Leibniz Institute for EAST AND SOUTHEAST EUROPEAN STUDIES

Arbeitsbereich Ökonomie

IOS Working Papers

No. 379 February 2019

When the opportunity knocks: large structural shocks and gender wage gaps

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ISSN: 2199-9465

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Abstract

Undergoing a large structural shock, labor markets may become less inclusive. We test for this thesis analyzing the behavior of adjusted gender wage gaps in a wide selection of transition countries. We estimate comparable measures of adjusted gender wage gaps for a comprehensive selection of transition countries over a period spanning nearly three decades. We combine these estimates with measures of labor market reallocation in transition economies. We identify the episodes of particularly large labor market reallocations and observe the behavior of the gender wage gaps subsequent these episodes, and exploit the discontinuity between the cohorts participating in the labor market prior to the onset of transition and cohorts of subsequent entrants. Our analysis reveals a distinctive role played by separations from the state-owned manufacturing firms, leading to greater adjusted gender wage gaps. In the medium run the adverse effects of separation hikes from this sector are even more pronounced.

JEL-Classification: C24, J22, J31, J71

Keywords: gender wage gap, transition, non-parametric estimates, worker flows

We are grateful to Julia Domagalik, Jakub Mazurek and Wojciech Hardy for their efforts in the data collection and management process. Earlier version of this paper has received extremely valuable comments from Saul Estrin, Randy Filer, Gianna Gianelli, Joanna Siwinska, Tymon Sloczynski and Irene van Staveren as well as participants of AIEL, ECSR/EQUALSOC, EALE and TIMTED and seminars at University of Warsaw, Warsaw School of Economics. The remaining errors are ours. This research is a follow up of a project funded by CERGE-EI under a program of the Global Development Network RRC 12. L. van der Velde and J. Tyrowicz gratefully acknowledge the support of National Science Center (grant UMO-2012/05/E/HS4/01510). All opinions expressed are those of the authors and have not been endorsed by CERGE-EI or the NCN.

1. Introduction

Gender wage gaps, adjusted for individual characteristics tend to be highly diversified across countries. In a recent study, Ñopo et al. (2012) report unexplained gender wage gaps ranging from a few percent to over a half of men's wages. Other studies demonstrate as well that the adjusted gaps vary with time, even within one country. Lemieux (2006) argues that gender wage gaps are generally declining in Canada. Stanley and Jarrell (1998), Blau and Kahn (2017) make a similar case for the US, with mixed evidence from other countries.[1] Despite these apparent trends, little is known on *why* gaps adjusted for individual characteristics would narrow down. In a calibrated simulation study, Hsieh et al. (2013) argue that lifting the barriers in access to occupations improved allocation of talents across jobs, thus yielding higher overall productivity. Regardless there is still compelling evidence that in high earning occupations women and minorities remain underpaid, *ceteris paribus* (e.g. Olivetti and Petrongolo 2008, Picchio and Mussida 2011, Christofides et al. 2013, Kassenboehmer and Sinning 2014, Mussida and Picchio 2014, Olivetti and Petrongolo 2014).

This paper exploits the natural discontinuity introduced by transition from a centrally planned to a market economy to inquire the role of structural change for the unexplained gender wage gaps. We compare the gaps for cohorts active prior to the transition (born before 1965) and the subsequent cohorts, whose labor market entry coincided with the waves of labor and capital reallocation upon the onset of transition. To this end, we provide new harmonized estimates of the adjusted gender wage gap for a wide selection of countries and combine these estimates with novel measures of labor market flows obtained from the new cross-country longitudinal survey from the countries of Central and Eastern Europe as well as Central Asia. The adjustment for individual characteristics is especially relevant in the context of large structural shocks, as periods of labor reallocation involve changes in labor demand, thus adjusting the prices for specific skills and abilities as well as incentivizing changes in the labor supply subsequently. We focus on gender wage gaps as gender equality is relevant for each economy, whereas not all countries have sufficient representation (and data coverage) of e.g. minorities.

[1] E.g. Hoyos et al. (2010), Badel and Peña (2010) for Colombia, Atal et al. (2012) for Latin America in general.

The interest in drivers of changes in the adjusted wage gaps has intensified recently. To name just a few identified "suspects": Bartolucci (2013), Card et al. (2016) make a case about wage bargaining; Bertrand et al. (2015) emphasize household bargaining, Mandel and Semyonov (2005), Cha and Weeden (2014), Goldin (2014) place attention on working time flexibility. Indeed, the institutions analyzed in the context of gender wage gap range from trade policies (Weichselbaumer and Winter-Ebmer 2007, Oostendorp 2009), through educational policies (Falch and Naper 2013, Strand 2014, Lavy and Sand 2015), welfare state (Mandel and Shalev 2009, Mandel 2012) going as far as meta-features of culture and language (Tyrowicz et al. 2015).

Despite the richness of this literature, little effort so far was put into analyzing the role of structural change. This literature gap is all the more surprising, given the earlier suggestions from the labor literature. First, skill biased technological change is arguably not gender-neutral (e.g. Juhn et al. 1993, Card and DiNardo 2002, Lemieux 2006, Hansen 2007, Andini 2007, Black and Spitz-Oener 2010). Second, there is some tentative evidence that other factors such as business cycle and unionization may matter for gender wage inequality (e.g. Freeman 1979, Wunnava and Honney 1991, Kandil and Woods 2002). Finally, earlier evidence from large structural shocks is compelling as well. The rise of labor market participation of women was marked in many countries by the permanent structural reallocation of production during the war periods (e.g. Acemoglu et al. 2004, Fernández et al. 2004, Goldin and Olivetti 2013). In the process of economic transition from a centrally planned to a market economy – another example of a large structural shock – employment of women has been characterized by segmentation and frequently has also weakened. This process was accompanied by – as evidenced by some well documented cases – a rise in gender wage gaps (Blau and Kahn 1992, Brainerd 2000, Blau and Kahn 2003, Munich et al. 2005a).

Our study contributes to the understanding of gender inequality in the context of large structural shocks in two ways. First, we offer comparable and reliable measures of adjusted gender wage gaps and changes thereof in transition countries for the first two decades of transition. This is the largest collection of such estimates.[2] Second, accounting for demographic processes and human capital we provide evidence for the role of labor market churning.

[2] Ñopo et al. (2012) report results for a broader selection of countries, but at one given point in time. Our full selection together with documentation may be downloaded from LINK

Exploiting common trends and country-specific starting points, we are able to show that more churning is associated with larger estimates of the adjusted gender wage gap, particularly for those cohorts that were more exposed to the transformation, that is for cohorts working before the onset of transition.

The paper is structured as follows. We begin by presenting the relevant literature – with a focus on two main points: the previous empirical findings and properties of methods to adjust for individual characteristics in estimating the wage gaps. In the following section we carefully describe the data and method used in this study. Since we use various types of data from over 14 countries over two decades, this section is detailed. In addition to a description of each database, this section provides a first insight at gender wage gaps in transition economies and how databases compare to each other. This section also introduces the database used to measure gross worker flows in transition economies: the Life in Transition Survey, and discusses properties of the estimated flows. Finally, in section 4 we characterize the estimated adjusted gender wage gaps and the correlates. In the concluding section we provide some policy-oriented recommendations rooted in the findings of this study.

2. Structural change and wage gaps – insights from literature

Typically, recessions as well as technological shocks are swift to propagate. Biddle and Hamermesh (2013) argue that relative wages of women and minorities follow business cycle in the US. They attribute the volatility in unadjusted relative wages to higher cyclicality of wages among movers as opposed to those who do not change jobs. Greater job mobility among women and minorities generates cyclical fluctuations observed in wage gaps (see also Hirsch and Winters 2014). In the UK, an adverse economic shock is associated with an increase of racial prejudice, yielding lower hiring rates for minorities (Johnston et al. 2014). Both results suggest that discrimination should intensify during periods of exogenously larger churning (procyclicality).

For women, there appears to be a clear trend of declining unadjusted wage gaps, but this process is mostly driven by a narrowing gap in human capital, as argued by Blau and Kahn (2017) in the case of the US and Lemieux (2006) for Canada. Similarly, Arulampalam et al. (2007) find lowering of the gender wage gap in EU15 countries. This convergence in human capital was reinforced by the skill-biased technological change, which reduced returns to occupations where men may have had a comparative advantage (e.g. those that require physical strength and/or endurance).[3] Although, in a meta-analysis, Stanley and Jarrell (1998) argue that also the adjusted wage gaps decline, this trend is much slower than in the case of the raw gap, admittedly due to frictions in working hours flexibility (see also Cortes and Pan 2013, Goldin 2014, Cortes and Pan 2016).

The working time flexibility is likely to explain cyclical properties, mainly because the alternative cost of home production is likely to vary with the cycle. In addition, exogenous shocks such as factory shutdowns were demonstrated to affect not only the workers, but also their spouses (e.g. Ortigueira and Siassi 2013, Lundborg et al. 2015, Huttunen and Kellokumpu 2016, Huttunen et al. 2018). However, this recent literature is an exception from the rule, because typically exogenous identification is missing whereas accessing high quality data on both wages and worker flows is a challenge.

[3] In parallel to the economic processes, Hsieh et al. (2013) show the potential role for institutional barriers, which in the early 1960s prevented pure talent-based choice of occupations and which were gradually removed with the Equal Opportunity Act and related legislation on occupational licensing (see also earlier work by Card and DiNardo 2002).

The transition from centrally planned to market based economies may serve as a useful playground for a number of reasons. First, the shocks were sudden and thorough. The average GDP drop in 1992 relative to pre-1989 level amounted to as much as 20%. Indeed, the shock was exogenous to the extent to which labor market participants at that time could not account for the onset of transition in their educational, nor occupational choices (clearly, subsequent labor market flows were partially endogenous). Second, the former socialist countries were characterized by different starting points in terms of economic structure and human capital, which affected the ability to adapt to new conditions. Third, counter-intuitively, high quality data on gender wage gaps and labor market flows are accessible and may be used, as we do in this study.

In general, centrally planned economies were characterized by relatively high participation rates, also among women prior to the transition (Tyrowicz et al. 2018). Job security implied little conflict of interest between family and professional obligations. Working hours were regular, while overtime was relatively rare (e.g. Fay and Frese 2000, for East Germany). Notwithstanding, there has been compelling evidence for overmanning and inefficient use of labor force prior to the transition (Kornai 1980, Porket 1989, Kornai 1994). The subsequent decline in employment rates was sharp and until today in many of the transition countries employment rates have not recovered. The downward adjustment was larger for women, which yields a trend opposite to the developments in Western European countries (Blau and Kahn 1996).

Consistent with the phenomenon of asymmetric adjustment in the participation rates for men and for women is structural change in labor demand. In the case of Germany, as demonstrated by Hunt (2002), decrease in measured raw gender wage gap occurred mostly due to composition effects, i.e. reduction in low-skill low-paid jobs for women and a substantial decrease in female participation rates. Brainerd (2000) discusses the erosion of the social position of women in a number of Eastern European countries, specifically due to less adaptability and less competitive approach to their career. Similar conclusions are given by Adamchik and Bedi (2003), Grajek (2003) for Poland and Jolliffe and Campos (2005) for Hungary. These trends seem to be observed also in advanced market economies. For example, Mandel and Shalev (2009) argue that regulation of labor market reinforces the unequal position of women by molding it with class dispersion.

In addition to changing position of women, the very context of transition from central planning to market system indeed constitutes a large structural shock (see Newell and Reilly 1999, for evidence from a comparative study). In addition to change of ownership structure and altering the incentives in the economy, other strong forces affected the labor market equilibrium. First, in nearly all countries transition was accompanied by an educational boom, with large proportion of (younger) labor force obtaining a tertiary degree (Ammermüller et al. 2005, Denny and Doyle 2010, Rutkowski 1996). Second, transition driven restructuring has been coupled with intensive globalization and increasing role of global value chains, which largely affected the specialization in the Eastern European countries. Finally, general trends in demographics and urbanization intensified, affecting both the demand structure and the supply characteristics. Despite sizable country and industry specific effects (Stockhammer and Onaran 2009) the main findings so far suggest unequivocally that inequality grows, while changes in educational attainment explain considerable part of that change (e.g. Garner and Terrell 1998). There was also a strong effect of human capital and factor market imperfections on household decisions regarding labor use and reallocation (Rizov and Swinnen 2004).

As demonstrated by Munich et al. (2005a) for Czech Republic, one of the few countries for which the data permitted direct comparison, gender wage gaps increased rapidly during transition. In a similar spirit Brainerd (2000) analyses household budget surveys (HBS) for seven transition economies for the period *directly* before and after the introduction of the major economic reforms, utilizing the *quasi*-panel structure of the HBS data. She finds that while in general inequality grew in this period, changes affected women more adversely, which contributed to the widening of the gender wage gap. Similar evidence was found for Ukraine (Ganguli and Terrell 2006). In addition, some of the studies focusing on later phases of transition tend to find stable or even gradually decreasing gender wage gaps (e.g. Dohmen et al. 2008, for Russia).[4]

[4] For country level analyses see Trapido (2007) for Estonia, Latvia and Russia, Adamchik and Bedi (2003) for Poland, Pastore and Verashchagina (2006) on Belarus, Munich et al. (2005b) for Czech Republic on direct transition effects, Campos and Jolliffe (2003) on Hungary, Orazem and Vodopivec (1997) for Slovenia, Arabsheibani and Mussurov (2006) for Kazakhstan, Gorodnichenko and Sabirianova Peter (2005) compare Russia and Ukraine, Lehmann and Terrell (2006) analyze wage formation patterns for Ukraine, while Newell and Reilly (1999) analyze the adjusted gender wage gap along quantiles for 11 transition countries in mid-1990s. Using data for a few selected years, Madalozzo and Martins (2007) finds decreasing adjusted gender wage gaps for Brazil and Chi and Li (2008) finds the opposite for China.

Despite rich literature and an apparent consensus, there are some unchartered waters to mention. First, these analyses use different data types, different measures of wages and estimate wage gaps with the use of different methods. Given this heterogeneity, one finds it naturally questionable to compare the results across countries and periods. Meanwhile, the economic turmoil varied both in terms of timing and in terms of severity across these countries. Therefore, the link between transition itself and the increase in gender wage gap seems plausible, but the direct role of labor market reallocation remains yet to be uncovered.

Second, none of these analyses comprised measures of labor market reallocation. In fact, many of the estimates do not even control for selection into employment, let alone potential occupational segregation, sorting, etc. Naturally, no single method of decomposing raw wage differentials into adjusted and unadjusted component is able to address all possible labor market frictions (see Fortin et al. 2011, for a thorough overview of decomposition methods in economics). However, adjusted measures of gender wage gap should account adequately for possibly relevant objective differences, which is not only a data issue but also a conceptual one. Namely, for obtaining the adequate measures of adjusted gender wage gaps one needs to compare men and women actually “alike” in terms of all relevant observables, including hours effectively worked, commitment, talent, etc.

The simplifications necessitated by the availability (and the quality) of data typically bias the estimates of adjusted gaps without much intuition on the size of this bias. Indeed, Goraus et al. (2017) show that the estimates of adjusted gender wage gap using the same data may range from 8% to as much as 26%, depending on controls for selection effects, on the decomposition method employed and on the set of covariates included. Luckily, this study demonstrates that Ñopo (2008) provides the most reliable estimate when data limitations prevent the inclusion of rich set of covariates, with the additional advantage of informing about the size and sign of the selection bias. This advantage stems from the fact that unlike majority of the parametric approaches, Ñopo (2008) provides estimates of adjusted wage gaps based on non-parametric exact matching procedure. Hence, the method is able to utilize the information about unmatched men and women in the sample to infer the sign and size of the bias.[5]

[5] Ñopo (2008) was not the only to use matching for identifying adjusted wage gaps. For example, Pratap et al. (2006) employed it to measure adjusted wage differences between the formal and informal sectors in Argentina. The assumption of Rosenbaum and Rubin (1983) about the “ignorability of treatment” required for propensity score matching is not likely to be satisfied in case of gender (it should not be perceived as “treatment”). Hence, matching on characteristics should provide more reliable estimates than matching on propensity scores.

3. Data

The objective of this study is to cover the process of economic transition from centrally planned to a market economy. We thus aimed to collect data for as many as possible countries from Central and Eastern Europe and former Soviet Bloc. Acquiring reliable data sets for early transition is a challenging task. Most of these countries lacked any labor force surveys (LFS) in the first years since transition. When available, LFS data frequently do not comprise information on compensation and household structure simultaneously. Finally, LFS is usually recovered from a rotating panel, which makes it impossible to obtain reliable measures of structural change in the labor market. While one can compute the measures of net change in employment (e.g. growth in service sector employment and decline in manufacturing employment), micro-level information is needed to know how many worker flows were actually needed to accomplish a given change.

To address these issues we pursue two parallel strategies. First, to obtain internally consistent measures of the gender wage gaps, we collect a large number of micro-datasets from transition and advanced economies. We utilize the sources available onlineand contacted statistical offices in all transition countries to obtain individual level data. Second, to obtain measures of structural change and labor market adjustment we utilize a novel dataset developed by the European Bank for Reconstruction and Development, *Life in Transition survey* (LiT). This survey was conducted in 29 countries, including most of the European transition economies; missing only Turkmenistan from the former USSR and Kosovo.[6] The LiT survey contains retrospective information on labor market status and, hence, it is our main source. Since this data is retrospective, it could be susceptible to demographic trends, in particular migration and mortality. For migration, the survey asks about the entire labor market history of a household member, which means that only migrations of full households could be a source of a bias. In the case of mortality, Tyrowicz and Van der Velde (2018), who also use this data, show that the bias due to mortality is low. We describe the data in detail below.

[6] In each country, 1000 individuals were interviewed. The sampling procedure reflects different stratification levels, including sub-national departments and cities. The 2006 wave of the LiT survey provides retrospective data on employment.

3.1 Collection of individual earnings data

We use data from International Social Survey Program, Living Standard Measurement Surveys of the World Bank and national labor force surveys. Data for some of the transition and benchmark countries come also from the Structure of Earnings Survey. In order to provide a benchmark for transition countries, we also include data from European Community Household Panel. Table A1 describes in detail the source of data and period covered for each of the analyzed countries.[7]

International Social Survey Program. It is a voluntary initiative for countries world wide to collect data for social sciences research. This study focuses on attitudes and beliefs, but the survey contains an internationally comparable roster with demographic, educational, labor market and household structure information. While it is not customary to use such data in labor market analyses, these particular data sets have numerous advantages. First, they are available for transition countries already in early years after the collapse of the centrally planned system. For some of the transition countries it is available already pre-transition, whereas Poland, Russia and Slovenia may be acquired as of 1991. ISSP data was already used for gender discrimination analyses (e.g. Blau and Kahn 2003).

Living Standards Measurement Survey. Developed by The World Bank, LSMS is a standardized household budget survey with a number of modules in the questionnaire relating to the household structure, demographics, educational history, labor market status and wages. While LSMS is coordinated by The World Bank, it is usually implemented by statistical offices from the beneficiary countries. This feature might raise some doubts concerning both the quality of the data (e.g. many missing values) and representativeness of the sample. Notwithstanding sample sizes for small countries benefiting from the LSMS program comprise about 10 000 observations, while in some cases the number of observations exceeds 30 000 individuals. LSMS data were used for Albania, Azerbaijan, Bosnia, Bulgaria, Kyrgyzstan, Serbia and Tajikistan.

National Labor Force Surveys. As evidenced by Stanley and Jarrell (1998), studies based on LFS type of data are characterized by lower publication bias. Availability of relatively high quality data on hours actually worked implies hourly wages may be computed with higher

[7] The Wage Indicator Project is an alternative dataset. It is operated by Wage Indicator Foundation and comprises self-reported online survey data on wages for 80 countries; however, data from transition countries is only available since the late 2000's, which omits the transition period.

precision, thus resulting in lower bias due to inadequate treatment of part-time or overtime. However, without access to household roster, accounting for the household structure is impossible, which prevents taking good account of asymmetric labor supply decisions by men and women in the presence of small children in the household.

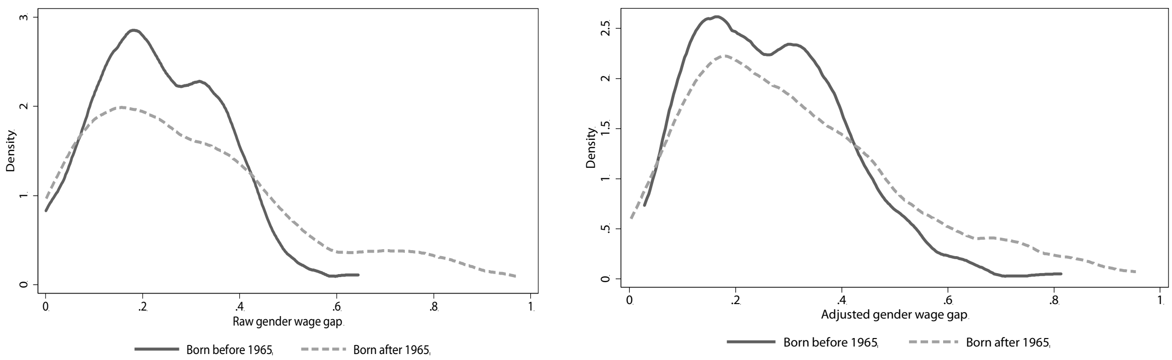
We use LFS data for Serbia for years 1995–2002 and for Poland for years 1995–2006. In addition to these LFS, we also employ a similar database for Russia, the Longitudinal Monitoring Survey. Collected since the onset of transition, the database has been used extensively in research before, e.g. Zohoori et al. (1998), Gregory et al. (1999) as well as many public health studies.

Structure of Earnings Surveys. This database collects information on workers' individual characteristics, hours worked and wages from employers. While it is collected in the form of a survey it is quasi-administrative data. In many countries firms have a legal obligation to report individual wage data for all workers or a representative sub-sample of workers. In comparison to the alternative sources, the SES is the most reliable database in terms of hours worked and compensations of different form (normal hours, additional hours, premia and similar). However, SES database lacks information on household structure and is only collected from the enterprise sector; in some countries, the sample is restricted further to cover only part of the enterprise sector, excluding e.g. small firms with less than 10 employees.

We use SES data for Hungary for years 1994–2012, as SES was not collected in earlier years. In addition, we also utilize EU-SES data, which is a harmonized data set over all EU Member States, available every fourth year since of 2002.

In total, we acquired over 150 data points (countries/source/years) from transition countries. Both raw and adjusted gender wage gap estimates are highly dispersed in our sample, with values ranging from almost nil differences to as much as 95% of men wages. On average, cohorts active before transition exhibit lower gender wage gaps than entrants, but only by a small margin (22% to 20% at the median). The discrepancies for the gender wage gaps between data sources do not exceed 10 percentage points and are consistent with the range of discrepancies reported by International Labor Organization in the Key Labor Market Indicators database. Typically, wage gaps are lower in data with larger number of observations (such as SES or LFS) than in other surveys, which may suggest that wage gaps are not the only dimensions of gender inequality in the labor markets. Moreover, variance of the estimates appears to be lower in SES and LFS than in ISSP, consistent with the evidence from the description of the adjusted gender wage gap. Figure 1 shows the distribution of the gender wage gap estimates for cohorts active before transition and for cohorts that entered afterwards.

Figure 1: Estimates of the gender wage gap



Data source: please refer to Table A1 for details on sources.

In order to maintain the comparability of the estimates of the adjusted gender wage gap, we employ one decomposition method and always utilize the same set of control variables. Given the multiplicity of the data sources, some compromise was necessary as to which variables are used for matching. Ñopo (2008) suggests age, education, marital status and urban/rural identification are sufficient to adequately capture gender wage gap in the matching procedure. Three arguments support this choice. First, industry of employment and occupation are much more of a "choice" variable than demographics and already acquired education. One could expect them to be much more labile and to the same extent influencing the gap as possibly being influenced by them. Second, as evidenced by Figure A1 in the Appendix, the inclusion of job specific characteristics in itself does not change substantially the estimates of the adjusted wage gap (the unexplained part of the wage gap), while it lowers substantially the share of population that falls into the common support.[8] Smaller common support does not undermine the reliability

[8] The example is built using Polish LFS data.

of the adjusted gender wage gap measure, but hazards its external validity. Finally, from an empirical standpoint, the inclusion of additional covariates is not always possible. Information on relevant firm characteristics, such as ownership type, the size, or the industry are usually absent from the databases we collected.[9]

Following Ñopo (2008) and Huber et al. (2013), all continuous variables were recoded to categorical variables. This concerns age (5 year age groups were formed) and residence (multiple categories with different reference levels were universally recoded to urban/rural dummy, where the threshold is around 20 thousand people). Also, we produced a categorical variable with three levels: tertiary or above, primary and below and any secondary. Such broad characterization was dictated by data availability – a more refined categorization would not be feasible for some countries. Marital status used in matching takes two values (in relationship and single, regardless of reason). As described by Ñopo (2008), all these categorical variables are effectively interacted because this procedure allows exact matches only. The outcome variable in this analysis is hourly wage.

3.2 Measuring labor market flows

In order to measure the extent of labor market churning, we compute measures of flow intensity from individual data in the LiT survey.[10] The restrospective questionaire from the LiT database provides information on the jobs held by workers in each year. This characteristic permits a direct identification of gross worker flows: separations and hirings.[11] LiT data provides an identification for job spells, we can observe the years in which the respondent work in a given position.[12] To mitigate the potential endogeneity between womens' wages and womens' employment patterns, we compute all the measures on flows realized by male workers.

[9] Information on occupations was coded more often than industry, hence we reiterated the estimation procedure with a richer set of controls that includes occupations, see Table A5.

[10] The index of structural change developed by Lilien (1982) is a frequently used indicator of the labor reallocation. It conveniently synthesizes the changes in employment structure. However, the Lilien index might be sufficient to capture the scale of churning in the labor market at a given point in time, because it is a net measure rather than a gross measure.

[11] Taking up a new job is not necessarily job creation (the position may be assumed after someone whose contract was terminated or the previous worker retired) and separation is not necessarily job destruction (the position may be immediately filled by someone else).

[12] A small fraction of LiT participants report multiple contemporaneous jobs. We identify the main occupation in a given year using the lowest ISCO code which corresponds to the highest skill level. "Nested" jobs, that is jobs that begin and end while an individual has another occupation are excluded from the analysis.

LiT includes information on firm, including the industry and the ownership structure at the time of employment.[13] Given this information, we are able to provide measures for multiple types of worker flows. To this end, we compute measures for general separations, hirings, gross and net reallocation, and excess reallocation.[14] We complement the analysis of general labor market flows with a focus on flows that were relevant from the perspective of transition countries. These include the transition from employment in state-owned companies to private firms (privatized or *de novo*) and also flows between manufacturing and services.

First, we provide general estimates of movements in the labor market, both into and out of jobs. These flows correspond to hirings and separations, and are both expressed as a percentage of workers. **Hirings** is defined as the ratio between the number of new matches in a given year and the number of employees in the previous year. New matches refer both to movements out of non-employment and to job-to-job flows. **Separations** refer to the probability of a ending a match, which could occur either because a worker found a better position (job-to-job flows) or because the worker became non-employed.[15] Hirings then indicate the proportion of new matches, whereas separations indicates the proportion of matches that are dissolved.

$$\text{Hirings} = \frac{Flow_{N\to E} + Flow_{E_i \to E_j}}{E_{t-1}} \quad \text{and} \quad \text{Separations} = \frac{Flow_{E\to N} + Flow_{E_i \to E_j}}{E_{t-1}},$$

where E_i, E_j denote employments in positions with $i \neq j$ and N refers to non-employment. We complement these measures with three additional, conventional indicators of labor market reallocation: gross reallocation measure (sum of hirings and separations), net reallocation measure (hirings less separations) and excess reallocation measure (difference between gross reallocation and net reallocation).

A drawback of these reallocation measures is that although they reflect general labor market trends, they do not allow to capture which flows are related to globalization and/or transition. To address this point, we additionally estimate the **probability of leaving state owned**

[13] Respondents are also asked about the year in which the firm began to operate, which could be used as a proxy for whether the firm was privatized or is a new private firm; however, we do not exploit the distinction between privatized and new firms.

[14] These flows corresponds to the measures employed in ?; however, our definition are based on worker flows while Davis and Haltiwanger analyze job flows.

[15] The distinction between unemployed and inactive is hard to recover in LiT database, as workers were not asked about their search behavior during non-employment spells. This consideration also affected our decision to measure hirings as a percentage of the workforce instead of as the probability of finding employment.

enterprises (SOE)[16] and the ratio of hirings in the private sector with respect to the total number of hirings, as proxies for the effect of transition. Second, we estimate the **probability of leaving firms in the manufacturing sector** and the ratio of flows into service sector over all hirings, as proxies for the effect of globalization.

$$\text{Inflow}_i = \frac{Hirings_{t,i}}{\sum_i^n Hirings_{t,i}} \quad \text{and} \quad \text{Outflows}_j = \frac{Flow_{E_j \to N} + Flow_{E_j \to E}}{E_{t-1,j}},$$

where i refers to either private sector or the service industry and j identifies SOE and manufacturing industry. Two clarifications are needed. First, sectors and industries are not mutually exclusive. Flows from manufacturing in an SOE to a service firm in the private sector contribute to the four indicators: they are inflows to both services and private firms, and outflows from both manufacturing and the SOE. These flows, however, are rare. Second, these measures reflect changes in hiring and separation patterns, which do not necessarily affect total employment in each sector. If only firms in the private sector hire workers, the value of inflows equals one. Moreover, if all hirings represent job-to-job flows, then the net changes for private sector will be zero.[17]

Table 1 displays the descriptive statistics of worker flows for the cohorts born before and after 1965. In this table we report measures averaged over the countries and only for the years for which we have matching samples allowing estimation of the adjusted gender wage gap. Table A2 extends the sample to cover all years for the same list of countries.

Table 1: Labor market flows for selected cohorts

	Hirings	Sep.	Gross	Net	Excess	Outflows		Inflows	
						Manuf.	SOE	Serv.	Priv.
Cohorts born b. 1965	0.05	0.08	0.10	–0.03	0.06	0.08	0.14	0.49	0.60
	(0.03)	(0.03)	(0.04)	(0.03)	(0.04)	(0.06)	(0.08)	(0.27)	(0.27)
Cohorts born a. 1965	0.17	0.09	0.20	0.08	0.12	0.10	0.15	0.54	0.62
	(0.08)	(0.04)	(0.09)	(0.06)	(0.06)	(0.10)	(0.14)	(0.20)	(0.23)
N	117	117	117	117	117	117	117	117	117
Episodes	20	25	13	12	13	4	12	20	18

Data: LiT survey. Note: Table presents non-weighed means of reallocation measures, standard deviations in parentheses. *Hirings* is the ratio of new matches to employment; *separations* is the ratio of dissolved matches to employment; *net* is the difference between separations and hirings; *gross* is the sum flows to employment, out of employment and between jobs; *excess* is the difference between gross and the absolute value of net. Sample restricted country year pairs for which we can recover the gender wage gap. See Table A2 for averages for a complete sample countries and years available in LiT survey.

[16] We identify workers in SOEs as those who are employed in public owned firms (self-reported) and who are not working in administration, education and health sectors.

[17] Naturally, employment changes in the sector could be negative if the sector experiences separations to non-employment.

Table 1 reveals the capital importance of distinguishing between cohorts. Cohorts born after 1965 are characterized by higher hiring rates, relative to cohorts born before 1965. By contrast, separations appear to be quite similar across cohorts, which results in the negative net changes for cohorts born before 1965, some of them related to retirement. Values of excess suggest that cohorts born after 1965 experienced more fluctuations in career patterns. Such observation might indicate that workers from earlier cohorts tended to remain in more stable sectors and industries, e.g. public administration, and mostly left employment to retire. In spite of the differences in terms of labor market flows, there appears to be less evidence that cohorts born before and after 1965 differed in their transition patterns. Point estimates indicate that cohorts born after 1965 were more likely to experience reallocation to the new sector: they had a greater probability of leaving the old sectors (manufacturing and SOE) and flows to the new sectors represented a larger proportion of hirings. Differences, however, are only statistically significant among those that entered services.

Following the contribution of Hausmann et al. (2005), we identify **episodes of rapid change** in the reallocation indicators. Episodes of rapid change in a given labor market in a given year have to meet two criteria: the measure has high value in a given country (80^{th} percentile as the threshold to define high values); and the measure grew 50% with respect to the previous year. Hence, our identification of episodes of change looks as follows:

$$Episode = \begin{cases} 1 & \text{if } variable_t > 80^{th} \text{ percentile and } variable_t > 1.5 * variable_{t-1} \\ 0 & \text{otherwise,} \end{cases}$$

where $variable$ denotes previously discussed measures of labor market flows, computed separately for cohorts born before and after 1965.

In total, we identify between 4 and 25 episodes of rapid labor reallocation, depending on the measure. The number of episodes of hirings is higher than the number of episodes of separations: on average we observe up to three episodes of hirings per country, whereas the number of separations is much lower and amounts to roughly 2. Episodes of separations are more numerous than episodes of hirings, but in the case of structural flows, the distinction between cohorts born before and after 1965 is less pronounced. There is also substantial country heterogeneity both in terms of timing and in the number of episodes. For example, Czech

Republic appears to have more episodes towards the end of the transition period; in Russia, episodes appear to be evenly split over time; and in Poland they appear to be concentrated in the period 1995 to 2000. For illustrative purposes, in Figures A2 and A3 we show the eight transition economies, for which the data on gender wage gap has the highest availability and thus permits covering almost the whole transition period. Episodes of more intensive flows do not appear to be synchronized. The lack of any significant synchronization is documented in Table A3 in Appendix.

4. Results

Our approach in this study is to verify if the episodes of massive labor market reallocation are associated with changes consists of two steps. First, we compute comparable measures of adjusted gender wage gaps. These estimates are obtained by the means of the Ñopo (2008) decomposition. Subsequently, the gender wage gap estimates are used as explained variables, whereas labor market flows and episodes play the role of the correlates. This way we aim to analyze the relationship between the scope of the structural change and the (estimates of) adjusted gender wage gap.

In Table A4 we provide summary statistics of the gender wage gaps for our two cohort groups. Gender wage gaps, adjusted or not, are quite similar in both cohorts, and hover around 23% – 25% of men's wages. However, for the cohort born after 1965 estimates present a greater dispersion. As is standard in the gender wage gap literature, adjusted gender wage gap are greater than the raw gaps, suggesting that conditional on characteristics, women should earn more.

Data coverage and quality differs substantially across countries and periods, as shown in Table A1 in the Appendix. We include fixed effects for the interaction of country and data source and we weight estimates, in the spirit common in meta-analyses, i.e. adjusting greater weight to more precise estimates of the adjusted gender wage gap (see Stanley and Jarrell 1998). We use the inverse of the standard deviation of the estimate of the adjusted gender wage gap as weight, correcting for the number of data sources for a given country and a given year. We also cluster standard errors at country-year level. Hence, the estimates are not susceptible to the fact that availability of data is greater in the case of some countries. In Table 2 we show the estimations for the episodes measures for the 9 indicators of the labor market flows. Columns indicate the variables used in the estimation on the right hand side of the equation. The estimates of the gender wage gap are always the left-hand side of the equation. For example, in column (1) we report the coefficients on a dummy for hirings episodes, in the previous year (denoted by L_1), two years back (denoted by L_2) and so on.

A sudden hiring episode has no subsequent effects on gender wage gaps, but separations episodes are associated with an increase in gender wage gaps for cohorts active in the labor market prior to the transition by as much as 4 percentage points, i.e. on average roughly 20%. Outflows from both SOEs and manufacturing firms stand behind this increase: job destruction in the public sector and in sun-setting industries is associated with greater extent of wage disparity between men and women, after accounting for individual characteristics. Indeed, the more churning in the labor market, the stronger the extent of disparity between men and women. The effects appear relatively persistent.

These episodes correlate strongly with subsequent increase in adjusted gender wage gaps for the cohorts already well established in the labor market (i.e. born prior to 1965). In the case of cohorts entering labor market in the observed period, it appears that labor market churning is less systematically related to the magnitude of the adjusted gender wage gap – the estimated coefficients are of similar magnitude, but the standard errors are much larger, which contributes to insignificant correlations between episodes and subsequent wage gaps. It seems that the magnitude of the gender wage gaps at early stages of career is comparable to later stages (recall Figure 1), so compression of wages does not stand behind this result. Indeed, it appears that the observed phenomenon is driven by the generational divide: if younger cohorts enter into the booming sectors, they might be less exposed to the negative consequences of separations that affected older cohorts.

Table 2: Episodes of fast transition and the adjusted gender wage gap

	Hirings	Separations	Net	Gross	Excess	Outflows from		Inflows to	
						SOE	Manufacturing	Private	Services
					Cohorts born before 1965				
L_1	–0.01	0.04***	–0.04*	0.04*	–0.01	0.05***	0.03***	0.03	0.01
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.01)	(0.03)	(0.02)
L_2	0.01	0.02**	–0.03	0.06***	–0.00	0.04***	0.04***	–0.03	–0.00
	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.03)	(0.01)
L_3	0.01	0.02	–0.00	0.06***	–0.01	0.04***	0.04***	–0.05***	–0.02
	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)
					Cohorts born after 1965				
L_1	0.01	0.00	0.08***	0.14***	0.00	–0.02	–0.00	–0.03	–0.06
	(0.02)	(0.02)	(0.02)	(0.04)	(0.05)	(0.02)	(0.02)	(0.03)	(0.05)
L_2	0.01	–0.00	0.02	0.01	0.00	–0.01	–0.01	–0.00	–0.03
	(0.02)	(0.02)	(0.02)	(0.04)	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)
L_3	0.00	0.01	0.03*	0.02	0.00	–0.02	–0.01	–0.01	–0.00
	(0.02)	(0.02)	(0.02)	(0.03)	(0.03)	(0.01)	(0.02)	(0.01)	(0.03)

Notes: Table presents coefficients from regressions of the adjusted gender wage gap on episodes of rapid labor market change. Each cell represents a different regression. Columns indicate the variable on which measures of rapid labor market change were obtained. L_n represent dummy variables on whether the country experienced an episode of reallocation of a given variable in any of the last n years. All estimates are weighted by the inverse standard deviation of the adjusted gender wage gap and the inverse number of data points per country year. Additional controls include a set of dummy variables for years and country x data source fixed effects. Standard errors clustered at the country-year level. *,**,*** indicate significance at the 15%, 10% and 1% level. In Table A5 we report analogous results from a specification when occupation is included in estimating the adjusted gender wage gap. The main results are robust to this choice, despite a decline in sample size.

Alternative explanation relates to the outside option. Unlike cohorts already established in the labor market, cohorts entering the labor market after transition lacked a “safe” alternative: whereas older cohorts could have accepted wage cuts and wage arrears in exchange for keeping the job, younger cohorts did not have that choice, as they frequently searched first employment. By contrast, in the older cohorts wages were admittedly compressed prior to the transition commencement, creating the room for decompression. This decompression does not appear to have been gender neutral. Consequently, whereas a combination of self-selection and risk aversion could help to explain why gender wage gaps in cohorts active before onset of transition are related to labor market, they have little explanatory power among cohorts that entered the labor market afterwards.

It is also possible that the positive role of flows out of the inefficient sector could be related to social norms. To the extent that women are considered secondary earners, their income might be perceived as less relevant for the household and a higher separation rate among women as a “lesser evil.” The mechanism which translates such patters to increased gender wage gaps could consist of two types of adjustments. On the one hand, in low paying jobs women are fired more intensively, but wages were less unequal in this group, hence making the increase in the adjusted gender wage gap a composition problem. On the other hand, wage bargaining position of workers – in general weaker at the moments of large structural change – could be more abused towards disadvantageous groups, such as women or minorities. With the currently available data, we are unable to discriminate empirically between the two mechanisms, but both call for policies targeted at disadvantageous groups.

Transition countries offer a great natural experiment to study how rapid transformation of the labor market affect gender inequality, in this case how it could affect gender wage equality, adjusting for differences in characteristics. Our initial hypothesis was that periods of large structural change had an effect on wages asymmetric with respect to gender. Indeed, it appears that more labor flows tends to be less beneficial for women, but only those established in the labor market: newcomers wages were not more unequal with respect to wages.

While the use of transition economies as a natural experiment is quite promising, data availability constrains empirical strategies. First, one could be interested in splitting cohorts into more groups. Some of the workers born after 1965 made their educational decisions under socialist rule, and might be prone to suffer some of the same skill obsolesce than older workers. One could then expect that results of this group to be somewhere in-between those from cohorts born before 1965 and cohorts that made all decisions after the onset of transition. Then, estimating the relation independently from these groups could move the results of the later cohorts even further away from the older groups. Unfortunately, such a split would considerably reduce the samples used in the estimation of episodes of labor transformation from the LiTS database.

Second, the lack of comparable data from all transition countries implies using databases of varying reliability. We took steps to moderate this concern, namely include country-source fixed effects and we weight observations by the inverse of the standard deviation of the estimate (giving more weight to the more precisely estimated adjusted gender wage gaps as is frequent in the meta-analytical literature). We also cluster standard errors at country-year level. However, these steps mitigate the risk that lower quality data drive our results: they cannot mitigate the risk that in countries-years for which data remain unavailable the patterns are different.

A final concern arises from recognizing shortcomings of using retrospective data for the estimation of the flows. If respondents are more able to recall more recent transitions, then our estimates of job flows are biased. In our case, such concern appear to be not significant. First, descriptive evidence on the number of episodes indicates that while there is a spike between 2005 and 2006, these are not the sole years for which we observe episodes. Depending on the country and cohort, episodes might be found as early as 1994, as shown in Figures A2 and A3. Second, even if flows were concentrated towards the end of the sample period, their influence should be smaller in regressions including lags, which still show the importance of globalization and reallocation processes.

5. Conclusions

Gender wage differentials have garnished considerable attention of the researchers worldwide. Notwithstanding, comparative studies remain rare; such analyses require micro-data sets which are relatively difficult to acquire and of diverse quality. Few existing comparative papers either focus on the raw gap (e.g. Polachek and Xiang 2014) or employ meta-analysis techniques to control for differences in estimation procedure (e.g. Stanley and Jarrell 1998, Weichselbaumer and Winter-Ebmer 2007). Our paper contributes to filling this gap. We employed a relatively robust non-parametric technique developed by Ñopo (2008) to provide comparable estimates for over 150 databases from transition economies over the past three decades. We utilize these estimates to provide insights on the link between labor market reallocation and adjusted gender wage gaps.

We explore the role played by structural transformation of the labor market, particularly periods of large and sudden labor reallocations. Transition countries are a suitable case, as they experienced a period of rapid adjustment of the labor market, which responded to two forces: transition from probably overmanned and inefficient state-owned enterprises to private firms; and reallocation of production away from manufacturing and into services resulting from globalization forces. We seek to learn whether the churning resulting from the two sources of reallocation affected wages of a vulnerable group asymmetrically.

Our results suggest that a surge of firings is associated with higher gender wage gaps, adjusting for individual characteristics, particularly among cohorts that were active before the onset of transition. Flows out of the inefficient sector, and especially episodes of rapid increases in those flows, showed a strong positive relation with the gender wage gap among older cohorts. This cohort divide may be related to a skill match between education obtained under central planning and requirements of the capitalist labor market. Another plausible explanation is related to an asymetrically weakening bargaining position of the workers who were established in the labor market prior to the transition: women may have been more prone to accept wage cuts in exchange for job stability.

In a broader context, our results confirm that crises may have asymmetric effects in the labor market, with stronger effects among groups in a disadvantageous position, such as women. Hence, our results could be interpreted as arguments in favor of targeting policies that help to cushion business cycle effects to specific groups. A possible example, related to the skill obsolescence narrative from transition economies, could consist of maintaining gender quotas in re-skilling and activation programs targeted at nonemployed individuals.

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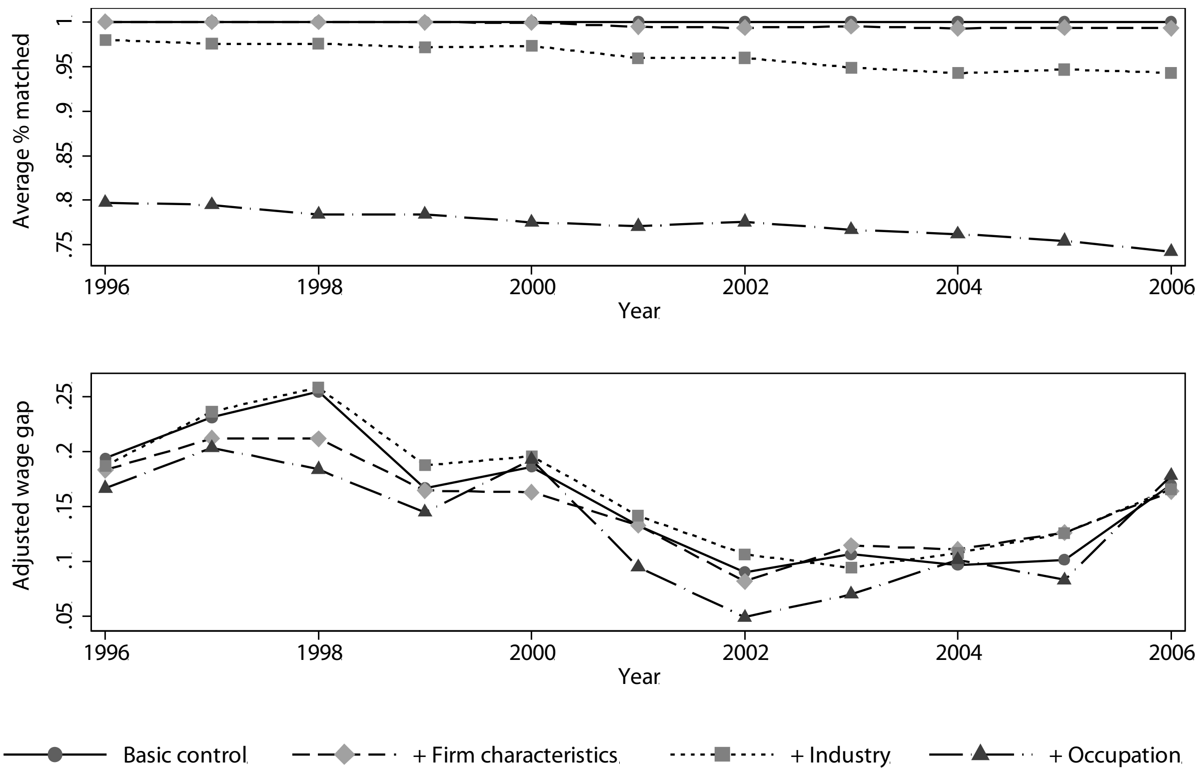
A. Appendix

Table A1: Countries and years included in the analysis

Country	ISSP	LFS	LMS	LSMS	SES
BGR	1992/1993, 1997/2000, 2002/2005			1995, 1997, 2001	2002, 2006
CZE	1992, 1995/1999				2002, 2006
EST					2002, 2006
HRV	2006				
HUN	1990, 1992/1999, 2002/2006				2002, 2006
LTU					2002, 2006
LVA	1995/1996, 1998/2006				2002, 2006
POL	1991/1999, 2001/2004, 2006	1995/2006			2002, 2006
ROM					2002, 2006
RUS	1991/1997, 1999, 2001, 2003, 2005/2006		1994/1996, 1998, 2000/2006		
SRB		1995/2002		2002/2003	
SVK	1999, 2002/2004				2002, 2006
SVN	1993/2006				
UKR			2003/2004		

Notes: Table displays different datasources used to recover the gender wage gap for each country and year included in our analysis. *ISSP* stands for the International Social Survey Program; *LFS* for national labor force surveys; textitLMS for Longitudinal monitoring survey (Ukraine and Russia); *LSMS* for Living Standards and Measurement Survey; *SES*, for Structure of Earnings Survey. More information on each database are available on the main text.

Figure A1: Comparison of gender wage gaps and sample match for different sets of control variables



Notes: The upper figure displays the evolution of workers in the common support under different specifications. The measure used is the average of the percentage matched for men and women. All estimations are conducted on Polish LFS data. The lower figure displays the evolution of the adjusted gender wage gap. *Basic controls* include age, education, marital status and a dummy for cities over 20 000 inhabitants. *Firm characteristics* adds size of the firm, ownership status and a dummy for whether worker has a full time position. *Industry* adds industry of employment, coded using NACE 1 codes. *Occupation* adds ISCO 88 occupational codes at the 1 digit level.

Table A2: Labor market flows: all years

	Hirings	Sep.	Net	Gross	Excess	Outflows		Inflows	
						Manuf.	SOE	Serv.	Priv.
Cohorts born before 1965	0.05	0.08	–0.03	0.10	0.06	0.08	0.14	0.50	0.64
	(0.03)	(0.03)	(0.03)	(0.04)	(0.04)	(0.05)	(0.08)	(0.28)	(0.25)
Cohorts born after 1965	0.17	0.09	0.08	0.20	0.12	0.09	0.16	0.56	0.66
	(0.08)	(0.05)	(0.07)	(0.09)	(0.07)	(0.09)	(0.13)	(0.18)	(0.19)
N	252	252	252	252	252	252	252	252	252

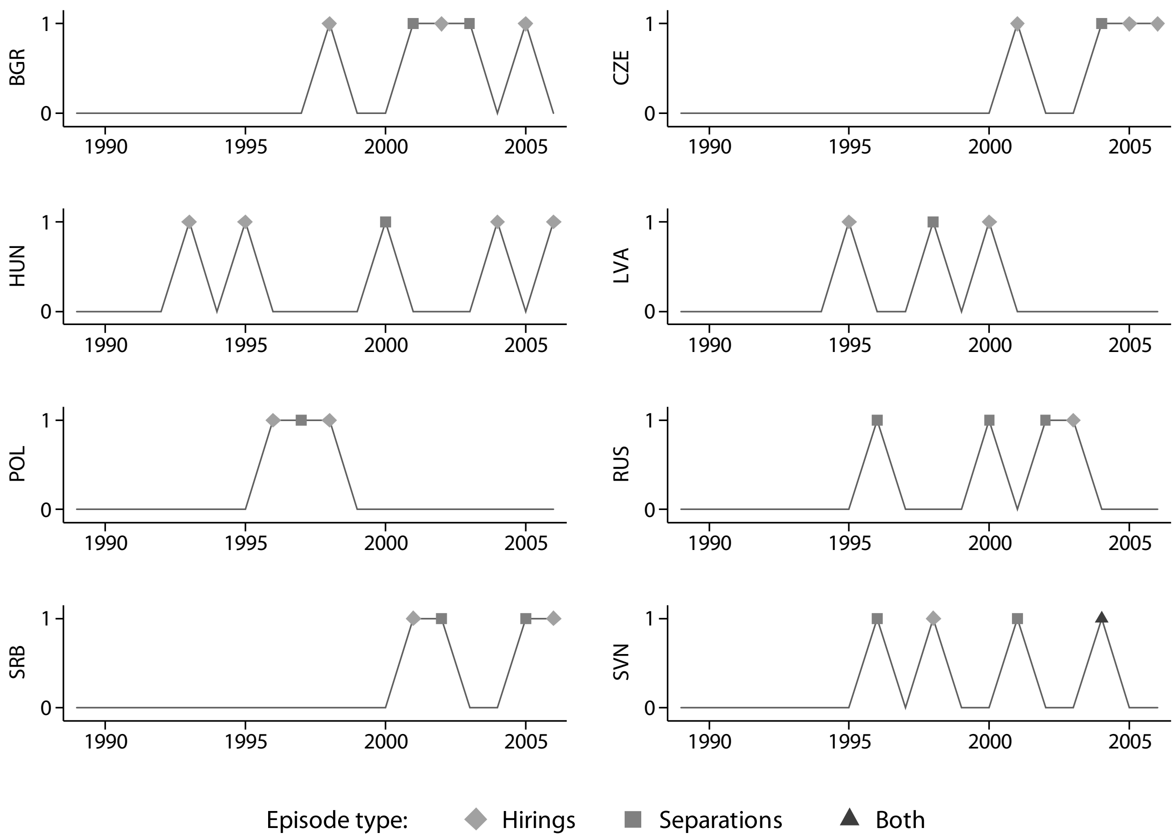
Note: Table presents average and standard deviations of different worker flows, in parentheses, for two cohorts of workers: those born before and after 1965. *Hirings* is the ratio of new matches to employment; *separations* is the ratio of dissolved matches to employment; *net* is the difference between separations and hirings; *gross* is the sum flows to employment, out of employment and between jobs; *excess* is the difference between gross and the absolute value of net. Sample includes only countries for which we estimate the gender wage gap, see Table A1, all years included.

Table A3: Synchronicity of flows in labor markets

		Overall flows	Transition flows	Globalization flows
Episodes	Correlation	–0.05	–0.06	–0.09*
Episodes	Partial correlation	–0.04	–0.14***	–0.07
Levels	Correlation	–0.32***	0.03	–0.12***
Levels	Partial correlation	0.11**	–0.03	-0.13***

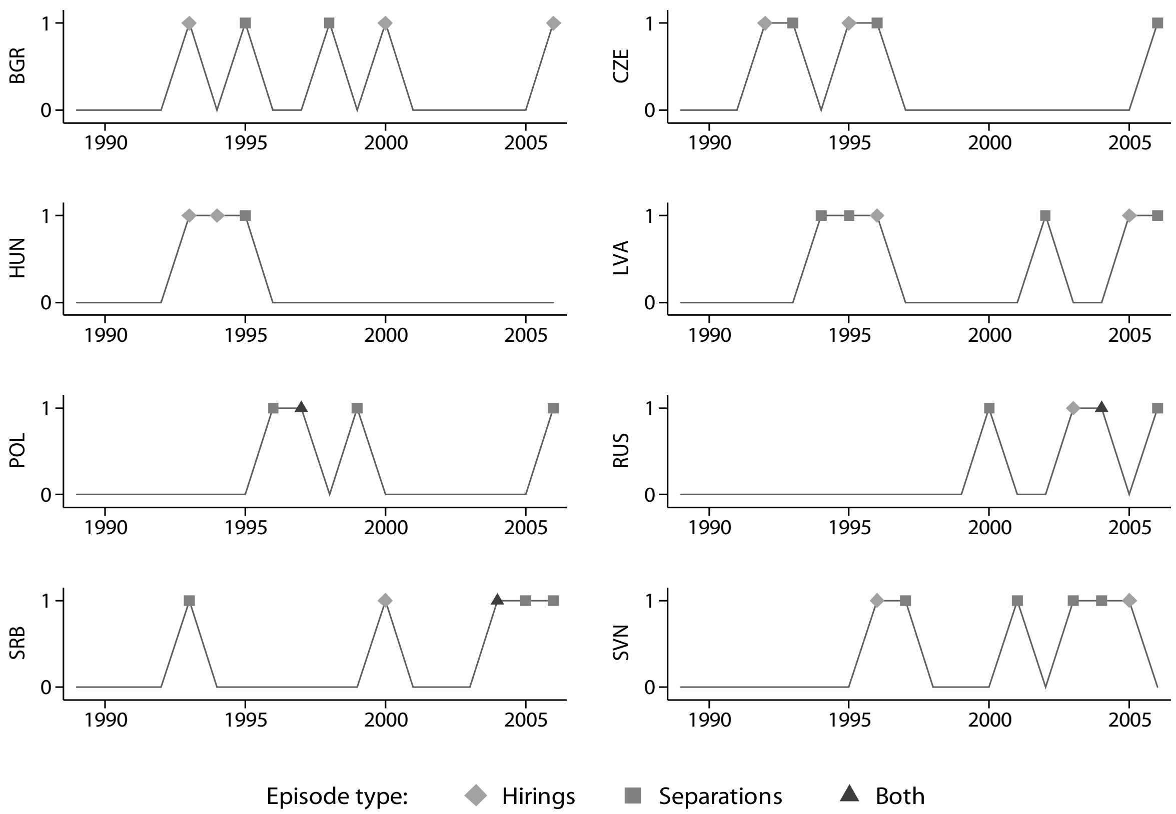
Notes: Table displays correlation and partial correlation coefficients of measures of hirings and separations. Overall refers to correlation between hirings and separations; transition, to the correlation between private sector in hirings and separations from public sector; and globalization, to the correlation between services in hirings and separations from manufacturing sector. The number of observations is 308.

Figure A2: Number of hirings and separation episodes per year: cohorts born before 1965



Notes: The vertical axes identifies whether an episode took place in that year (denoted by 1) or not (denoted by 0). The figure also indicates on which variable we recorded the episodes. Estimates for other countries/yearsand other measures available upon request.

Figure A3: Number of hirings and separation episodes per year: cohorts born after 1965



Notes: The vertical axes identifies whether an episode took place in that year (denoted by 1) or not (denoted by 0). The figure also indicates on which variable we recorded the episodes. Estimates for other countries/years and other measures available upon request.

Table A4: Summary statistics of the matching

	Raw gap	Δ_A	Δ_M	Δ_F	Δ_X	% matched male	% matched female
	Cohorts born before 1965						
Median	0.19	0.23	0.00	0.00	–0.03	1.00	1.00
p10	–0.02	0.06	–0.01	–0.05	–0.11	1.00	1.00
p90	0.39	0.46	0.02	0.01	0.02	1.00	1.00
	Cohorts born after transition						
Median	0.18	0.25	–0.01	0.00	–0.04	1.00	1.00
p10	–0.08	0.06	–0.04	–0.01	–0.11	1.00	1.00
p90	0.55	0.63	0.00	0.01	0.01	1.00	1.00

Notes: Table displays results of the estimation of the gender wage gap. Δ_A stands for the adjusted gender wage gap; Δ_M, for differences in wages between matched and unmatched men; Δ_F, for differences in wages between matched and unmatched women; and Δ_X for the explained component of the gap. All estimates presented as percentage of average male wage. For a full list of countries, databases and years under analysis refer to Table A1 in the Appendix. Given the short list of covariates included in the regression, the percent of matched men and women is large, regardless of the cohort under study. Hence, the contribution of differences in wage between workers in and out of the common sample on the total gender wage gap is unlikely to be substantial. The average value of these gaps conditional on observing some gap is presented in columns Δ_M and Δ_F.

Table A5: Flows and gender wage gap: controling for occupation

Episodes	Hirings	Separations	Net	Gross	Excess	Outflows from		Inflows to	
						SOE	Manufacturing	Private	Services
	Cohorts born before 1965								
L1	–0.02	0.04***	–0.05***	0.02	–0.03	0.03*	0.01	0.03	0.02
	(0.02)	(0.01)	(0.02)	(0.03)	(0.03)	(0.02)	(0.03)	(0.04)	(0.02)
L2	–0.00	0.04***	–0.03	0.05***	–0.02	0.03**	0.05***	–0.04**	0.00
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
L3	–0.01	0.04***	0.01	0.05***	–0.02	0.03**	0.05***	–0.04**	–0.01
	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)	(0.01)	(0.01)	(0.02)	(0.03)
	Cohorts born after 1965								
L1	–0.02	–0.01	0.00	0.10**	–0.00	–0.03	–0.01	–0.05*	–0.09*
	(0.03)	(0.04)	(0.05)	(0.05)	(0.06)	(0.04)	(0.05)	(0.03)	(0.06)
L2	0.00	0.01	0.00	0.03	0.01	–0.00	–0.03*	–0.04	–0.06*
	(0.02)	(0.02)	(0.03)	(0.03)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
L3	0.00	0.01	0.00	0.04	–0.02	–0.02	–0.06***	–0.03	–0.00
	(0.02)	(0.02)	(0.03)	(0.03)	(0.04)	(0.02)	(0.02)	(0.03)	(0.04)

Notes: Controls for occupations included in the estimation of the adjusted gender wage gap, otherwise this table is analogous to Table 2. Each cell represents a different regression. Columns indicate the variable on which measures of rapid labor market change were obtained. L_n represent dummy variables on whether the country experienced an episode of reallocation of a given variable in any of the last n years. All estimates are weighted by the inverse standard deviation of the adjusted gender wage gap and the inverse number of datapoints per country year. Additional controls include a set of dummy variables for years and country-source pairs. Standard errors clustered at the country year level.