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## Solidarity Lost? Low Pay Persistence During the Post-Communist Transition in Poland

*Abstract:* This article analyses long-term changes in the persistence of low wages in Poland, given the variations in the general economic situation. All analyses are based on data from the Polish Panel Survey (POLPAN) conducted throughout the post-communist transition period, 1988–2013, on a representative sample of the Polish adult population. The study found that being in a low paid job raises the probability of experiencing the same situation five years later, even when controlling for the general economic context and the respondents' demographic and economic characteristics. Upward mobility rates among initially low paid workers were significantly higher during periods of economic prosperity; however, even then low pay persistence remained substantial. The results also point to a secular growth in the persistence of poverty-level wages over the past two decades. Persistent low wages may bring about spaces of long-term poverty and social exclusion which cannot be overlooked by policy makers.

*Keywords:* Low paid employment, wage mobility, transition economies, panel data, Poland.

### Introduction

Over the last years, employment inequality has become a topic of concern among scholars and policy makers. This is due to the growth in various forms of non-standard employment, often associated with negative work characteristics (Giesecke 2009; McGovern, Smeaton, Hill 2004). As employment relations become less stable, a dynamic, life-cycle perspective becomes more important as a basis of job quality assessment (European Commission [EC] 2008). In particular, an important and policy relevant question is whether 'bad' jobs are temporary, acting as stepping stones to better employment, or trap workers for prolonged periods of time.

This article analyses the persistence of low wages, which are commonly considered one of the most important aspects of poor job quality. The question whether low paid employment is transitory or long-lasting is particularly important given the growth in earnings inequality in many industrialized nations. The consequences of this change are a subject of controversy among researchers. Some argue that increasing earnings inequality might not be a serious problem if accompanied by high wage mobility. If workers have many opportunities to escape low-paid employment, inequality in life-long earnings is not as large as cross-sectional analyses suggest (Dickens 2000; OECD 1997). Conversely, if low wage jobs are traps for some workers, the resulting social cleavages and disparities in the quality of life cannot be overlooked by policy makers.

Such inequalities may be regarded as both a sign of declining social solidarity, and a factor contributing to its further decline (Paskov, Dewilde 2012).

Studies of the wage mobility of low paid workers from different countries suggest that the latter is closer to the truth. Throughout the second half of the 1990s, on average, around 50% of low paid individuals in the EU remained low paid after one year (Clark, Kanellopoulos 2009; EC 2004). Although the probability of exiting low wages increases with time, the percentage of low paid workers whose wages remained low after several years appears significant in EU countries: 40% for three-year pay transitions, 30% for five-year transitions, and 26% for seven-year transitions. When those who exited employment were excluded, the respective percentages were: 55%, 41%, and 37% (EC 2004). Other research results suggest that even if individuals manage to find better paying employment, they face a high probability of slipping back into low wages, and the longer they remain in low wages, the less likely their transition to better pay (OECD 1997; Rutkowski 2001a).

However, much less is known about the long-term trends in low pay persistence. Although there are many studies of long-term changes in wage inequality and wage mobility across the whole earnings distribution (e.g., Dickens 2000; Gernandt 2009; Kopczuk, Saez, Song 2010; Luciflora, McKnight, Salverda 2005), analyses which focus directly on low pay transitions usually cover a relatively short time-span (typically around five years). This makes them unable to systematically control for the influence of business cycles on the persistence of low earnings. To my knowledge, the only analysis covering a longer period (1984–2004) and taking into account the relationship between the general economic situation and chances of individual mobility out of low wages is a recent study by Aretz and Gürtzgen (2012). Further, there are practically no detailed analyses of low pay transitions in post-communist societies. We do not know the extent to which research findings from other countries are generalizable to transition economies. In this context, Poland seems an especially interesting case. Earnings disparities on the Polish labour market, particularly in the lower half of the wage distribution, are among the highest in the EU. The share of low paid workers is also relatively high (Bachmann, Bechara, Schaffner 2012; Magda, Szydłowski 2007).

The present analysis attempts to fill the gaps in the existing literature by focusing on long-term changes in the persistence of low wage employment in Poland and the relationship between the rate of those changes and the general economic situation throughout the post-communist transition period. It also extends the literature by adopting a measure of low earnings that is different from the one used by Aretz and Gürtzgen (2012) and in other studies of low pay transitions, but can be considered more appropriate for the study of wage mobility independent of the effect of business cycles.

The analyses presented below are based on data from the Polish Panel Survey POLPAN. POLPAN is well suited for the analysis of low pay persistence due to its length: the study consisted of five waves, conducted every five years since 1988 on a random sample of the Polish adult population. As such, it allows for the analysis of long-term labour market trends, not just changes which could result from short-term shifts in the economic situation. Another important point about POLPAN is

that it covers the whole post-communist transition, a time of profound social, institutional and economic change, making it possible to analyse the dynamics of low pay persistence under very diverse economic conditions.

### **Low Pay Persistence in Poland: Hypotheses**

Drawing on empirical studies from other countries, and taking into account the specific social and economic factors influencing wages and labour mobility in Poland, I adopt three research hypotheses concerning the persistence of low earnings on the Polish labour market.

H1: Low wage work in post-communist Poland is characterized by high and increasing persistence.

Apart from the evidence pointing to substantial low pay persistence in other countries, there are two additional factors which may exacerbate this problem in Poland. First, the collapse of many large, state-owned companies, unable to adapt to market conditions, during the first years of the transition. This caused a fall in employment levels, mostly in industry branches and types of companies which, according to the labour market segmentation literature, are more likely to create internal labour markets (UNDP 2004). As a result, better paid primary sector jobs became less available to many groups of workers. Second, the low spatial and occupational mobility of the Polish labour force: only one out of four survey respondents expressed the willingness to change their place of residence in order to find a better job, or any job at all (CBOS 2008). Apart from cultural factors, such results can be explained by the limited access to affordable housing, especially in major cities, where wages are higher and work is easiest to find (Baranowska, Bober, Bukowski 2007; it should be noted, however, that in Poland commuting to a job is a popular alternative to internal migration). Under these circumstances, low wage employment spells are likely to last for prolonged periods of time. The expectation regarding the long-term increase in low pay persistence is based on studies which point to a fall in the overall wage mobility of workers over the last decades (Dickens 2000; Gernandt 2009; Luciflora et al. 2005; see also Aretz, Gürtzgen 2012).

H2: The persistence of low wages relative to higher pay is more pronounced during economic downturn.

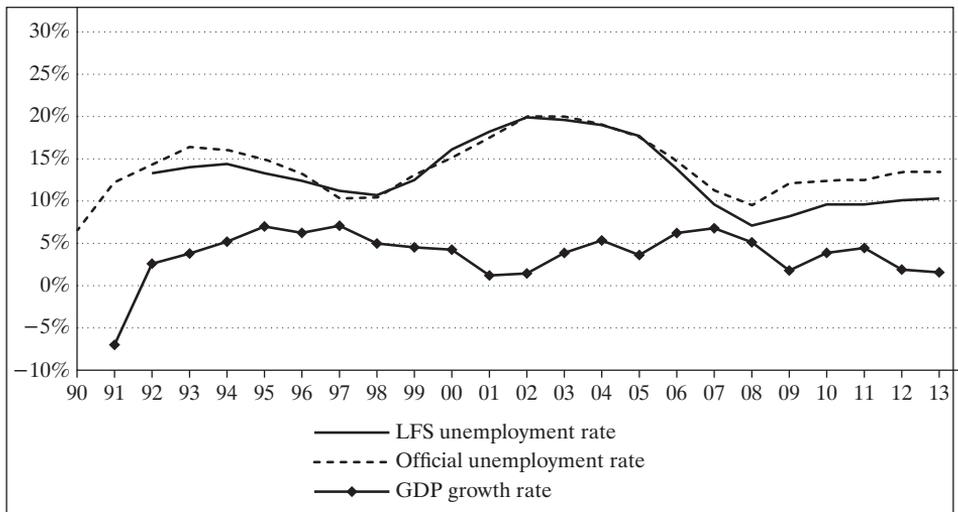
This hypothesis is based on the premise, commonly suggested in the literature, that wages are pro-cyclical. For example, Dickens (2000) showed that in Great Britain one-year wage mobility rates fell in periods of unemployment growth. Pavlopoulos et al. (2008) found that macroeconomic conditions explained a significant part of cross-country variation in wage mobility levels in the second half of the 1990s, even when controlling for institutional factors. In an analysis of 1995–2006 data on Polish workers, Magda (2008) noted that the highest fall in earnings mobility occurred during economic slowdown.

During economic downturn, individuals may be more inclined to accept low pay. Workers may also find it more difficult to bargain for improved work conditions or look for better paid employment. Under such conditions, they are more likely to remain low paid (Aretz, Gürtzgen 2012). Among higher earners, the fall in the overall wage mobility simply keeps them in the higher-earning category. Thus, in a sense, economic slowdown widens the gap between the low earners and other workers. The opposite is expected during periods of economic growth, as wage procyclicality has been shown to be stronger for low-wage earners compared to median earners (Robin 2011).

Figure 1 presents data on the unemployment rate and GDP growth in post-communist Poland. These data suggest that the increase in low pay persistence should be largest in 1988–1993 and 1998–2003. The former were the first years of the post-communist transition, marked by economic instability, the collapse of many state-owned companies, the appearance and fast rise of joblessness. The latter was a time of economic slowdown, during which the unemployment rate increased by ten percentage points, reaching a record value of 20% in 2002. In the relatively prosperous years 1994–1997 and especially 2004–2008, the situation on the labour markets improved. This is illustrated by a systematic fall in the unemployment rate, by 3.3 and 12.5 percentage points, respectively. In 2008–2013, during the economic crisis, unemployment again increased, but not to the extent observed during earlier slowdowns.

Figure 1

The Unemployment Rate According to Labour Force Surveys, the Registered (official) Unemployment Rate, and the GDP Growth Rate, Poland, 1990–2013



Note: LFS unemployment rate among economically active individuals aged 15+ (in 1992–1999 calculated as the average of quarterly estimates). GDP growth rate: annual percentage growth rate of GDP per capita based on constant 2002 prices (in Polish zloty). Data sources: LFS unemployment rate 1992–2012 and the GDP growth rate: the World Bank. 2013 LFS unemployment rate: EUROSTAT. Registered unemployment: Central Statistical Office (GUS).

H3: Being in a low paid job increases the likelihood of experiencing low earnings in the future, even when individual characteristics affecting the likelihood of poor wages (such as gender, age, or educational attainment) are controlled for.

The third hypothesis implies that the persistence of low wage employment in Poland can be at least partially explained by scarring effects, as opposed to a selection process. Although it is difficult to empirically distinguish these phenomena, there is evidence suggesting that both are important. The results of various analyses which attempt to control for individual low pay propensity indicate that there exists significant true state dependence in low wages (e.g., Aretz, Gürtzgen 2012; Cappellari 2007; Clark, Kanellopoulos 2009; Sloane, Theodossiou 2000).

### Data and Variables

Data for the analysis are taken from the Polish Panel Survey POLPAN, conducted in 1988, 1993, 1998, 2003, 2008, and 2013 by a team of sociologists at the Polish Academy of Sciences<sup>1</sup> on a nationally representative sample of adults aged 21 and above. The total sample sizes in the consecutive waves were: 5817, 2259, 2135, 1699, 1805, and 2196. Beginning in the 1998 wave, the panel sample is supplemented by a new subsample of individuals from the youngest age group. In sum, 2966 individuals participated in at least two consecutive waves of the survey, among them 979 in two consecutive waves, 636 in three consecutive waves, 413 in four waves, 227 in five waves, and 711 in all the six waves (Słomczyński et al. 2014).

Low wage employment is considered persistent if it is experienced by a respondent during at least two consecutive waves of the panel. Five years is a longer interval than the one adopted in many labour market studies. However, focusing only on short-term mobility might cause an upward bias of low pay persistence. It seems reasonable to assume that five years is long enough for those who are truly upwardly mobile to exit low wage employment definitively—by that time, they should have made it to better paying jobs. Such a longer period is also better suited for analyses of the effects of macroeconomic conditions on wage transition rates.

The measurement of low pay persistence is based on transition matrices. The unit of analysis is a respondent during the time of two consecutive panel waves (henceforth,  $t_n$  and  $t_{n+1}$ , where  $n$  is the number of the first of the two waves). Thus, the study covers five periods of transition: 1988–1993, 1993–1998, 1998–2003, 2003–2008, and 2008–2013. I selected from the POLPAN sample respondents who were production age (retirement age is 65 for men and 60 for women) and working for an income at both  $t_n$  and  $t_{n+1}$ .<sup>2</sup> I excluded independent farmers, employers, and helping family members from the sample—as low wages do not apply to people who

<sup>1</sup> Kazimierz M. Słomczyński remains to serve as principal investigator of the project. More information on the POLPAN project, data availability, and a list of related publications are provided on the project website ([www.polpan.org](http://www.polpan.org)).

<sup>2</sup> In POLPAN 1988, data on wages were not collected for respondents working less than 15 hours per week or for less than three months; this category was excluded from the sample ( $N = 84$ ). The 1993 data

are not employed by anyone. However, I did not exclude the self-employed (sole proprietors), since many of them could be considered as hired persons with stable salaries or as employees forced into independent contracting by employers who seek to avoid the commitments associated with regular employment (see [OECD 2014](#); [Osborn, Słomczyński 2005](#)). The final sample size was  $N = 2585$  cases (the number of panel respondents in the consecutive five-year periods was: 803, 526, 459, 376, and 421).

In studies based on panel data, especially collected over long periods of time, selectivity problems arise. Out of all the respondents aged 21–60 who were employed at  $t_n$ , a large percentage could not be included in the dynamic analyses, either because they were not working at  $t_{n+1}$ , or due to panel attrition. The percentage of respondents who dropped out from POLPAN was particularly high in 1993 (54.2% of those aged 21–60 and working in 1988). This is explained by the fact that the 1993 wave was conducted on a random subsample of the original 1988 sample. However, in the later waves these percentages were also quite high (23.3%, 29.3%, 27.8%, and 32.2% in 1998, 2003, 2008, and 2013, respectively). The issue of selectivity bias is taken into account in the interpretation of my results.

### Low Wages

In many studies of earnings mobility, low pay is defined as below two-thirds median wage. However, in Poland the real net median wage underwent considerable changes throughout the studied period, and the rate of these changes was related to the economic context. In 1988–1993, the median wage fell by 13.9%; in the subsequent five year period, it grew by 20.5%; in the 1998–2002 period of economic slowdown, the real median wage also increased, but only by 7.5%; in the subsequent prosperous years until 2008, the increase was by as much as 30.3%, while the economic crisis of 2008–2012 lowered the rate of real wage growth to 3.2%.<sup>3</sup> In the light of these data, I consider a relative, median-based low wage criterion inappropriate for an analysis of the long-term dynamics of low pay persistence under varying economic conditions. Adopting such a criterion could bias the results: upward earnings mobility would be underestimated during periods of economic upswing (when a number of individuals whose wages improve could still end up below the threshold level), but not during periods of slowdown. Instead, I use an absolute measure, which defines low pay as net monthly earnings from the respondent's main job below the social minimum poverty line for an individual living alone. The main job is the one on which the most time is spent. The social minimum is the current price of a minimal amount of goods and services that enables household members to participate in social life. The list of such goods and services was created in the 1980s by experts from the Polish Institute of Labour and Social Affairs, with the participation of doctors, social workers, and

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on wages concern not only the respondent's main job, but also additional non-farming jobs. Respondents holding more than one non-farming job in 1993 were excluded from the sample ( $N = 107$ ).

<sup>3</sup> Net median wages expressed in constant Polish zloty (base year: 2013), calculated on the basis of the Structure of Earnings Survey data. Source: Central Statistical Office (GUS).

consumption researchers, and underwent only minor changes over the last decades. Therefore, the value of the social minimum criterion is independent of the changes in the economic situation and political influences during the period under study. It is also worth noting that, in absolute terms, this threshold is relatively low, compared to the two-thirds median criterion in other developed countries. For example, in 2008 and 2013 the value of the social minimum for a one-person household was equivalent to around 250 Euro per month (1061.3 Polish zloty, in 2013).

I focus on the respondents' monthly earnings from their main job, regardless of the number of hours worked. Such an approach is different from the one adopted in many studies of wage mobility, which use indicators based on hourly wages or restrict their samples to full-time workers. Both approaches have their drawbacks. The one adopted here may to some extent bias the analyses by including voluntary part-time workers with relatively high earnings potential among the low paid. On the other hand, controlling for the number of working hours is likely to exclude from the poorly paid group involuntary part-time workers (particularly women), who—as a result of their part-time status—receive low wages (see [Gash 2008](#)). In POLPAN, data on the formal full- or part-time status is not available for all waves. The number of hours of work per week reported by the respondents in all waves of the study is not a reliable measure, as it may falsely suggest part-time employment among some groups of professionals who actually hold full-time employment contracts (e.g., teachers).

The percentage of respondents paid below the social minimum in each POLPAN wave was: 20.3% in 1988, 33.5% in 1993, 21.0% in 1998, 28.5% in 2003, 11.3% in 2008, and 7.7% in 2013 (2008 and 2013 data are weighted to account for the oversampling of younger respondents). The wage non-response rates in the respective panel waves were: 5.6%, 0.8%, 3.7%, 1.6%, 5.8%, and 6.6%<sup>4</sup>; cases with missing data on wages were deleted from the sample. It should be noted that the detailed information on the earnings distribution based on POLPAN data should be treated with some caution—especially given the relatively small sample sizes. Still, POLPAN remains the best source of data available in Poland for the study of the long-term dynamics of individual transitions into and out of low pay.<sup>5</sup> Further, it can be argued that minor biases in the earnings distribution should not seriously affect the results of analyses comparing the percentage receiving low wages among those who were low paid five years earlier and those who were not. In such a case, an overrepresentation of respondents at the lower end of the earnings distribution (a common bias in earnings surveys) may actually be desirable, as it strengthens the statistical results of such comparisons, especially given the low rates of low wage employment.

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<sup>4</sup> Data for all production age (21–65), employed respondents, including those who did not participate or were not working in other waves of the panel.

<sup>5</sup> The other major sources of wage data in Poland are surveys conducted on large representative samples, such as the entity-based Structure of Earnings Survey (SES), the Labour Force Survey (BAEL—LFS), and the European Survey of Income and Living Conditions (EU-SILC). The SES provides only cross-sectional data, and the remaining two surveys are conducted on rotating panel samples. The Polish LFS covers a longer period (it started in the early 1990s.), but does not allow the study of long-term wage transitions, since each respondent is present in the survey for no longer than a year and a half. The EU-SILC, on the other hand, tracks individuals over a period of four years, but covers only a short time-span (since 2005).

### Independent Variables

To capture differences in the economic context of the consecutive 5-year intervals, I use dummy variables which inform about the number of each period of transition between  $t_n$  and  $t_{n+1}$ : *period 1*, *period 2*, *period 3*, *period 4*, and *period 5*. *Age category at  $t_n$*  identifies the youngest (aged 21–25, 26–30, and 31–35 at  $t_n$ ) and oldest (aged 41–45, 46–50, and 51–60 at  $t_n$ ) groups of respondents. 36–40-year-olds are the reference category. Among the remaining control variables, I included *gender*, with men as the reference category, and *education at  $t_n$* , which informs about the type of school completed by the respondent: elementary (including incomplete elementary), basic vocational, high school (including post-secondary vocational), and university (the reference category). Finally, *occupation at  $t_n$*  is a categorical variable based on the Polish Social Classification of Occupations (SKZ, see Domański, Sawiński, Słomczyński 2009). It identifies respondents in occupations which, according to the literature and statistical data, are most likely to offer low wage employment. The latter include, first of all, unskilled manual labour, retail trade, and personal services, where earnings, on average, are among the lowest in Poland (GUS 2009; Kiersztyn 2007). Another important group are sole proprietors (SKZ, as opposed to the International Social Classification of Occupations, treats proprietors as a separate occupational category). In Poland, many sole proprietors are former employees who continue working for their companies as independent contractors. Since contracting out is usually treated by employers as a way of avoiding the costs associated with hiring workers, it seems likely that independent contractors are often in a worse position than regular employees (Kiersztyn 2007). Skilled manual labourers were divided into two categories, in order to control for the heterogeneity between various industrial branches: those working in the lowest-paying industries (construction, agriculture, manufacture of textiles, furniture, food and beverages) and other skilled manual workers.<sup>6</sup> Lower level office workers were also divided, in an attempt to account for differences in complexity, wages, and prestige between various white-collar jobs. The first, lowest-status group includes occupations such as cashiers, secretaries, typists, or receptionists, as well as sales agents.<sup>7</sup> The remaining office workers were included in the second group.

Summing up, *occupation at  $t_n$*  identifies respondents according to the following categories: 1. unskilled manual labour; 2. trade and services; 3. sole proprietors; 4. skilled manual workers in low paying industries; 5. other skilled manual workers; 6. lowest status office workers; 7. other office workers; and 8. managerial, professional, and technical employees—the reference category.

<sup>6</sup> Although officially, the average earnings of skilled construction workers are not as low as in the typical secondary labour market industries, this type of work is done by the largest share of unregistered employees, which may increase the incidence of low pay (GUS 2005).

<sup>7</sup> The values of the occupational prestige scale for these occupations ranged from 16.7 to 37.8, while the average for all office workers was 47.3 (Słomczyński 2009). The low prestige rating of the sales agents category (only 32.9), despite relatively high average wages and job complexity, may be explained by its heterogeneity: it includes higher-level sales representatives, but also a large group of petty salesmen, whose earnings largely depend on how much they manage to sell.

### Empirical Results

The state dependence in low wage employment can be looked at from two points of view. The first is focused only on the chances of exit from low wages. Here, the question is whether having a poorly paid job is associated with a high or low probability of experiencing analogous employment inadequacies five years later. The second compares the transition rates into low paid work between initially low wage and higher wage workers. In the latter case, the persistence of low wages is evaluated relative to the prospects of those who are not in low pay. Both points of view are important in their own right, and both are taken into account in the present analysis.

The first conclusion to be drawn from a descriptive analysis of 1988–2013 POLPAN data is that, consistent with hypothesis 1, the overall rate of persistent low wage employment in Poland throughout the study period is quite substantial. In 237 out of 2585 cases (9.2%) low paid work is observed during at least two consecutive panel waves. In general, poorly paid workers had a 45.5% chance to be in the same situation five years later, over 3.5 times more than other working respondents (12.7%). The results concerning changes in the persistence of low wage employment over consecutive POLPAN waves are shown in [table 1](#). They suggest, unsurprisingly, that the transition probabilities into low pay change counter-cyclically (values A and B). During the economic slowdowns of 1988–1993 and 1998–2003, the risk of low wage employment at  $t_{n+1}$  was higher than in times of prosperity, regardless of whether a respondent was low paid at  $t_n$  or not. The risk of remaining low paid for those who were in the low wage group five years earlier was particularly high in 2003: 63.2%. The probabilities of transition into low pay in the most recent period were similar to those observed during the period of growth following the Poland's accession to the EU.

Table 1

**Low Pay Persistence, POLPAN 1988–2013: the incidence of low wage employment at  $t_{n+1}$  by low wage employment at  $t_n$  (A, B) and the persistence of low wage employment based on transition matrices (A/B)**

| Years ( $t_n - t_{n+1}$ )                                     | 1988–1993   | 1993–1998   | 1998–2003   | 2003–2008   | 2008–2013   |
|---|-------------|-------------|-------------|-------------|-------------|
| Percentage low wage at $t_{n+1}$ of low wage at $t_n$ (A)     | 61.4        | 39.4        | 63.2        | 30.1        | 28.3        |
| 95% confidence interval                                       | (53.3–69.6) | (31.8–47.0) | (51.5–75.0) | (20.6–39.6) | (16.6–40.1) |
| Percentage low wage at $t_{n+1}$ of not low wage at $t_n$ (B) | 25.5        | 6.6         | 13.8        | 2.1         | 2.8         |
| 95% confidence interval                                       | (22.2–28.8) | (4.0–9.1)   | (10.4–17.2) | (0.4–3.8)   | (1.1–4.5)   |
| Ratio of A to B (A/B)   | 2.4         | 6.0         | 4.6         | 14.3        | 10.1        |
| 95% confidence interval                                       | (1.8–3.1)   | (3.6–11.7)  | (3.0–7.2)   | (5.4–91.8)  | (3.7–37.5)  |

Source: Own calculations based on POLPAN data, 1988–2013. Sample sizes in the consecutive periods were: 803, 526, 459, 376, and 421.

However, when we look at the persistence of low wage employment relative to the transition probabilities of workers who were not low paid at  $t_n$  (the A/B ratios in [table 1](#)), a different picture emerges. Contrary to hypothesis 2, the distance between the low paid and other workers increased during periods of prosperity. This is due to

the very low risk of entering low pay among previously higher paid workers in the 1993–1998 and 2003–2008 periods. In other words, although economic upturn improves the prospects of all workers, the proportion of low paid individuals who remain low paid after five prosperous years is still relatively high. This result is surprising; however, given the wide confidence intervals of the estimated percentages (table 1), it should be treated with caution.

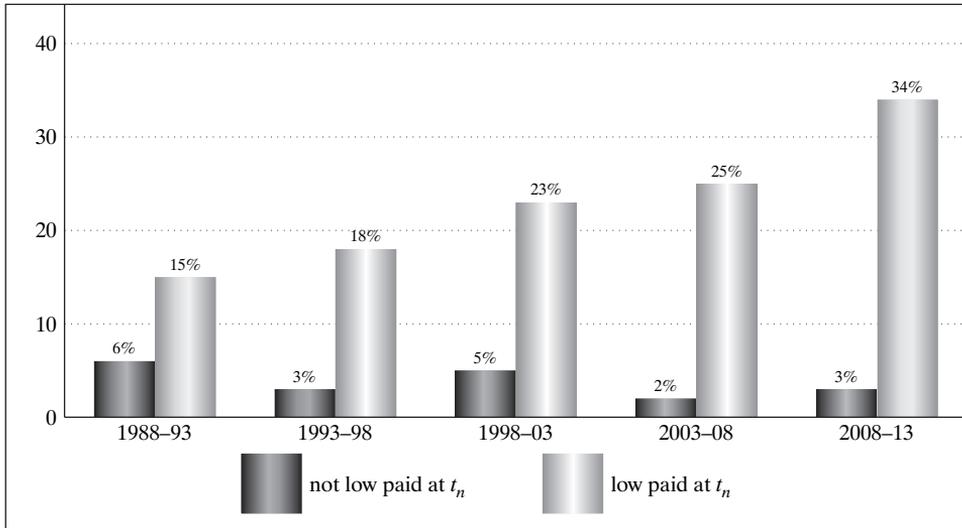
At the same time, the descriptive findings presented in table 1 offer no direct evidence of the systematic, long-term growth in the overall level of low pay persistence, predicted by hypothesis 1. Although for low-wage workers, the likelihood of remaining low paid after five years has not increased during the studied period, the question remains whether there were any secular changes in the persistence of low wage employment. Such long term labour market trends may be difficult to notice at first glance, given the fact that the transition probabilities into and out of low wages are strongly influenced by economic cycles. One simple way to control for this is to weight the low pay transition probabilities in order to eliminate the temporal variation in the incidence of low wage employment. Specifically, for each transition period between  $t_n$  and  $t_{n+1}$ , the cases were weighted by the ratio of the total percentage of low wage workers in the year 2013 (7.7%) to the percentage of low wage workers at  $t_{n+1}$ . The adjusted transition probabilities, presented in figure 2, clearly show that once the overall incidence of low paid employment in the subsequent POLPAN waves is held constant at the 2013 level, an increase in the persistence of low wage work can be observed. The weighted percentage of low paid respondents at  $t_{n+1}$  among those who were also low paid five years earlier grew systematically from 15% to 34%. No such trend was visible among those who were not in the low wage group at  $t_n$ . This finding is consistent with hypothesis 1.

The aim of the second step of the analysis is to see whether, controlling for important worker characteristics (gender, age, education, and occupational group) and the period under study, having a poorly paid job is associated with analogous employment inadequacies five years later. To check whether this relationship is becoming stronger over time (as suggested in figure 2), interaction effects are also examined. To account for repeated observations, I use population-averaged generalized estimating equations (GEE) models with logit link for binary outcomes, estimated using SPSS Statistics Software. *Low wages at  $t_{n+1}$*  is the dependent variable and *low wages at  $t_n$*  is included among the independent variables. This approach is similar to the one adopted in recent analyses of state dependence in temporary employment and unemployment (Giesecke, Groß 2003; Luijkx, Wolbers 2009). Interaction effects are taken into account by adding to the regression models the sum of products of the *period* variables and *low wages at  $t_n$* , weighted by the number of each consecutive transition period (from 1 to 4).

Regression coefficients, presented in table 2, are consistent with hypothesis 3: even after controlling for the basic variables which, according to the literature, influence the likelihood of low pay, the odds ratios for low wage employment remain highly significant. Throughout the study period, low earners at  $t_n$  were almost four times more likely to hold low paying jobs five years later, compared to other workers

Figure 2

**Adjusted Percentage of Workers in Low Wages at  $t_{n+1}$  by Low Wages at  $t_n$ ,  
When the Overall Rate of Low Paid Employment is Held Constant at the 2013 Level**



Note: the percentages were weighted by the ratio of the overall percentage of low wage workers in 2013 (7.7%,  $N = 1072$ ) to the percentage of low wage workers at  $t_{n+1}$ , to control for the variation in the rate of low wage employment across subsequent POLPAN waves. The values of weights for the consecutive five-year periods were: 0.241, 0.463, 0.362, 0.847, and 1.194. The weight for the 2008–2013 period differs from 1, because the percentage of low wage workers at  $t_{n+1}$  was calculated on a subsample of respondents for whom wage data was available at both  $t_n$  and  $t_{n+1}$  (in 2013, this percentage was 6.4%,  $N = 421$ ).

(models 1a and 1b). In addition, regression models point to significant positive interaction effects between *low wage at  $t_n$*  and *period* (models 2a and 2b), implying that the state-dependence in low wages grew stronger in the later years of the transition.

It should be kept in mind that the findings described above may have been influenced by the fact that some of the respondents employed at  $t_n$  were not included in the analysis either since they were not working at  $t_{n+1}$  or due to panel attrition. There are reasons to expect that the probability of non-inclusion is related to the chances of upward mobility. First, low-wage workers have been shown to be more likely, compared to those holding better paying jobs, to become unemployed or exit the labour market, either permanently or as a part of the ‘low-pay-no-pay’ cycle (OECD 2003; Sloane, Theodossiou 2000). Additional analyses of POLPAN data point to a similar tendency: the percentage of low wage workers at  $t_n$  among those who were not working five years later was higher than among those who remained in employment. Arguably, a significant share of the intermittently employed may be seen as trapped in substandard work. There are also studies which suggest that those with the worst labour market position at one wave of a panel study are less likely to participate in subsequent waves (Cappellari 2007). This finding is partially supported by POLPAN data: unskilled manual workers were over-represented among the ones who later dropped out of the panel. As this characteristic increases the chances of long-term

Table 2

**Factors Explaining the Likelihood of Low Wage Employment at  $t_{n+1}$ : odds ratio estimates (OR) and standard errors (SE) from generalized estimating equations (GEE) models**

| Independent variables:                       | Model 1a |       | Model 1b |       | Model 2a |       | Model 2b |      |
|--|----------|-------|----------|-------|----------|-------|----------|------|
|  | OR       | SE    | OR       | SE    | OR       | SE    | OR       | SE   |
| <b>Low wage at <math>t_n</math></b>          | 3.74***  | 0.142 | 3.68***  | 0.146 | 1.83*    | 0.262 | 1.71°    | .282 |
| <b>Low wage at <math>t_n</math> * period</b> |          |       |          |       | 1.45***  | 0.097 | 1.44***  | .106 |
| Gender (1 = female)                          | 3.01***  | 0.140 | 2.58***  | 0.152 | 2.93***  | 0.139 | 2.56***  | .151 |
| Period 1988–1993                             | 9.27***  | 0.245 | 16.18*** | 0.255 | 16.35*** | 0.321 | 28.37*** | .347 |
| Period 1993–1998                             | 2.50***  | 0.266 | 3.79***  | 0.272 | 4.01***  | 0.323 | 6.24***  | .350 |
| Period 1998–2003                             | 5.92***  | 0.243 | 7.69***  | 0.250 | 8.53***  | 0.304 | 11.39*** | .323 |
| Period 2003–2008                             | 1.23     | 0.278 | 1.40     | 0.285 | 1.27     | 0.318 | 1.47     | .325 |
| <b>Age category at <math>t_n</math></b>      |          |       |          |       |          |       |          |      |
| 21–25 years                                  | 1.76**   | 0.218 | 1.48°    | 0.226 | 1.73*    | 0.220 | 1.47°    | .228 |
| 26–30 years                                  | 0.94     | 0.200 | 0.83     | 0.212 | 0.98     | 0.201 | 0.84     | .210 |
| 31–35 years                                  | 1.10     | 0.185 | 1.01     | 0.197 | 1.13     | 0.186 | 1.02     | .196 |
| 41–45 years                                  | 1.45*    | 0.180 | 1.56*    | 0.190 | 1.53*    | 0.184 | 1.61*    | .192 |
| 46–50 years                                  | 1.39°    | 0.195 | 1.50°    | 0.211 | 1.47°    | 0.202 | 1.53*    | .215 |
| 51–60 years                                  | 2.88***  | 0.257 | 3.09***  | 0.274 | 3.20***  | 0.253 | 3.25***  | .276 |
| <b>Education at <math>t_n</math></b>         |          |       |          |       |          |       |          |      |
| Elementary                                   | 8.42***  | 0.273 |          |       | 8.57***  | 0.271 |          |      |
| Vocational                                   | 5.71***  | 0.237 |          |       | 5.84***  | 0.236 |          |      |
| High school                                  | 2.44***  | 0.228 |          |       | 2.48***  | 0.227 |          |      |
| <b>Occupation at <math>t_n</math></b>        |          |       |          |       |          |       |          |      |
| Cashiers, secretaries                        |          |       | 5.38***  | 0.380 |          |       | 5.46***  | .384 |
| Other clerks                                 |          |       | 2.62***  | 0.237 |          |       | 2.69***  | .233 |
| Service work                                 |          |       | 9.66***  | 0.232 |          |       | 9.45***  | .232 |
| Skilled manual work, low paying industries   |          |       | 9.28***  | 0.268 |          |       | 9.02***  | .271 |
| Other skilled manual                         |          |       | 3.99***  | 0.223 |          |       | 3.95***  | .222 |
| Unskilled manual                             |          |       | 10.51*** | 0.217 |          |       | 10.44*** | .216 |
| Sole proprietors                             |          |       | 4.14***  | 0.355 |          |       | 4.23***  | .354 |

Source: Own calculations based on POLPAN data, 1988–2013. Reference categories are: 36–40 for *Age category at  $t_n$* ; university for *Education at  $t_n$* ; managerial, professional, and technical occupations for *Occupational group at  $t_n$* . Employers, farmers and helping family members are excluded, sample sizes are: N = 2571 for model 1a and 2a, and N = 2582 for model 1b and 2b.

\*\*\* p < 0.001.      \*\* p < 0.01.      \* p < 0.05.      ° p < 0.10 (2-tailed).

low paid employment, it is likely that had these respondents remained in the sample, the overall persistence of low wages might have turned out to be even higher than suggested in this study.

A second issue with regards to panel attrition is associated with the difficulties involved in tracking those who change their place of residence. Although in POLPAN, many measures were taken to achieve as high a response rate as possible, the study did not track those who emigrated out of Poland. Hence, foreign migration is an important factor contributing to panel attrition in Poland, especially in the years following the EU accession in 2004. Since this article examines the opportunities for upward mobility on the Polish labour market, the consequences of not including workers who left the

country are only important insofar that they affect the labour market outcomes of those who stayed. According to one interpretation, foreign migration might lead to an underestimation of upward wage mobility, as it may cause a 'brain drain' of the labour force. However, in the Polish case it is more likely that emigration may have, in fact, lowered low pay persistence among those left behind, due to the lower number of candidates competing for better-paid jobs.

### Discussion and Conclusions

The results presented above suggest that low paid employment in Poland is characterized by significant persistence: throughout the studied period, having a low wage job raised the probability of experiencing the same situation five years later. Since five years can be considered sufficient time to exit poverty-level wages, this study is likely to offer rather conservative estimates of low pay persistence. A direct comparison of these findings with the results of studies from other countries is not possible, as the latter use a different low wage criterion. However, there are reasons to expect that low pay persistence in Poland is more acute than in most of the pre-enlargement EU. The low pay threshold adopted here is significantly lower, in absolute terms, than the two-thirds median criterion used in other studies (particularly in the more affluent, Western European societies). Despite this, the percentage of Polish workers paid below the social minimum who remained low paid after five years, 45.5%, was slightly higher than the percentage of EU workers earning less than two-thirds median wage who did not make the transition to higher earnings—41% (EC 2004).

Low pay during one wave of the panel study was found to be strongly related to poverty-level earnings five years later even after including the time variable, and controlling for the respondents' demographic and economic characteristics affecting the likelihood of low wage employment. To some extent, this finding may have been affected by changes in the composition of the sample resulting from panel or employment drop-out. This, however, is unlikely to result in a significant upward bias in low pay persistence, given the typical characteristics of the panel and employment drop-outs. In fact, there is literature suggesting that although endogenous selection significantly affects low pay transition models, leaving such selection mechanisms out of the models does not lead to large biases in the model coefficients (Capellari, Jenkins 2008). On the basis of the present findings, it thus seems reasonable to conclude that low paid employment in Poland is a trap rather than a stepping-stone for workers. This result is consistent with studies pointing to significant scarring effects of low paid work in other countries.

Regarding changes in low pay persistence over time, upward mobility rates among initially low earners were significantly higher during periods of economic upswing; however, the proportion of low paid individuals who remained low paid after five economically prosperous years was higher than might have been expected. In fact, the chances of staying in low wage employment, relative to the risk of entering low pay among those whose initial wages were above the social minimum appear to

have increased during periods of economic prosperity. This counter-intuitive finding should be approached with caution, but may mean that there exists a divide between those in low paid jobs, who do not enjoy the full benefit of economic growth, and other workers, who seem well protected from slipping into low wages as the economy improves. Taken together, these findings suggest that although the tide of economic growth indeed appears to 'raise all boats' to some extent, the magnitude of this rise may be very unevenly distributed. In this context, the systematic, secular growth in the persistence of poverty-level wages over the past two decades, gives rise to particular concern.

These may be various explanations of these findings, each of which warrants additional research. One explanation points to a sorting mechanism, generated by the specific context of the socio-economic transition in Poland—particularly, the increase in earnings inequality driven by rapidly increasing returns to education. In the initial phase of the transition, this was accompanied by a fall in real wages, especially among the lowest earners (Rutkowski 1996; 2001b), which was also reflected in the growth of the percentage of low-paid workers in the POLPAN sample (from one fifth in 1988 to one third in 1993). This explains the very high rate of initially low-paid workers staying low-paid in the second POLPAN wave, but also the relatively bad prospects of higher earners during that period: more than one out of four workers earning above the social minimum in 1988 moved into poverty-level wages five years later. Under such conditions, and given the relatively low earnings of higher educated workers before the transition (Rutkowski 1997; 2001b), it is likely that the low-wage category in the early 1990s. was more heterogeneous with respect to the level of human capital than in the later years. In the subsequent phases of the transition, the negative trend with respect to the median real wage was reversed, and since 2003, the overall percentage of low-paid workers (as defined by the social minimum criterion) fell systematically. However, given the increasing returns to human capital, it is likely that the initially low paid individuals who took advantage of the opportunities brought about by economic development were mainly those with higher skills and abilities. If this was the case, the increase in low-pay persistence may be explained by negative changes in the composition of low-paid workers: an increasing percentage of marginalized individuals with unfavourable characteristics not captured by the control variables included in the regression models. The increasing wage gap between the low earners and other workers described in the literature is also consistent with such an interpretation (Magda, Szydłowski 2007).

Another factor which could contribute to the growth in low-pay persistence in the last years is the prevalence of non-standard employment on the Polish labour market, including both fixed-term contracts and—to an increasing extent—other contractual arrangements not protected by the Labour Code (Kiersztyn 2014). It has been shown in many studies, both in Poland and abroad, that non-standard employment is associated with significantly lower wages (Comi, Grasseni 2012; Kiersztyn 2012; OECD 2014). There are also reasons to believe that given the Polish institutional context, the chances of non-standard employees receiving a permanent contract are limited, and have fallen over the last years, resulting in labour market dualisation (Kiersztyn

2014; Kiersztyn 2015). Non-standard employees, whose status in the firm is often low and who are more at-risk of losing their jobs, are not in the position to bargain for higher wages, even at times of economic prosperity. Their bargaining position is further weakened by the restricted access to unemployment and welfare benefits in Poland. Employees who remain in non-standard forms of employment for prolonged periods of time are thus likely to experience persistent poverty-level wages.

In conclusion, it should be noted that the results presented in this article have important policy implications. Low paid employment, especially lasting for prolonged periods of time, may worsen the economic situation of households. Indeed, the rate of in-work poverty in Poland, although lower than several years ago, is still among the highest in the EU (the only countries with even higher rates were Romania, Greece, Spain, and Italy). In 2012, 10.4% of Polish workers aged 18–64 lived in households whose income was below the at risk of poverty threshold (defined as 60% of the median), while the EU average was slightly above 9% (EC 2014). One important attempt to narrow the wage distribution is through the statutory minimum wage, which has steadily increased over the last years and is now one of the highest among post-communist countries; since 2009, the net minimum wage is slightly above the social minimum level. However, it is now widely believed that the minimum wage by itself is not the best way to improve the situation of the working poor or low productivity workers (OECD 2009). One possible solution is offered by in-work benefits policies, targeted towards the low paid, and withdrawn gradually as wage levels increase, to avoid further exacerbating the risk of low pay traps (see e.g., Immervoll, Pearson 2009). A detailed discussion of policy interventions is, however, beyond the scope of this article.

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