and large companies differ in terms of the resources they have available to adapt to rapid changes in the macroeconomic environment (Baron and Bielby 1984; Carroll and Mayer 1986; A. L. Kalleberg and Mastekaasa 1998; Gerber 2002). Large companies are usually in a better position than smaller companies to weather changes due to their local monopoly power, economies of scale, and lower barriers to obtaining credit (Hollister 2004). Larger companies also find it more costly to lay off workers, mainly because of collective dismissal regulations. They are therefore less sensitive to shrinking demand, and are less likely to eliminate jobs if sales go down. Indeed, theoretical and empirical studies have found that large firms make up the "core" part of the dual labor markets (Kalleberg and Van Buren 1996; Granovetter 1984). Little is known, however, about whether the resources that large firms have at their disposal are allocated equally across all groups of workers.

Personnel policies adopted by employers may also differ along the occupational dimension. The jobs located at the top of the organizational ladder often require accumulated firm-specific experience and on-the-job training, which means that replacing an employee who holds such a job is difficult. Lower ranked jobs which do not require the worker to have firm-specific knowledge and skills are easier to fill. Therefore, employers may seek to retain employees in higher ranked occupations, and to replace those in lower ranked occupations (Hachen 1992; Pfeffer and Cohen 1984). Under adverse economic conditions, firms may lay off workers in low-skilled jobs, while retaining employees in managerial or professional jobs.

Recent research has also emphasized the role of industry-level changes (DiPrete and Nonnemaker 1997; Gerber 2012; Shin 2007). Massive job destruction raises the risk of job loss, and a high rate of job creation in specific industries reduces the risk of losing a job. Especially in a transition economy, young workers may be more likely to seek employment in expanding

occupations and industries in which new jobs are being created, whereas prime-age workers may be overrepresented in declining economic sectors. However, the question of whether the impact of industry-level changes is the same for young and for prime-age workers remains open, from both a theoretical and an empirical perspective. On the one hand, employers may decide which employees to dismiss in certain occupations based on their expectations regarding the career prospects of individual employees. For example, an employer may take into account that younger workers have longer careers ahead of them, and will therefore favor this group when job cuts are necessary. On the other hand, the contraction of an industry may cause an employer to dismiss the youngest and most recently hired workers first because they are the least costly to lay off. In other words, structural influences may disproportionately increase the risk of losing a job for younger workers, and may thus contribute to inequalities in levels of job stability between the generations.

The type of employment contract, the firm size, and the occupation and industry may play particularly important roles in the age gap in employment levels in countries undergoing deep structural transformations, such as Poland. Below we discuss high levels of job reallocations between the public and private sector and across industries, which resulted in very different labor market opportunities for different groups of workers, including age heterogeneity in unemployment risks.

III. The context of the labor market in Poland

Poland has undergone substantial economic and institutional changes over the last two decades. The transition to a market economy started in the early 1990s with radical and comprehensive reforms aimed at reducing state intervention in the labor market and in the products markets (Aghion and Blanchard 1994; King and Sznajder 2006). These reforms were launched simultaneously, and proceeded at a fast pace. Increasing competition, restructuring, and privatization resulted in massive layoffs. However, Poland started to recover from the transitional recession in 1992, and in the mid-1990s employment began increasing gradually.

Further growth was brought to a halt by the crisis in Russia in 1998, which also had an impact on most of the neighboring countries (Lokshin and Ravallion 2000). After weathering the Russian crisis, the Polish economy was again negatively affected by the global economic slowdown in 2001-2002. The economic recovery did not start until 2005, and ended with the financial crisis in 2008, which affected the Polish economy much less severely than other European countries, but still had a negative impact on job creation and destruction rates in the Polish labor market.

One of the key structural changes that followed the transition to a market economy was the reallocation of labor from agriculture to industries and services. The share of workers employed in agriculture declined from about 24% in early 1990s to 17% in 2011. While the share of workers employed in industry decreased from about 32% to 27%, there were important changes within this sector: heavy, textile, and leather industries contracted sharply, while more modern industries started to develop. The share of workers employed in the service sector increased steadily, from less than 44% in the early 1990s to 56% in 2011. The structure of occupations changed as well: the share of skilled manual workers declined, while the share of professional and sales workers increased. The rates of job reallocation across industries and occupational groups were quite high throughout the 1990s relative to those in other developed countries (Rutkowski 2002).

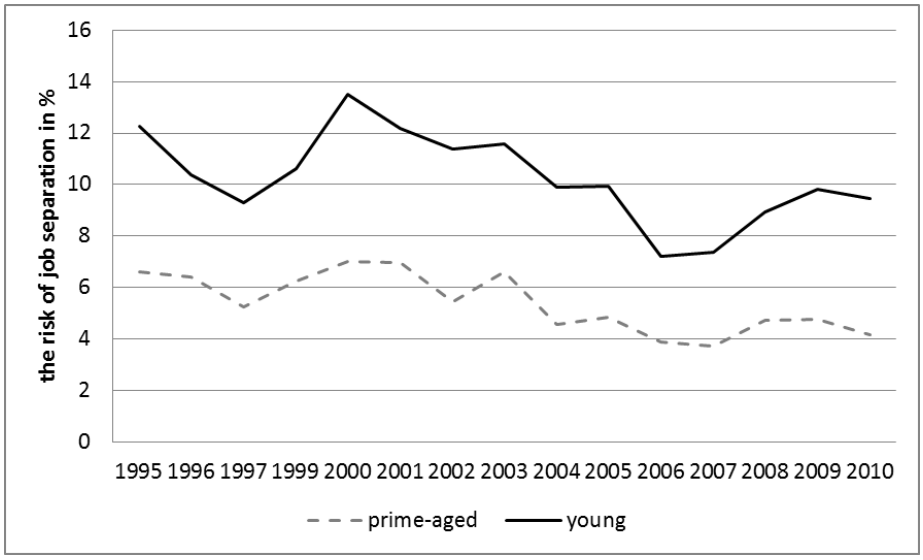
Marked changes also occurred in the ownership structure of Polish employers (Jackson and Mach 2009). As the ownership of private companies was heavily restricted under socialism, less than 20% of jobs were in the private sector in the 1980s. Following the passage of the privatization law in 1990, private entrepreneurship surged, and state-owned companies were privatized or closed their doors. Thus, the private sector expanded rapidly, and the share of workers employed by private companies had risen to 66% by 2011.

The transformation of the Polish economy has led to major changes in the kinds of opportunities and risks young people face at the beginning of their employment careers. On the

one hand, the shift from a centrally planned economy to a market economy meant that graduates could set career goals beyond the reach of previous generations, in part because the reforms removed wage cap regulations and allowed large international corporations to enter the market. Thus, young people suddenly had opportunities to work for private companies that offered better pay and more prestigious positions than had previously been available. At the same time, however, many young people faced greater employment uncertainty, because the reforms liberalized labor laws which had previously guaranteed employment for all and provided extremely strong employment protections. Additionally, in 2002, the Polish government liberalized the use of fixed-term contracts, which increased the flexibility of employment relationships. All of these changes contributed to employment instability among young people (Szafraniec et al. 2011).

Indeed, as Figure 1 shows, over the whole period job separation rates were much higher among young people (aged 18-29) than among prime-age workers (aged 30-54). In general, job separation rates followed the pattern that would be expected from the macroeconomic changes described above. Job separation rates were high immediately after the crisis that resulted from the transition to a market economy, but decreased in the mid-1990s. The Russian crisis in 1998 and the global recession in 2001-2002 caused job separation rates to rise again. The risk of losing a job declined after the economic recovery in 2005, but went up again following the most recent crisis. Overall, the evolution of the job separation rates over the period indicates that young people experienced far less employment stability than prime-age workers.

Figure 1. Job separations among young and prime-age workers



Source: Polish LFS data.

Research on the labor market disadvantage among young people in Poland has focused on the fact that young people have limited job-related skills and experience (Gajderowicz et al. 2012). Moreover, concerns have been raised that rapid increases in university enrolment rates caused higher education institutions to lower their teaching standards, and have led to inflation in educational credentials (Hildebrandt-Wypych 2012). The existing studies on the Polish labor market have therefore looked at only one side of the supply-demand equation. But as Baron and Bielby (1980) have argued, labor market status is determined not only by workers' attributes, but also by employers' decisions and the characteristics of jobs, as well as by the interactions between these influences. Given the context of the Polish transition to a market economy, it is possible that the restructuring processes that affected firms and industries might have had important consequences for the employment prospects of young people, regardless of whether they had sufficient skills and experience.

IV. DATA AND METHODS

In order to address the question of why young people have less employment stability, we apply the recently developed extension of the Oaxaca-Blinder decomposition method (Powers et al. 2011). This method explicitly takes into account the discrete nature of the dependent variable, and thus allows for a decomposition of the nonlinear probability of job loss. We compare the determinants for exiting a job among two population groups: young and prime-age workers. We can attribute the differences in the likelihood of losing a job to the differences in the composition of these two groups, and to differential returns to the characteristics of these two groups in terms of employment stability.

Formally, we assume that there is a latent variable representing the risk of job loss, which is specified as follows: $Y_i^* = X_{i\beta} + u_i$ (we suppress the age group-specific subscript). We find that there is a dummy variable Y_i of actually experiencing a job loss, whose value is one if $Y_i^* > 0$, and is 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 between the two population groups, young workers (group A) and prime-age workers (group B), can be decomposed in the following way:

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

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

The decomposition method developed by (Powers et al. 2011) is superior to other decomposition methods in that it allows us to solve the problem of the normalization of dummy variables. The results from standard decomposition are sensitive to the choice of the reference category (Oaxaca and Ransom 1999). Our chosen decomposition method uses a transformation

algorithm advanced by (Yun 2005) that averages the coefficient effects of a set of selected dummy variables, while permuting the reference groups. We use it for the gender, education, and job mismatch variables, as these turned out to be the most important for the sensitivity of the decomposition results to the reference level.

The analyses are based on micro-data from the Polish Labor Force Survey (PLFS) covering the period 1995-2010. The PLFS is particularly suitable for use in the analysis carried out in this paper. First, it is considered the most reliable source of information on labor market developments in Poland. Second, the design of its rotating panel offers opportunities to observe exits from employment at annual intervals. Finally, the PLFS provides very rich information about both the personal and the workplace-related characteristics of employees, while simultaneously generating macro-level data on job creation and job destruction rates in industries.

We include information on the gender of employees, because women—and especially women of younger reproductive ages—have a higher risk of exiting employment for family-related reasons. We further use measures of human capital: namely, education and experience. Educational attainment in general measures individual resources that reduce the likelihood of leaving a job. However, in light of the discussion on the possible devaluation of university degrees after the massive expansion of higher education in Poland (Hildebrandt-Wypych 2012), it is possible that the benefits of tertiary education are not equal for young and prime-age workers. We also distinguish between general secondary school and vocational secondary school diplomas, because vocational schools provide workers with occupation-specific qualifications (Blossfeld and Mayer 1988; Ivančič 2000; Shavit and Müller 1998). In the context of Poland, where the system of vocational education has eroded and provides labor market entrants with largely obsolete skills, having a diploma from a vocational school may confer little advantage on the labor market, especially for younger cohorts.

Regarding experience, the PLFS provides detailed information on the number of years worked at a given employer, which captures the accumulated skills that are specific to a given job (McCall 1990; Weiss 1984)1. While in general tenure should decrease the risk of job loss, there may be differences in the effects of this job-related experience for younger workers and for prime-age workers. The tenure accumulated by prime-age workers may have less impact on job security because it was acquired—at least partly—during the socialist era, and may therefore be less valued in the market economy. We include a variable that measures having tenure that exceeds two years[2].

Workers' productivity in a given workplace may depend not only on their individual characteristics, but also on the extent to which their qualifications match the requirements of the given job (Breen 1992; McGuinness and Wooden 2009; Sicherman 1991; Ortiz 2010). If a job does not match an individual's skills, it is likely that the employee will try to find a job that provides him or her with better opportunities to make more efficient use of his or her employee competence profile(Halaby 1994). Therefore, we include in our analysis measures of skills mismatch as potential determinants of job separation. We identify overeducated and undereducated workers by looking at the distribution of the years of education in an individual's occupation (at the ISCO three-digit level), and assign a status of "skills mismatch" to those individuals who spent more or fewer years in education than the mean number plus/minus one standard deviation.

In line with our theoretical framework, we also consider the characteristics of the employment contract and the economic sector of the employer. We distinguish between workers employed under non-standard employment contracts—i.e., under part-time or fixed-term contracts—and workers who are full-time, permanent employees. We also consider the effects

[1] In the Polish context, tenure may affect the job loss risk for reasons related to labor regulations, which impose higher firing costs for employees with longer tenure. Workers employed for more than three years are entitled to a three-month notice period (compared to a one-month notice period for employees with shorter tenures) and a severance pay package that is three times larger than the amount paid to workers dismissed after less than three years on the job (for those employed in firms with at least 20 employees).
[2] We tested more detailed specifications with a set of dummies for each year of tenure, but the results did not differ. Clearly, the effects of tenure differed the most at the threshold of two years.

of firm size and ownership sector, based on the assumption that large companies and public employers are in a better position than other types of companies to hoard labor under adverse economic conditions. Furthermore, we include information on the individual's occupational group and indicators on industry-specific job separation and job hiring rates, calculated as the share of those exiting or accessing jobs in a particular industry between t and t+1.

Finally, we take into account the differential effects of the business cycle on the job loss risk, and include four period dummies, two of which refer to periods of economic growth and of labor market expansion (1995-1998 and 2005-2008), and two of which refer to periods of economic slowdown and of employment decline (1999-2004 and 2009-2011). In the next part of our study we run sensitivity analysis, looking at the decompositions for each of those periods separately.

We define young workers as those aged 18-29, and prime-age workers as those aged 30-54. Older workers are excluded from the analysis in order to avoid the potential bias resulting from earlier labor market withdrawal. As we are studying job separations, we limit the sample to those who were working in the first period. Job separation occurs if an individual employed in year t is unemployed or inactive in year t+13. We further limit the sample and include employees only, as both supporting family members and the self-employed (especially those working in the agricultural sector) cannot be strictly defined as workers (as they have no employment contract). Thus, our final sample includes approximately 350,109 observations. Table 1 presents the final sample's structure.

[3] Although we did not differentiate between voluntary and involuntary separations, we assumed that voluntary separations were much more likely to results in job-to-job transitions and not in unemployment. Transitions to inactivity were very low among those under age 54.

Table 1. Sample structure

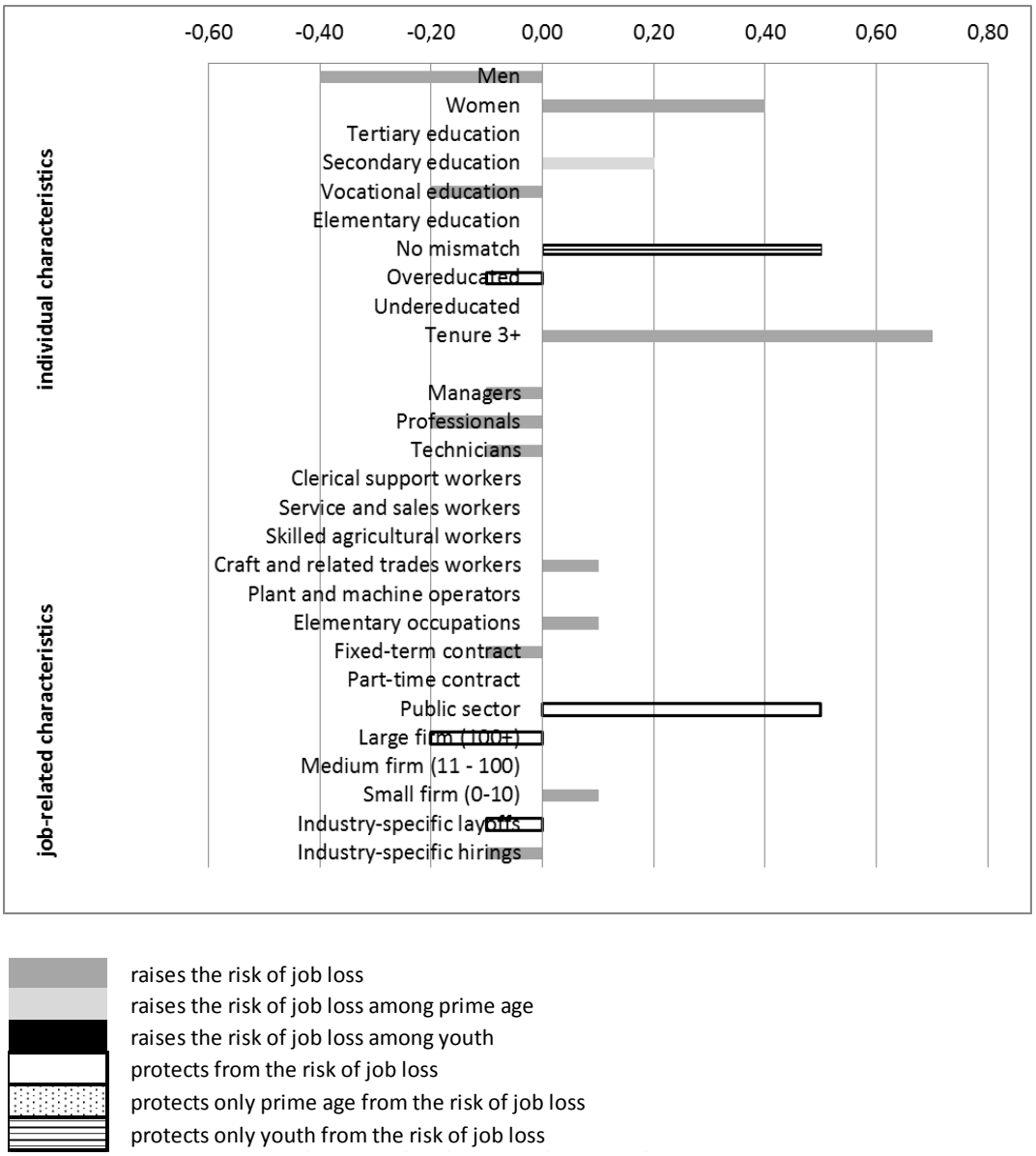
	1995		*2010*	
	prime-age	young	prime-age	young
Women	50%	43%	50%	44%
Men	50%	57%	50%	56%
Tertiary education	14%	7%	28%	32%
Secondary education	38%	39%	34%	44%
Vocational education	33%	45%	32%	18%
Lower education	15%	9%	6%	6%
Overeducated	15%	14%	17%	28%
Undereducated	15%	12%	13%	10%
No educational mismatch	69%	74%	70%	62%
Tenure : 3 years +	79%	45%	77%	36%
Tenure : below 3 years	21%	55%	23%	64%
Fixed-term contract	4%	8%	20%	50%
Permanent contract	96%	92%	80%	50%
Part-time workers	5%	7%	4%	7%
Full-time workers	95%	93%	96%	93%
Public sector employment	75%	53%	39%	21%
Private sector employment	25%	47%	61%	79%
Large firm (100+)	46%	34%	31%	23%
Medium firm (11 - 100)	30%	28%	41%	37%
Small firm (0-10)	24%	38%	28%	40%
Managers	6%	1%	6%	3%
Professionals	13%	9%	20%	15%
Technicians, associate professionals	16%	13%	13%	13%
Clerical support workers	10%	9%	8%	13%
Service and sales workers	8%	15%	11%	18%
Skilled agricultural, forestry, and fishery workers	1%	1%	1%	1%
Craft and related trade workers	24%	33%	19%	17%
Plant and machine operators; assemblers	11%	10%	13%	12%
Elementary occupations	12%	9%	11%	8%
Industry-specific layoffs	8.4	9.6	5.7	6.4
Industry-specific hirings	8.6	9.8	5.6	6.3

Source: Polish LFS data.

The data presented in Table 1 shows that in the mid-1990s, young and prime-age workers differed in terms of their educational attainment, as more prime-age than young employees had a tertiary education. This pattern reversed over time because of a rapid and significant expansion in education among younger cohorts. Due to the educational expansion, which entailed a shift away from occupation-specific training toward more general and longer forms of education, younger employees are currently more likely to have a general secondary education than vocational training. This shift is also reflected in the data on work experience, which shows that young workers were increasingly less likely to have work experience than prime-age workers. Consistent with the findings of Kiersztyn (2012), our analysis shows that young workers were more likely than prime-age workers to be overeducated for the jobs they had, and that this problem intensified considerably over time.

The composition of young and prime-age workers with respect to the type of job held differed substantially. Young people became more likely than prime-age workers to have a fixed-term contract, but the shares of young and prime-age workers in part-time work did not differ significantly. While prime-age workers were overrepresented in large firms and in the public sector, the likelihood of working for either a large company or a public sector firm decreased over time for both age groups. Changes in the occupational structure followed similar patterns for young workers and prime-age employees, although members of the latter group were more likely to hold managerial and professional positions. Finally, there were differences in the shares of young and prime-age workers across industries, with differential levels of job separations and hiring: young people were clearly more likely to work in sectors in which both job creation and job destruction were more common.

Figure 2. The contribution of the effects of differential returns of characteristics in terms of job stability to the job loss risk gap between young and prime-age workers.



Source: Polish LFS data.

Note: Gender, educational level, and job mismatch variables were normalized using the Yun (2005) transformation algorithm; hence their double presence.

V. EMPIRICAL RESULTS

We show the results of the decomposition of the gap in job stability among young and prime-age workers in Figure 2 and Figure 3. While Figure 2 presents the contribution of the differential returns of individual and job-related characteristics in terms of job stability, Figure 3 displays

the compositional effects for the overall gap in the job loss risk between young and prime-age workers. The size of the bars indicates the contributions of the particular individual and of the job-related characteristics. Positive values of the bars displayed in Figure 2 mean that a given factor increases the gap in the risk of job separation between young people and prime-age workers due to lower returns in job security among young people. A positive value in Figure 3 indicates that a given individual- or job-specific factor leads to a widening of the gap in job stability between young people and prime-age workers (because it is not equally distributed across the age groups). The colors of the bars in both figures indicate whether a given characteristic raises or lowers the risk of job loss, and whether the impact is the same for both young and prime-age workers. Both of the figures are divided into two parts: one describes the effects of individual characteristics (at the top of the panel), while the other focuses on job-related factors (at the bottom). Detailed results of logit models from the first step of analysis that served as a basis for the decomposition are presented in Table 1 in the Annex.

THE ROLE OF DIFFERENTIAL RETURNS IN TERMS OF JOB STABILITY

In the first step, we examine to what extent the gap in the job separation rates among young and prime-age workers can be accounted for by different returns to the characteristics of these two groups in terms of employment stability.

When we look at the impact of individual characteristics, we can see that gender affected the risk of job loss more strongly if an employee was young. The diverging effects of gender across age led to an increase in the gap in job stability between young and prime-age workers. Tertiary education had the same benefits for young and prime-age workers in terms of protection against job separation. This finding suggests that commonly expressed concerns about the declining quality of education and the decreasing value of educational credentials among young people are unfounded (Hildebrandt-Wypych 2012). Our results show that having a vocational education raised the risk of job loss for prime-age workers, but not for young people, and that these diverging effects led to a narrowing of the gap in the overall risk of job separation. A potential

explanation for this empirical pattern is that the shift away from vocational education toward general secondary education that took place in the 1990s led to a decline in the number of young people graduating from vocational schools (Kogan 2008). As there have been relatively few labor market entrants in recent years with this type of education, they might have had better labor market opportunities.

Job mismatch had different effects on levels of job stability among different age groups, with overeducated young people experiencing higher levels of job stability, and prime-age workers being better protected in job positions for which they were undereducated. This empirical pattern could be explained by the mechanisms observed by Ortiz (2010), who showed that a good job match may be traded-off for job stability among members of disadvantaged groups in segmented labor markets. Overall, the differences in the effects of job mismatch contributed positively to the gap in the risk of job separation.

According to our findings, tenure protected workers against job loss differently, as it had a much stronger positive impact on job security among prime-age workers than among young workers. Hence, it does not appear to be the case that the tenure accrued by prime-age workers, mainly during the socialist era, had a lower value in the market economy. It is less clear, however, why young people did not benefit as much as prime-age workers from the accumulation of experience. This might be explained by the nature of their jobs, which, as we have shown, often had lower qualification requirements than young workers actually possessed, and which were offered for a fixed period of time only. These factors may have prevented workers from investing in the acquisition of job-specific skills (Cutuli and Guetto 2013; Kalleberg 2009).

Regarding job-related characteristics, our results show that young workers who were employed under a fixed-term contract were less likely than prime-age workers (also employed under a fixed term contract) to exit the labor market. These findings are in line with those found in the literature on the precariousness of flexible employment forms (D'Addio and Rosholm 2005; Gagliarducci 2005). Perhaps in a country where temporary employment is the dominant form of

employment among young people, the scarring effect of working under a fixed-term contract is less pronounced for young than for prime-age workers. Part-time work, which is another form of atypical employment, had little effect on job stability among young and prime-age workers.

As has been shown in previous studies, also our findings indicate that the public sector offered greater employment security than the private sector (Anghel et al. 2011; Clark and Postel-Vinay 2009; Bandelj and Mahutga 2010). Yet in Poland, the public sector protected only prime-age workers. Young workers were actually at higher risk of becoming unemployed if they were working in the public sector than if they were working in the private sector. These differing effects of the ownership structure of the employer led to a substantial increase (of approximately 25%) in the gap in the risk of job loss. Our results indicate that this factor is the third-most important source of the gap in job stability. It therefore appears that the state in Poland introduced inequalities into the labor market, as state-owned companies seem to have been applying different human resources strategies depending on employees' age.

We also find that job separations decreased with firm size, which supports the notion that large companies have more resources to hoard labor (Baron and Bielby 1984; Carroll and Mayer 1986; A. L. Kalleberg and Mastekaasa 1998; Gerber 2002). Yet large firms appear to have been more likely to retain young than prime-age workers. While young people were more likely to have found jobs in small and medium-sized enterprises, larger firms may have offered them greater employment stability.

An interesting pattern emerged when we compared the differences in the job separation rates across occupations. Jobs in higher level occupational groups, such as managers and professionals, provided more employment stability for young people than for prime-age workers. By contrast, lower level occupations offered a higher degree of employment stability for prime-age workers. Hence, while young people found it more difficult than prime-age workers to get jobs that were higher up on the organizational ladder, once they had these jobs, they were more likely to be retained by the organization. Overall, the differential effects of

having a job in a specific occupation led to a decrease in the gap in job stability between young and prime-age workers.

In line with the results shown in the previous literature (DiPrete and Nonnemaker 1997; Gerber 2002, 2012; Gerber and Hout 1998; Shin 2007), we find that higher industry-specific job destruction rates raised the individual-level risk of being laid off, whereas higher job creation rates decreased the risk. Moreover, in industries with high rates of job creation, young people had more job stability than prime-age workers. This suggests that employers may be more willing to retain young workers if they believe it will be difficult to find new employees due to the overall high turnover rate. However, the asymmetrical effects of industry-specific shocks were subject to a high degree of heterogeneity across specific periods, as we will explain in the next part of this section.

THE COMPOSITIONAL EFFECTS

Our results presented in Figure 3 show that the differences in the gender composition of young and prime-age workers led to a narrowing in the overall gap in the risk of job separation, as women, who had a higher risk of job separation than men, turned out to be underrepresented among the younger employees in Poland. Both of these factors were to large degree related to the gender-specific allocation of childcare and household duties .

The differences in the composition of workers with respect to elementary education led to a slight decrease in the gap in job stability. This is attributable to the expansion of education, which meant that younger cohorts had much higher skill levels than older cohorts. Otherwise, the differences in the composition of young and prime-age workers in terms of vocational secondary education or tertiary education did not appear to have had a strong effect on the overall gap in job stability.

While the educational attainments of the younger cohorts of employees increased, their jobs did not always match the level of their skills, as was shown in Table 1. This could be viewed as a

disadvantage, but in terms of job stability, overeducation seems to have played a positive role. Due to the strong association between overeducation and job stability among young people, as well as the positive relationship between undereducation and the risk of job loss among prime-age workers (discussed in the previous section), the differences in the composition of each group with respect to job match led to a decrease in the overall gap in the job loss risk between prime-age and young workers. Young people were significantly more likely to lose their jobs due to short tenure. Out of all of the differences in the composition of the groups of young and prime-age workers, this this was found to be the most important factor driving the gap in the job loss risk.

While the results discussed above demonstrate that the level and type of skills clearly matter for employment stability, the characteristics of jobs play an important role as well. As fixed-term contracts and part-time work increase the risk of exiting employment, the greater propensity of young people to work part-time and to work under fixed-term contracts led to an increase in the gap in job stability. Given the large differences in the shares of young and prime-age workers employed under fixed-term contracts, this specific factor led to an increase in the overall gap in job stability of 27%, and thus represented the second-most important source of inequality between the two groups compared here.

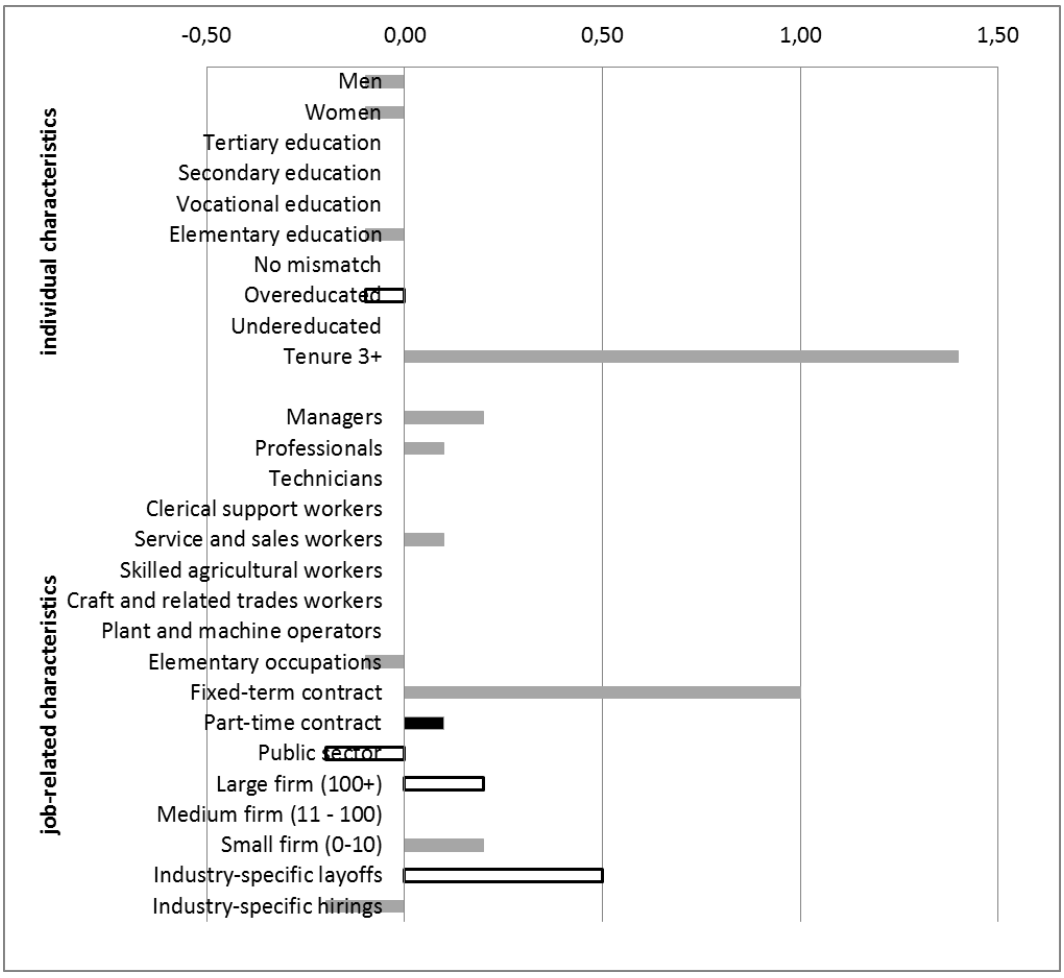
Although young workers faced a higher risk of becoming unemployed if they worked for a public sector employer than if they worked for a private company, they were less likely to be working in the public sector than prime-age workers. As a result, the difference in the structure of the jobs held by young and prime-age workers in terms of the ownership structure of the employer led to a decrease in the overall gap in job stability.

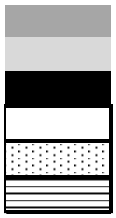
Meanwhile, the compositional effect of firm size led to an increase in the gap in job stability across ages, as young people were underrepresented among the workers employed by large companies and overrepresented among the workers employed by small companies, which tend to offer a lower degree of job stability.

Although having a job in either a managerial or a professional category was associated with the lowest risk of job separation, the differences in occupational structure between young and prime-age workers accounted for a very small share of the overall gap in the risk of job loss.

According to our results, the structure across industries played an important role in the observed gap in job stability. Young people were far more likely than prime-age workers to have been working in sectors with high levels of both job creation and job destruction, but as the overall effect of higher levels of job destruction was greater than the effect of higher levels of job creation, and the differences in distribution of jobs of young and prime-age workers across industries led to an increase in the gap in job stability.

Figure 3. The contribution of compositional effects to the overall gap in the job loss risk between young and prime-age workers.





Source: Polish LFS data.

Note: Gender, educational level, and job mismatch variables were normalized using the Yun (2005) transformation algorithm; hence their double presence.

PERIOD-SPECIFIC DECOMPOSITION

We carried out additional analyses to see if the contribution of compositional effects or the contribution of the differential returns in terms of job stability to the overall gap in the job loss risk between young and prime-age workers differed across time for the factors that are of main interest in this study. Our analyses compared four sub-periods: two periods of labor market expansion (1995-1998 and 2005-2008) and two periods of economic slowdown (1999-2004 and 2009-2011). Figure 4 presents the selected results of our main variables of interest with respect to the contribution of changes in their returns, while Figure 5 illustrates changes in the compositional contribution to the overall gap.

Figure 4. Changes in the contribution of the effects of differential returns of characteristics in terms of job stability to the gap in the job loss risk between young and prime-age workers across 1995-2010.

Source: Polish LFS data.

Note: Gender, educational level, and job mismatch variables were normalized using the Yun (2005) transformation algorithm; hence their double presence.

Regarding the role of different returns to job-related characteristics in terms of job stability, our results show that having a fixed-term contract was associated with a lower risk of exiting employment for young workers than for prime-age workers. This finding confirms our

assumption that as fixed-term contracts were becoming increasingly common, the scarring effect of fixed-term contracts was less pronounced for young people. No changes in the role of part time work could be observed.

Interesting changes could be observed regarding public sector employment. Because in the second half of 1990s private enterprises were expanding very dynamically and hardly ever fired workers, being a public sector employee conferred little advantage in terms of employment security. It also seems that in that period, state-owned enterprises did not treat young and prime-age workers differently when it came to job cuts. After the Russian crisis in 1998, the public sector became a much safer environment than the private sector, but a greater degree of employment protection was offered to prime-age than to young workers. Hence, the difference in the effects of the ownership sector of firms is one of the main reasons why young people did not experience a labor market disadvantage until the 2000s.

It also appears that the effects of industry-specific shocks on the job stability gap was changing over the time. In the 1990s, prime-age workers were more likely to be negatively affected by layoffs in the industry in which they were working. Hence, this asymmetric effect of being employed in an industry that was firing workers led to a decrease in the overall gap in job stability. This could be explained by the fact that in the 1990s the restructuring processes mainly led to the dismissal of prime-age workers who had obsolete skills and could not adjust to the changes in companies. However, by the beginning of the 2000s, working in an industry with a high rate of job destruction had become disadvantageous both for prime-age and younger workers.

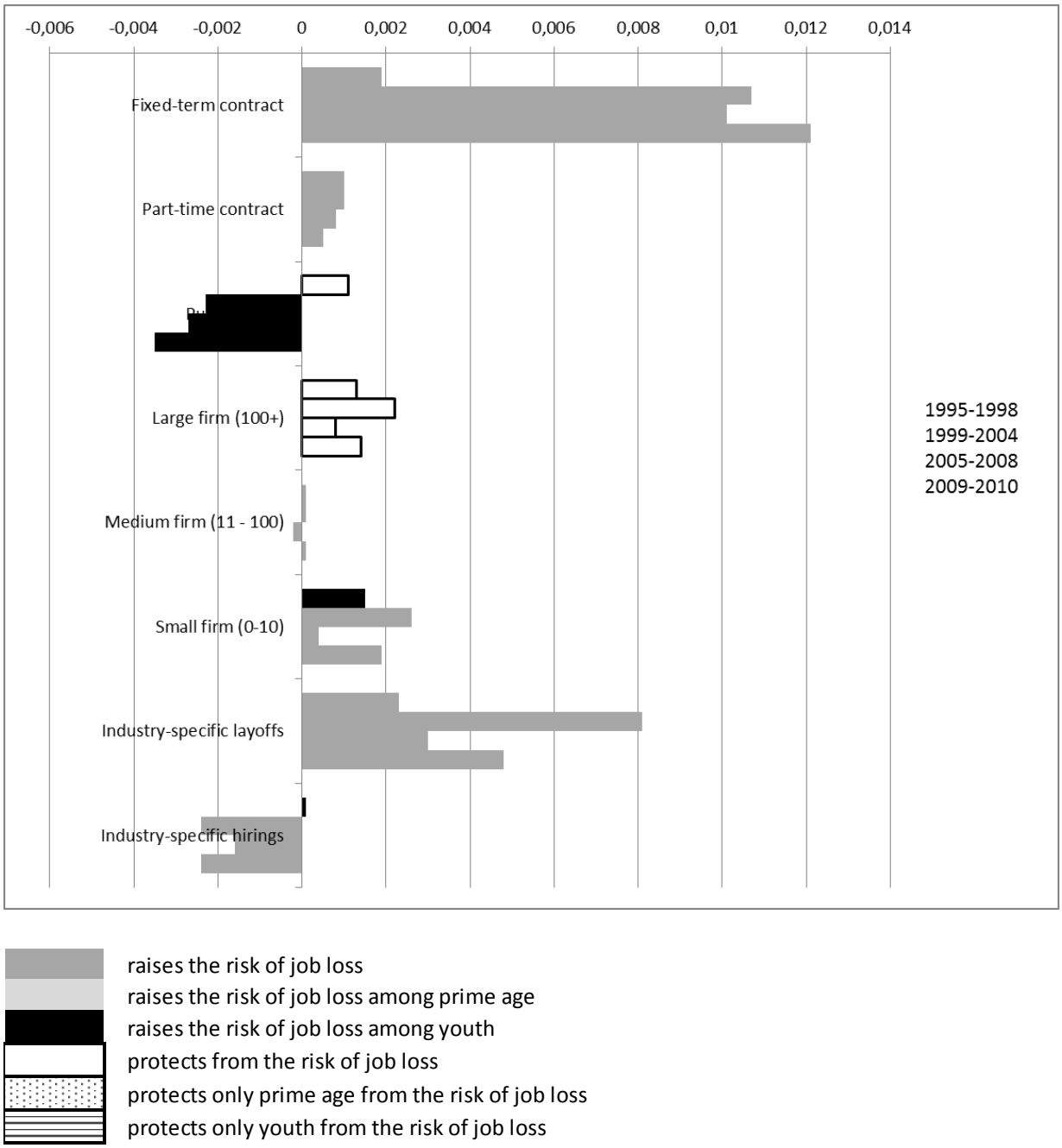
Regarding the compositional effects, which are shown in Figure 5, we find that the diverging composition of young and prime-age workers with respect to fixed-term contracts played only a small role in the 1990s, but that its impact on the overall gap in job stability had increased tenfold by 2010. As the use of fixed-term contracts by Polish employers was becoming more common, the risk of being employed under a fixed-term rather than under a permanent contract

grew more quickly among younger than among prime-age workers, as we showed in Table 1. Meanwhile, the role of part-time employment changed little.

With the exception of the 1990s, over the whole period analyzed in this study the differences between young and prime-age workers in terms of the ownership structure of their employers led to a decrease in the overall gap in job stability. The alleviating effect of the composition of young and prime-age workers' jobs in terms of public employment was related to the fact that young people tended to choose to work in the private sector, which did not protect them any less than prime-age workers. The effect was different in the 1990s, largely because during that period being a public sector employee conferred little advantage in terms of employment security to either young or prime-age workers.

The diverging composition of young and prime-age workers with respect to firm size appears to have changed over time as well. Interestingly, the role of firm size was more important in times of crises; i.e., in 1999-2004 and 2009-2011. The negative effect of young people's propensity to work in small firms—which have fewer resources to cope with plummeting sales and are therefore more sensitive to crises—was stronger during economic slowdowns. Similarly, the differences in the composition of the young and the prime-age worker groups based on industry also had a greater impact on the overall gap in job stability, especially in adverse macroeconomic conditions.

Figure 5. Changes in the contribution of the effects of composition of characteristics in terms of job stability to the gap in the job loss risk between young and prime-age workers across 1995-2010.



Source: Polish LFS data.

Note: Gender, educational level, and job mismatch variables were normalized using the Yun (2005) transformation algorithm; hence their double presence.

VI. DISCUSSION OF KEY FINDINGS

In this paper, we sought to identify the factors that contribute to the gap in the risk of job loss between young and prime-age workers. We showed to what degree the labor market disadvantage can be explained by insufficient individual resources, such as skills or experience. We also discussed factors that were given less attention in previous research on youth labor market disadvantage; i.e., job-related characteristics that pertain to the specific situation of the enterprise in which an individual works, such as the firm size, the ownership sector, the occupation, and the industry.

Our results indicated that the differences in the composition of young and prime-age workers in terms of individual resources, such as education and experience, were important, but explain only about one-third of the gap in job stability. According to our results, young people are more likely than prime-age workers to work under fixed-term contracts in job positions closer to the bottom of organizational ladders (often requiring qualifications lower than those of the young job holders), in small firms in the private sector, and in industries with high rates of both job creation and job destruction. Hence, they work in the most volatile segments of the labor market which are most sensitive to changing economic conditions. Overall, the difference in the composition of the jobs held by young people explained 40% of the gap in job stability. However, compositional differences were only a part of the picture.

We found that the jobs in the segments of the labor market that seem to be difficult for young people to access offer higher levels of job stability for young people than for prime-age workers. For example, young people were underrepresented among managers and professionals in large firms, but those who did secure such positions were more likely to have enjoyed job stability than their prime-age counterparts. It could be argued that large companies take into consideration the time horizon for the return on investment in the job-specific skills of their highly qualified workforce, and thus choose to lay off older managers when they need to make job cuts. An alternative explanation pertains to selection mechanisms. If these are the smartest

and the most motivated young people in the country—which is demonstrated by the fact that they secured a high-level position in a large company at an early stage of their careers—then the same characteristics could make them more successful at keeping their jobs during periods when firms need to lay off workers. Unfortunately, within our analytical framework it was not possible to distinguish between these two potential mechanisms.

Our findings suggest that the public sector is a very distinct segment of the labor market. In line with previous studies on public sector employment (Bandelj and Mahutga 2010; Anghel et al. 2011; Clark and Postel-Vinay 2009), we found that state-owned enterprises offered a higher level of employment protection than private companies, but that this increased job stability was enjoyed by prime-age workers only. Young people who worked in the public sector were at higher risk of losing their job than workers in private firms. This finding seems paradoxical, as it appears that in Poland the state may have contributed to inequalities in the labor market, especially in times of economic slowdowns. Further research, preferably taking a cross-country comparative perspective, is needed in order to determine to what extent this finding could be generalized to other countries, particularly to those countries where public sector employment is non-negligible.

Our study provides insights that may prove interesting not only for the purposes of academic discussion, but also for the purposes of public debate on which policies might help to reduce the labor market disadvantage of young people. Proper identification of the factors driving the age inequality in labor market outcomes is crucial for designing adequate policy responses. According to our results, work-related experience plays a very important role in the gap in job stability between young and prime-age workers. Obviously, young people are at higher risk of job loss because they have less tenure. However, apart from this compositional effect, tenure has different effects on young people and on prime-age workers. The returns to tenure in terms of employment stability are lower among young people than among prime-age workers. Our tentative hypothesis is that the types of jobs that young people manage to find—

i.e., fixed-term contract positions at (inappropriately) low levels of the organizational ladder—might offer them insufficient opportunities to accumulate job-specific capital. Given that work-related experience plays a crucial role in lowering the risk of becoming unemployed, policies that help young people accumulate this experience should be seen as a top priority. However, such programs should be aimed not only at helping young people gain job-specific experience, but also at ensuring that this experience translates into improvements in skills and in the development of social networks within organizations.

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ANNEX

Table A1. The results of a logit model of the risk of job loss among young and prime-age workers

	prime		*young*	
	b	se	b	se
Women	0.26***	-0.02	0.56***	-0.03
Tertiary education	-0.35***	-0.05	-0.38***	-0.06
Vocational education	0.18***	-0.03	0.010	-0.04
Elementary education	0.44***	-0.06	0.34***	-0.09
Overeducated	0.03	-0.04	-0.23***	-0.04
Undereducated	0.13***	-0.04	-0.010	-0.07
Tenure 3+	-0.68***	-0.02	-0.51***	-0.03
Fixed-term contract	0.71***	-0.02	0.62***	-0.03
Part-time contract	0.32***	-0.03	0.46***	-0.04
Public sector	-0.05**	-0.02	0.13***	-0.03
Large firm (100+)	-0.13***	-0.02	-0.26***	-0.03
Small firm (0-10)	0.05**	-0.02	0.12***	-0.03
Managers	0.02	-0.07	-0.19	-0.14
Professionals	0.22***	-0.06	0.34***	-0.08
Clerical support workers	0.37***	-0.06	0.66***	-0.08
Service and sales workers	0.40***	-0.07	0.65***	-0.08
Skilled agricultural workers	0.33***	-0.11	0.68***	-0.15
Craft and related trade workers	0.50***	-0.07	0.74***	-0.09
Plant and machine operators	0.33***	-0.07	0.57***	-0.10
Elementary occupations	0.57***	-0.07	0.99***	-0.09
Industry-specific layoffs	0.09***	0.00	0.08***	-0.01
Industry-specific hirings	-0.02***	0.00	-0.02***	0.00
Period 1999-2004	0.00	-0.03	0.07*	-0.04
Period 2005-2008	-0.36***	-0.03	-0.22***	-0.04
Period 2009-2011	-0.37***	-0.03	-0.09*	-0.05
Constant	-3.49***	-0.07	-3.61***	-0.09
ll	-48909.17		-25732.03	
N	262499		87610	

Table A2. The results of a logit model of the risk of job loss among young and prime-age workers, 1995-1998

	prime		*young*	
	b	se	b	se
Women	0.23***	-0.05	0.80***	-0.06
Tertiary education	-0.36**	-0.15	-0.46*	-0.25
Vocational education	0.1	-0.08	0.01	-0.09
Elementary education	0.32*	-0.18	0.1	-0.26
Overeducated	-0.03	-0.09	-0.17	-0.11
Undereducated	0.21	-0.14	0.11	-0.22
Tenure 3+	-0.83***	-0.05	-0.52***	-0.07
Fixed-term contract	0.75***	-0.07	0.67***	-0.08
Part-time contract	0.42***	-0.07	0.72***	-0.08
Public sector	-0.01	-0.05	-0.07	-0.07
Large firm (100+)	-0.12**	-0.05	-0.20**	-0.08
Small firm (0-10)	0.03	-0.05	0.13*	-0.07
Managers	0.09	-0.18	-1.16	-0.74
Professionals	0.30*	-0.15	0.16	-0.24
Clerical support workers	0.65***	-0.16	0.60**	-0.24
Service and sales workers	0.88***	-0.18	0.83***	-0.26
Skilled agricultural workers	0.68***	-0.26	0.85**	-0.39
Craft and related trade workers	0.84***	-0.18	0.76***	-0.27
Plant and machine operators	0.54***	-0.19	0.90***	-0.28
Elementary occupations	0.94***	-0.18	1.26***	-0.27
Industry-specific layoffs	0.07***	-0.01	0.03***	-0.01
Industry-specific hirings	-0.01**	-0.01	0	-0.01
Constant	-3.59***	-0.17	-3.62***	-0.26
ll	-9825	-4625.11		
N	49448	16079		

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

Table A3. The results of a logit model of the risk of job loss among young and prime-age workers, 1999-2004

	prime		young	
	b	se	b	se
Women	0.18***	-0.03	0.40***	-0.05
Tertiary education	-0.44***	-0.1	-0.26**	-0.11
Vocational education	0.16***	-0.05	0.06	-0.06
Elementary education	0.33***	-0.1	0.21	-0.17
Overeducated	0.05	-0.06	-0.19**	-0.08
Undereducated	0.27***	-0.08	0.24*	-0.14
Tenure 3+	-0.59***	-0.04	-0.44***	-0.05
Fixed-term contract	0.68***	-0.04	0.68***	-0.05
Part-time contract	0.18***	-0.06	0.35***	-0.06
Public sector	-0.21***	-0.04	0.11*	-0.06
Large firm (100+)	-0.07*	-0.04	-0.24***	-0.06
Small firm (0-10)	0.12***	-0.04	0.21***	-0.05
Managers	-0.02	-0.12	-0.89**	-0.38
Professionals	0.25**	-0.11	0.45***	-0.15
Clerical support workers	0.30**	-0.12	0.79***	-0.14
Service and sales workers	0.44***	-0.13	0.87***	-0.16
Skilled agricultural workers	0.40**	-0.18	0.91***	-0.27
Craft and related trade workers	0.39***	-0.13	0.96***	-0.17
Plant and machine operators	0.40***	-0.13	0.78***	-0.18
Elementary occupations	0.54***	-0.13	1.09***	-0.17
Industry-specific layoffs	0.09***	-0.01	0.08***	-0.01
Industry-specific hirings	-0.02***	-0.01	-0.02***	-0.01
Constant	-3.44***	-0.12	-3.78***	-0.16
ll	-17096.46	-8445.09		
N	79104	25294		

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

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