Why don't Eastern Europeans Work Part-time?[1]

*Kamila FIALOVÁ**

Abstract

This article explores the development of part-time employment in Central and Eastern Europe compared to Western Europe. The analysis of panel data reveals the role of part-time work determinants on the macro level and their different effects on part-time employment in the two groups of countries. The large set of determinants includes business cycle, labour market institutions and structural factors. The results indicate that part-time employment in the East and the West is influenced by different, mostly structural, factors. In the East, the development of business cycle has a significant adverse effect. Further, rigorous EPL limits the use of part-time contracts by firms in the East while higher trade union density, greater share of temporary jobs and widespread shadow economy all have a positive effect on part-time employment in this region.

Keywords: *part-time employment, business cycle, labour market institutions, working time*

JEL Classifications: J21, J22, O57, E24

Introduction

Part-time (PT) employment is a common phenomenon in European countries. While the average share of part-timers on total employment in the European Union as a whole has been steadily increasing since late 1990s and hovered below 20% in 2013 (Eurostat, 2014), substantial differences exist between the development in Eastern European and Western European countries.[2]

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In 2013 PT employment was rather common in Western Europe: the data showed an average share of 23.1% on total employment and an upward trend. In contrast, the average share of PT employment in Eastern Europe stood at 6.9% in 2013 without a clear trend.

Despite the significant differences between PT employment in Western and Eastern Europe, the situation in the later has never been sufficiently covered by economic research. Eurofound (2011) explains the discrepancy in PT employment between the new and old member states by the prevailing employees' preferences of full-time work driven by low average hourly pay, common access to free childcare and low fertility rate; the low overall employment rates in the former are then put in connection with high incidence of undeclared work. Other and more complex studies are still missing. In contrast, this phenomenon in Western Europe receives far more attention (see e.g. Smith, Fagan and Rubery, 1998; Garibaldi and Mauro, 2002; Buddelmeyer, Mourre and Ward, 2004; 2008; Mourre, 2006; Booth and van Ours, 2013). This article tries to fill this literature gap.

This article has set two targets. Firstly, to identify the people working PT in Eastern Europe and describe the differences in aggregate patterns of PT work compared to Western European countries. Secondly, it aims to uncover the main factors driving the differences between the two regions on the macro level by employing the similar methodological approach adopted from the existing research on Western European countries. A large set of determinants is used that cover indicators of labour market performance and overall business cycle development, labour market institutions and structural factors.

Determinants of Part-time Employment

Recent literature indicates that since late 1980s the development in PT employment can be attributed to factors on the part of both supply and demand (Tilly, 1991; Euwals and Hogerbrugge, 2006; Allaart and Bellmann, 2007).[3]

[2] The group of Western European countries (West) covers Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, the Netherlands, Austria, Portugal, Finland, Sweden, and United Kingdom; I further add non-EU Norway, Switzerland and Iceland, which I classify as the Western European countries for the purposes of this paper to gain more data for subsequent analyzis. The group of Eastern European countries (East) consists of Central and Eastern European countries that joined the European Union in 2004 and after: Bulgaria, Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovenia, Slovakia, and Croatia.

From the labour demand point of view, PT employment is usually explained under the concept of dual or segmented labour markets. From this perspective, PT work is perceived as marginalized, secondary form of employment, as it represents a source of cheaper and flexible labour to firms. Thanks to PT workers, the employer may profit from increased productivity and also cost advantages resulting from lower hourly wage and premia (Smith, Fagan and Rubery, 1998; Wolf, 2002; Künn-Nelen, De Grip and Fouarge, 2013).[4]

Significant differences in motivation to work PT exist between women and men of different age. For women the two main drives for PT employment are motherhood and caring responsibilities. On the contrary, most male part-timers are young labour market entrants or students or, on the opposite side of the age spectrum, older and retired workers. While for men, PT employment usually occurs at the time of labour market entry or exit, female PT employment is more evenly distributed across age groups and is a more stable labour market state than for men (Blank, 1994; or Delsen, 1998). As PT job wage is insufficient to provide a decent living standard in all but most highly paid occupations (Rubery, 1998), on a household level it must be supplemented by an additional income resulting from either family relations or social security entitlements (Fagan and O'Reilly, 1998).

PT employment is sensitive to business cycle developments in the short to medium run. Empirically, PT employment (relative to full-time employment) tends to rise during economic lows and vice versa and the relationship works through several different channels acting both counter- and pro-cyclically (for details see OECD, 1999; Lester, 1999; Tilly, 1991; Delsen, 1998; Darby, Hart and Vecchi, 2001). Generally, the pro-cyclical effects are supposed to be weak.

[3] The existing literature on the topic has not come to a consensus regarding the effect of PT employment on labour market developments. The positive effects were confirmed by some, while refuted by others. Mourre (2006) shows that the robust development of PT employment was one of the factors that contributed to rising aggregate employment in the euro area in late 1990s. Similarly, Smith, Fagan and Rubery (1998) claim that PT employment accounted for the major part of the net job creation in Europe in 1980s and 1990s. In contrast, the results of the analysis conducted by Garibaldi and Mauro (2002) state that the only European country where an increase in PT employment contributed to growth of total employment was the Netherlands, while in the rest of European countries PT jobs tend to replace full-time jobs and cause only small net effects on the number of hours worked. The results of the analysis carried out by Walvei (1998) indicate that while PT employment might be a viable tool against non-employment, its efficacy in lowering unemployment is limited.

[4] No analysis exist that would compare the willingness of companies to offer PT work in the East and the West, although this may also be a factor driving the large differences in PT employment in these two regions.

Institutional setting of labour markets tends to have a long-term effect on PT employment working through several channels both directly and directly. Flexibility or rigidity of *employment protection legislation* (EPL) may have a twofold effect on firms' incentives to hire part-timers. Firstly, rigid EPL on full-time jobs may encourage the use of PT work by firms as a means to achieve higher flexibility. Secondly, in contrast, EPL may have an adverse effect by directly limiting the use of PT work. Buddelmeyer, Mourre and Ward (2008) show that PT employment in Europe concerns mostly regular, permanent contracts. Therefore, most of the development of PT employment is probably driven by EPL on regular contracts. Yet, EPL on temporary contracts may also exert a small, indirect effect.[5]

Similarly, settings of the *tax system* may have an (unintended) impact on the supply of PT labour. Joint taxation, upper limits for social contributions or progressive taxation may discourage secondary earners from taking a full-time position (Delsen, 1998). The OECD (2010) shows that the tax and social benefit system discourages part-timers from working full time or longer hours in many countries. If means-tested and only granted below certain income threshold, *family or child benefits* can create an "unemployment trap" depending on the setting of the threshold. At the same time, child benefits may subsidize PT work of parents, who would otherwise opt for a full-time position. In contrast, a lack of subsidized childcare system may be a major disincentive for taking up employment. The overall effect depends on the particular setting and generosity of the system. Further, *unemployment benefit system* may create an "unemployment trap" driven by high net replacement rates and long benefit duration (for detailed analysis see OECD, 2010). The financial disincentive to take up a PT job may be substantial because PT positions are not likely to yield high income (Buddelmeyer, Mourre and Ward, 2008).

In the past, concerned about possible undermining of full-time standards, *trade unions* often tended to restrict expansion of PT employment in accordance with the insider-outsider theory. Yet, this practice gradually changed and nowadays trade unions are aware of the necessity to consider the interest of part-timers (Delsen, 1998; Smith, Fagan and Rubery, 1998). Houseman (2001) revealed a negative relationship between unionization and the use of PT work in the United States, although the reverse causality ought not to be ruled out – sectors with high shares of part-timers are generally considered harder to unionize (Hernández, 1995).

[5] Flexible regulation on temporary contracts can facilitate the firms' need for flexibility and thus reduce their incentives to offer PT positions (see Fernandez-Kranz and Rodriguez-Planas, 2011).

The last set of determinants concerns the structural factors of demographic, social and economic character that exert a long-term effect on development of PT employment. Industrial structure of economy may account for significant part of differences in the use of PT employment between countries (Walvei, 1998). The shift towards increasing share of *employment in the service sector* is often cited as one of the important factors determining the development of PT employment since 1990s (Tilly, 1991; or Euwals and Hogerbrugge, 2006).

Schooling rate of young population may also be positively related to PT employment. While young people often use PT work as a gate to the labour market, older workers may use it as a step towards the exit from the labour market. In Europe, this phenomenon may be of a large importance due to progressive *ageing of the population* that may also exert some influence on the use of PT work. Further, the existence of a rampant *shadow economy* may meet the demand for non-standard forms of employment and thus reduce part-timing. Packard, Koettl and Montenegro (2012) show that formal PT jobs at low wage levels may not be a feasible option for many low-productivity workers due to interaction of high taxation of labour and entitlements to social assistance benefits. These workers then rather opt for informal sector.

Some determinants are gender-specific. For women, the increasing *female labour force participation rate* is an important determinant contributing to the growing share of PT employment (Buddelmeyer, Mourre and Ward, 2008), similarly to level of *fertility* (Delsen, 1998). Nevertheless, the causality between PT employment and these factors is not clear.

Development and Main Characteristics of Part-time Employment in Europe

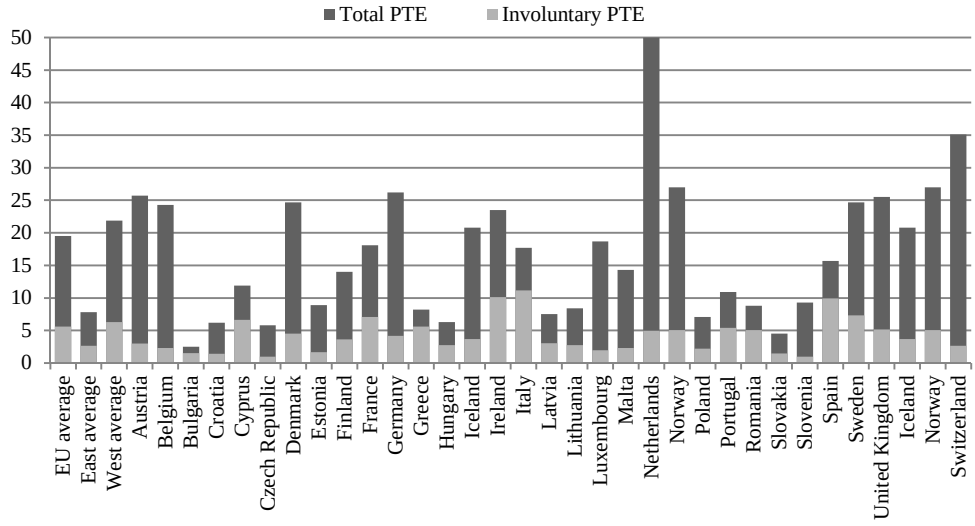
In Western Europe PT employment is a widespread form of employment and the part-time employment rate (PTR), i.e. the share of part-timers on total employment, reached the average of 23.1% in 2013 (Figure 1). The group of Eastern European countries differed substantially with average PTR of only 6.9% in 2013; PTR in the majority of Eastern European states remained between 5% and 10%. The majority of PT employment is voluntary. In 2013 the share of involuntary PT employment on total PT employment in the East was higher than in the West and amounted to the average of 37.8% and 27.3%, respectively. The average share of PT employees on total employment in Europe has been increasing since late 1990s and the pace of growth decelerated in 2008. Again, significant differences exist between the two examined groups of states. In the West the development of PTR was rather stable and in the past years PT employment has been

steadily rising without any sudden jumps. On the other hand, the PT employment dynamics fluctuated in majority of the Eastern European countries.

Given the different roles that PT employment fulfils along the life cycle of a worker, large disparities in PT employment rates exist between different age groups and between the genders. The Eurostat data suggest that while PT employment was a relatively less frequent form of employment among all the demographic groups in the East compared to the West, remarkably large differences could be observed for prime-aged women. They worked PT less frequently than their Western counterparts (the average PTR was only 7.5% in the East, compared to 36.9% in the West in 2013) and more often involuntarily (40% of total PT employment was involuntary in the East compared to 25% in the West). Yet, recent figures show that female prime-age employment rate in the East was comparable to the West. This suggests that women in the East were inclined to work full-time at the expense of PT employment, both voluntarily and involuntarily. This is partly confirmed by the data stating main reasons for PT employment (Eurostat, 2014): Prime-aged women from the West most often named *caring responsibilities* as the main reason for PT work (32.6% of all women working PT in 2013). In the East the most frequently cited reason was the *inability to find a full-time job* (36.1%). In many countries, PT employment is mostly a matter of prime-aged women: their average share on total PT employment amounted to 33% in the East and 46% in the West in 2013. It tends to be higher in countries with widespread PT employment.

F i g u r e 1

Total and Involuntary Part-time Employment in Europe (% of total employment, 2013)



Source: Eurostat.

Table 1 shows cross-country correlations between the share of PT employees and the share of full-time employees, inactive people and employed people in different demographic groups in context of total population in the respective demographic groups. Observed national employment rates are further adjusted for hours worked with a factor 0.6, 0.5 and 0.4 applied to number of PT employees (full-time equivalents). The results reveal further differences between the situation in the East and the West.

T a b l e 1

Relationship between Part-time Employment and Full-time Employment, Inactivity and Total Employment (as a share in total population), 1995 – 2013

Cross-country Coefficients of Correlation with the Share of Part-time Employment in Total Population

	Inactivity		**Full-time employment**		**Employment rate**		**Adjusted employment rate (0.6)** [a]		**Adjusted employment rate (0.5)** [a]		**Adjusted employment rate (0.4)** [a]		**Number of observations**	
	East	West	East	West	East	West	East	West	East	West	East	West	East	West
15 – 64 total	–0.27*	–0.72*	0.08	–0.22*	0.39*	0.75*	0.27*	0.50*	0.24*	0.41*	0.21*	0.30*	205	341
15 – 24 total	–0.49*	–0.78*	0.20*	–0.04	0.54*	0.76*	0.42*	0.56*	0.39*	0.49*	0.35*	0.40*	202	341
50 – 64 total	–0.37*	–0.69*	0.21*	0.23*	0.43*	0.72*	0.35*	0.58*	0.33*	0.54*	0.31*	0.49*	205	341
25 – 49 females	0.21*	–0.40*	–0.34*	–0.71*	–0.10	0.54*	–0.20*	–0.02	–0.23*	–0.18*	–0.25*	–0.33*	205	341
25 – 49 males	–0.07	–0.13*	–0.16*	–0.22*	0.05	0.22*	–0.03	0.05	–0.06	0.00	–0.08	–0.04	200	340

Note: *Statistically significant at the .05 level. [a] Observed national employment rates adjusted for hours worked with a factor 0.6, 0.5 and 0.4 applied to number of PT employees.

Source: Eurostat LFS; own calculations.

In the Western European countries, higher PT employment is associated with lower inactivity – the correlations are negative and significant for all demographic groups. At the same time, PT employment has not expanded at the expense of full-time positions in the group of young and older workers and prime-aged men. On the contrary, the correlation between PT employment and both adjusted employment and full-time employment rate is negative and significant for prime-aged women. In the East, higher PT employment is associated with lower inactivity in the group of young and older workers only. This suggests that while PT employment is a viable option to inactivity for these groups, it also brings about higher labour force utilization, as it enables transitions to and from full-time positions. Once again, the most striking difference between the situation in the West and in the East concerns prime-aged women. Here, we see an insignificant relationship between PT employment and observed employment rate; however, when labour utilization is measured in terms of full-time equivalent work, the

correlation becomes negative and statistically significant. At the same time, higher PT employment does not seem to reduce the pool of inactive people. Compared to the West, the adverse relationship to employment rate is much stronger in the East, and, moreover, while PT employment tends to be connected with lower inactivity in the West, no such relationship seems to exist in the East.

Methodology and Data

The research methodology mainly builds on the approach established by Buddelmeyer, Mourre and Ward (2008), which was extended on the Eastern European countries as well. The specification is close to the ones utilized by Riboud, Sánchez-Páramo and Silva-Jáuregui (2001), Cazes and Nešporová (2003) or Nickell, Nunziata and Ochel (2005), to examine the effect of labour market institutions, shocks and other factors on labour market developments. To exploit both intra- and inter-regional variation, I pool data from the European countries of my concern. The sample covers twenty-eight European countries in 1998 – 2013.[6] Separate analyses were run for Eastern European and Western European countries; the significance of the differences was tested by standard Chow tests.

To examine the effect of roles of business cycle, and institutional and structural factors, the following aggregate model specification is used:

$$PTR_{it} = \alpha + \beta BC_{it} + \sum_{k=1}^{K} a_k X_{kit} + \sum_{j=1}^{J} b_j X_{jit} + \varepsilon_{it} \quad (1)$$

where

- α – the intercept,
- BC – the measure of the cyclical position of the economy,
- X_k – labour market institutional variables and
- X_j – variables describing structural factors.

Most of the variables used in the analysis show a certain trend and therefore are not stationary. To proceed with the analysis, it is crucial to examine whether they are linked together in the long run through a co-integrating relationship, which would mean that the estimated residuals are stationary. Österholm (2004) analysed the low power of the simple ADF test to highly persistent, albeit stationary, alternatives, and concludes that the panel unit root tests have better power

[6] As some of the variables employed in the following estimations were not available for all the countries and years, several model specifications had to rely on a limited sample regarding the number of countries or years covered. The exact definition of country sample is given below the table presenting the results of my estimations.

properties than the simple ADF test (see e.g. Im, Pesaran and Shin, 2003). To test for the panel unit roots Fisher-Maddala-Wu test was employed (Fisher, 1932; Maddala and Wu, 1999). The results of this test reject the null hypothesis of non--stationarity of the residuals, i.e. no co-integration, for the estimated specifications of model (1) listed in Table 2. I also tested for groupwise heteroskedasticity using a modified Wald statistic and for first-order autocorrelation in the residuals, using the LM (Lagrange Multiplier), LR (Likelihood Ratio) and Wald test. Based on the results of these tests, some autocorrelation and groupwise heteroskedasticity was detected in the dataset. To solve this problem the equation is estimated by feasible generalized least squares (see also Nickell, Nunziata and Ochel, 2005).

Some of the variables may suffer from possible endogeneity, especially the variables relating to business cycle position and labour force participation (see also Buddelmeyer, Mourre and Ward, 2008). For the former, developments of employment directly affect economic growth through household disposable income and consumption. Therefore, to check the robustness of the estimates, the output gap is instrumented by growth rate of fixed capital investment. Further, labour force participation is instrumented by its two-year-lagged values (one year lag is not sufficient due to first-order autocorrelation in residuals). To further examine the potential endogeneity, Granger causality test is employed.

Most data was obtained from Eurostat. Yet, some of the variables especially concerning institutional factors were not available in the Eurostat database and I had to supplement them by indicators drawn from the OECD database. Unfortunately, the OECD data is available only for very few OECD members from Eastern Europe, which would cause problems with reliability of my estimations. Therefore, the OECD variables were omitted in several specifications or replaced by indicators from other sources (see below). PTR shows the share of part--timers in a given demographic group of employees. This indicator comes from the Eurostat Labour Force Survey and is self-reported by individuals. Output gap data is the model estimate of the European Commission based on the production function method.

The institutional factors cover the following variables. I adopt the OECD employment protection legislation indices on the strictness of employment protection (OECD, 2004). I use the OECD EPL index version 1, both for regular and temporary contracts. To cover non-OECD countries I also utilize the indicator of Labour Freedom from the Heritage Foundation (its inverse value is employed to maintain the logic of strictness of employment protection). Tax system consequences are reflected by the OECD total tax wedge on labour income, which shows the relation between gross labour income (100% of average wage) and average personal income tax and social security contribution rates. This variable

was replaced by Eurostat implicit tax rate on labour in several specifications. The power of trade unions is indicated by OECD's trade union density indicator, i.e. the share of trade union members on the total number of paid employees in an economy. To investigate the consequences of a country's family policy, I used the Eurostat indicators stating the share of governmental children and family expenditure on total government outlays. To investigate the effect of unemployment benefits, I used the share of average unemployment benefit of a childless single person who formerly received the average wage on the average wage; the source is the OECD.

Among the structural factors, the average gross wage in US dollars based on Purchasing Power Parities (expressed in logarithm) is employed to manifest the wage level in the economy; the indicator comes from the OECD database. Other variables come from the Eurostat database: share of temporary employees on the total number of employees, employment in services as a share of total employment in the economy, total fertility rate, schooling rate of people aged 15 – 24 expressed as the ratio of students in total population of this age, total female labour force participation, index of ageing calculated as the ratio of people aged 65+ on population younger than 15 years. The last variable is the model estimate of shadow economy coming from the research by Schneider (2013) who provides a database on the size of the shadow economy for European countries between 2003 and 2013 based on a MIMIC approach.

Results

The main findings are presented in Table 2. Firstly, the results reveal significant differences in factors that affect the PTR development in the East and the West, as confirmed by the results of the conducted Chow tests. Furthermore, my estimations point to a significant adverse effect of business cycle on the PTR for the East and insignificant effect for the West. In the East, taxation of labour exerts an adverse effect on PTR, although it is not robust across all different model specifications. Negative effect may reflect high marginal taxation that discourages second earners to work PT. Higher trade union density boosts PTR in the East, which contradicts the traditional insider – outsider theory and reflects the increasing willingness of trade unions to protect part-timers. Generally, trade unions are much weaker in the East compared to the West, where trade union density is more than two-times as high (average 17% vs. 37% in 2008). In the West this provides the unions with larger powers to protect the interest of full--time employees, while in the East weaker trade unions may be more inclinable to alternative working-time arrangements.

Employment protection legislation has an ambiguous influence on PTR in the East. The estimated coefficients suggest that EPL on regular contracts tends to diminish the PTR, which is consistent with the finding that most of the PT contracts are permanent (Buddelmeyer, Mourre and Ward, 2008). Consequently, rigorous EPL limits the use of PT contracts by firms. EPL on temporary contracts exerts positive effect on PTR, that is, however, not robust in different specifications. The inverse value of labour freedom indicator has a significant positive effect that contradicts the result for EPL on regular contracts. Nevertheless, these two indicators seem to cover different aspects of labour protection in the East – correlation coefficient between these two variables is negative and insignificant in this group of countries.

The coefficient for government expenditure on family and children is not robust in our estimations for the group of Eastern European countries, although it suggests a negative relationship. A generous system of state family policies may demotivate mothers from returning to work on PT positions; however, state expenditure in this area is substantially lower in the East compared to Western European countries.[7] The relation between the rate of unemployment benefits and the average wage is not significant in explaining the PTR developments.

Several structural variables also proved significant in the analysis of PTR determinants in the East, namely the share of temporary jobs, schooling rate and shadow economy, which all proved to have positive influence on the PTR. The positive relation of PT employment and temporary jobs suggests that these two flexibility schemes together help firms evade labour market rigidity. The positive relation of PTR and schooling rate then confirms that for students, PT employment represents an opportunity to combine work and studies to gain work experience and finance their education. Lastly, the positive effect of shadow economy on PTR may reflect the simultaneous engagement of workers in both formal and informal economy, as widespread shadow economy in Eastern Europe usually does not mean complete informality, but rather underreporting of wages or hours worked (see European Commission, 2004). Further, several structural variables do not exert a clear and robust effect in this group of countries. More specifically, employment in services, female labour force participation and total fertility all show a weak positive effect that is, however, not robust. In addition, the index of ageing has a weak negative and not robust effect. Average gross wage is not significant at all.

[7] The share of governmental children and family expenditure on GDP averaged on 3.6% in the East and 4.8% in the West in 2012.

Table 2

Effect of Business Cycle, Structural and Institutional Factors on Part-time Employment Rate

	(i)		(ii)		(iii)		(iv)		(v)		(vi)		(vii)	
	East	West	East	West	East	West	East	West	East	West	East	West	East	West
Output gap	–0.211***	–0.065	–0.114***	–0.091**	–0.087***	–0.022	–0.071***	–0.018	–0.086***	–0.043	–0.159***	0.106	–0.046**	0.063
EPL regular	–1.713***	–2.376**									–1.125***	–0.711		
EPL temporary	1.435***	–3.723***									0.389	–1.992***		
Labour freedom			292.730***	–245.060***									322.890***	–79.259
Tax wedge on labour	–0.225***	0.071									0.052	0.124*		
Implicit tax on labour			–0.118***	0.257***									–0.051	0.142**
Trade union density	0.128***	–0.114***												
Government expenditure on family and children	0.179	0.622**	–0.483***	0.411**							0.600**	–0.905***	–0.514***	–0.261
Unemployment benefit share on average wage	0.021	0.101*									0.006	0.096**		
Temporary jobs					0.106***	–0.012	0.128***	–0.057	0.261***	0.159***	0.063*	–0.241**	0.118***	–0.282***
Employment in services					–0.023	0.316***	0.033	0.392***	0.022	0.221***	–0.049	0.439***	0.356***	0.543***
Total fertility					1.499	0.349	1.902**	0.670	–0.284	4.939*	1.418	1.459	3.344***	–1.162
Schooling rate					0.093*	0.048	0.018	0.050	0.068	0.107**	0.146***	–0.023	0.088***	–0.050
Female participation					0.136***	0.200***	0.037	0.208***	0.185***	0.218***	0.279***	0.267***	–0.057*	0.266***
Index of ageing					0.009	0.002	0.003	0.027	0.024	0.047**	–0.091**	–0.026	–0.023**	0.020
Log average gross wage PPP					0.752	4.681**								
Shadow economy					0.200***	–0.247**	0.220***	–0.397***	0.340**	0.001				
Constant	15.247***	25.311***	8.038***	12.163***	–23.000***	–62.860***	–8.235**	–19.284***	–22.821***	–29.895***	–13.341*	–21.350***	–19.802***	–28.690***
No observations/ groups/periods (max)	32/ 5/9 (a)	140/ 13/12 (b)	78/ 10/8 (c)	111/ 14/8 (d)	60/ 6/10 (e)	145/ 15/10 (f)	130/ 13/10 (g)	145/ 15/10 (h)	129/ 13/10 (i)	145/ 15/10 (j)	45/ 5/12 (k)	147/ 13/12 (l)	78/ 10/8 (m)	108/ 14/8 (n)
Instrumental vars.	No	No	No	No	No	No	No	No	Yes	Yes	No	No	No	No
Chow test p-value	0.000		0.000		0.000		0.000		0.000		0.000		0.000	

Note: *Statistically significant at the .10 level; ** at the .05 level; *** at the .01 level. Dependent variable: part-time employment rate. Coefficients obtained by feasible generalised least squares estimation procedure allowing for heteroskedasticity and common-across-group first order serial correlation. Where indicated, the two-stage least squares fixed-effects estimator with instrumental variables is utilized to account for possible endogeneity. The instruments used are the growth rate of fixed capital investment to instrument output gap; labour force participation is instrumented by its two-years-lagged values. The panel is unbalanced. Time period and countries covered: (a) 2001 – 2009, Czech Republic, Estonia, Hungary, Poland, Slovenia; (b) and (l) 2001 – 2012, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Netherlands, Austria, Portugal, Finland, Sweden, United Kingdom; (c) and (m) 2005 – 2012, Bulgaria, Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia; (d) and (n) 2005 – 2012, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden, United Kingdom; (e) 2003 – 2012, Czech Republic, Estonia, Hungary, Poland, Slovenia, Slovakia; (g) and (i) 2003 – 2012, Bulgaria, Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovenia, Slovakia, Croatia; (f), (h) and (j) 2003 – 2012, Belgium, Denmark, Germany, Ireland, Greece, Spain, France, Italy, Luxembourg, Netherlands, Austria, Portugal, Finland, Sweden, United Kingdom; (k) 2001 – 2012, Czech Republic, Estonia, Hungary, Poland, Slovenia.

Source: Eurostat; European Commission; OECD Labour Market Database; Heritage Foundation; own calculations.

My analysis showed that compared to the East, in the West PTR is affected by a different set of institutional and structural factors. EPL has a significant negative effect on PTR, both for the regular and temporary contracts, even when measured by the inverse value of labour freedom indicator. Apparently, strict employment protection discourages employers from hiring part-timers, both on regular and temporary basis. Taxation of labour shows a weak positive effect on PTR, its significance is, however, not robust for different specifications. In contrast to the East, higher trade union density seems to diminish the PTR in the West in line with the traditional insider-outsider theory. Finally, the relation between the rate of unemployment benefits and average wage and government expenditure on family and children do not show a clear effect.

Among the structural factors, four determinants with an unambiguous and robust effect on PTR were identified in the West: while employment in services, female labour force participation[8] and average gross wage tend to boost PTR, shadow economy shows a negative relationship to PTR. The negative effect of shadow economy may be due to decreasing attractiveness of low-paid PT employment in formal sector when compared to increasing opportunities in the informal sector. The different character of informality in the East and the West was already documented in literature (Fialová and Schneider, 2014) and only confirmed by these results. The average gross wage positively influences PTR, probably because higher average wage level makes it possible for a worker to live off of part-timers' wage. The estimation results could not confirm a clear relationship between PT employment and temporary employment, schooling rate, index of ageing and total fertility rate in the West.[9]

[8] The causality between PT employment and the female participation rate might be questioned, as higher supply of PT positions may enable labor market participation for many women with small children etc. These results are broadly confirmed when I employ instrumental variables techniques to correct for possible issues of reverse causality (column 5 of Table 2). To test the robustness of the results to possible reverse causality, Granger's causality test was performed. The PTR was regressed by female participation rate lagged by one, two and three years, and joint significance of these regression coefficients was tested. The results rejected the null hypothesis of no Granger causality for the West, but could not reject the hypothesis for the East – this confirms the weak significance of the estimated coefficient in the latter group of countries.

[9] My results concerning the effect of structural factors on PTR in the West generally support the findings of Buddelmeyer, Mourre and Ward (2008), who used a similar method. However, my results do not confirm the significant negative effect of output gap for Western European countries (EU-15) in 1984 – 2001 that was also reported by the authors. I tested the robustness of my estimates using output gaps published in the OECD Economic Outlook database instead of the estimates published by the European Commission. However, this led to very similar results. The disparity between my and Buddelmeyer's results may be explained by a change in patterns of relationship between business cycle and PTR in time.

Lastly I aim to estimate the relative weight of each particular group of factors in determining the development of PT employment in both the East and the West. The applied contribution analysis uses the specification (vi) of the aggregated model described in Table 2 above to reveal the effect of business cycle, institutional and structural factors on the development of PTR over period 2001 – 2012. The contribution of each set of determinants to the change in the average observed PTR in the two groups of states is calculated as the sum of the products of the particular regression coefficient and the change in the intra-group mean value of the variable at stake over the respective time period. Above all, the analysis concludes that structural factors accounted for the major part of PTR growth: more than 92% of the actual growth of PTR in period 2001 – 2012 in the West and 65% in the East was driven by structural factors. In contrast, the contribution of business cycle development was only negligible (about ten times lower than the effect of structural factors) because cyclical upswings and downfalls tend to offset each other in the long run. Similarly, the contribution of institutional factors was much smaller compared to structural determinants (about 16% in the West and 21% in the East).

Conclusions

This article looked at the phenomenon of part-time (PT) employment. In doing so, two groups of countries where examined: Eastern and Western Europe. PT employment is a widespread form of employment in Western Europe, while its utilization in Eastern Europe is still rather limited. Moreover, PT in these countries is not a choice but rather an involuntary alternative to a full-time position for a large share of employees. Substantial differences exist in the demographic structure of part-timers, especially concerning prime-aged women. Eastern European women in this age category tend to work PT significantly less often than their Western European counterparts and are more often subject to involuntary PT employment. Female part-timers in the East often tend to prefer to work full-time: while for Western European women the most frequently cited reason for working PT is caring responsibilities, in the East it is the inability to find a full-time job.

The results indicate significant differences in the effect of business cycle on PT employment rates (PTR) in the East and the West. In the East, the development of business cycle has a significant and adverse effect on PTR, which also reflects in greater volatility of PTR development. In contrast, in the West the effect of business cycle on total PTR is insignificant; here, PTR remains on the rise regardless of what happens in the business.

Part-time employment is subject to different factors of influence in the East and the West. In the East, EPL on regular contracts has a negative effect on the PTR, as rigorous EPL limits the use of PT contracts by firms. Contrary to the traditional insider-outsider theory and results for the West, higher trade union density tends to boost PTR and reflects the increasing willingness of trade unions to protect part-timers in the East. Three structural factors showed a significant positive effect in the analysis of PTR determinants in the East. Firstly, PT employment is positively related to the share of temporary jobs, which suggests that these two flexibility schemes both help firms overcome labour market rigidity. Secondly, the positive relation of PTR and schooling rate then suggests that PT employment presents an opportunity for students to combine work and studies to gain work experience and finance their education. Lastly, the positive effect of shadow economy on PTR probably reflects the simultaneous engagement of workers in both formal and informal economy, as widespread shadow economy in Eastern Europe usually does not mean complete informality, but rather underreporting of wages or hours worked. These findings suggest that PT employment in the East may often be used as a tool to circumvent the labour market rigidity together with other forms of alternative employment relationships (temporary jobs) or even informal employment in the shadow economy.

Our findings revealed that the largest differences in patterns of PT employment between the East and the West concerned prime-aged women. Eastern European women use PT jobs to balance work and family life significantly less often than their western counterparts. This can be probably attributed to longer state-paid maternity leaves guaranteed to the Eastern Europeans that discourage prime-aged mothers from an early return to labour market under a PT scheme (although generally the state expenditure in this area is substantially lower in the East compared to the West). Moreover, once they return, they tend to choose a full-time scheme, probably as a result of low aggregate wage level (although willingness of firms to offer this type of contract is also a crucial factor). In this sense, PT employment is not unambiguously related to female labour force participation or fertility level. Employment rate of women is comparable in the East and the West; the employment rate (full-time equivalents) is even higher in the East. Taking into account the existence of a trade-off between PT and full-time positions in the East, this provokes a question whether any potential growth in female PT employment would bring any positive macroeconomic consequences for overall labour utilization and economic development. While available data show that the main reason for working PT in the East is inability to find a full--time job, no information is available about the part-time/full-time preference of women who work full-time or who are inactive. Also the involuntariness of the

PT work is questionable – it may be related either to real inability to find a full--time job or to inability to accept a full-time job given external constraints. Individual data analysis could reveal workers' motives, detailed characteristics and satisfaction, as well as explain the transition rates from PT employment to other labour market states and vice versa. Such an analysis is still missing for the Central and Eastern European countries.

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