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Gender Unemployment Gaps: Evidence from the New EU Member States*

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Abstract

Using EU LFS data, we analyze gender unemployment gaps in eight new EU member states – the Czech Republic, Hungary, Slovakia, Poland, the three Baltic states and Slovenia – over the last decade. While there are substantial unemployment gaps in the four central European countries and, more recently, also in Slovenia, there is no statistical difference between female and male unemployment rates in the three Baltic states. The estimated cost of having children, in terms of the higher probability of unemployment and lower unemployment to employment transition rate, is the highest in countries with the longest and most substantial drop in the labor force participation of women after childbirth. We show that country differences in family leave policies can explain much of the cross-country variation in the gender unemployment gaps.

Abstrakt

Tato studie analyzuje s použitím mikrodat EU LFS genderové nerovnosti v nezaměstnanosti v osmi nových členských státech EU - České republice, Maďarsku, Slovensku, Polsku, pobaltských zemích a Slovinsku - za posledních deset let. Zatímco ve čtyřech středoevropských zemích a v posledních letech také ve Slovinsku existují podstatné genderové nerovnosti v nezaměstnanosti, v pobaltských zemích není mezi mírou nezaměstnanosti mužů a žen žadný rozdíl. Odhadnuté náklady přítomnosti dětí, měřené vyšší pravděpodobností nezaměstnanosti a nižší pravděpodobností přechodu z nezaměstnanosti do zaměstnanosti, jsou nejvyšší v zemích s nejdelším a nejhlubším propadem participace žen po porodu na trhu práce. Studie dochází k závěru, že většinu pozorovaných mezinárodních rozdílů v genderových nerovnostech v nezaměstnanosti lze vysvětlit rozdíly v rodinné politice jednotlivých zemí, a to především v délce mateřské a rodičovské dovolenné.

JEL classification: J13, J71

Keywords: Gender Unemployment Gap, Labor Force Participation, Family Leave Policies

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1 Introduction

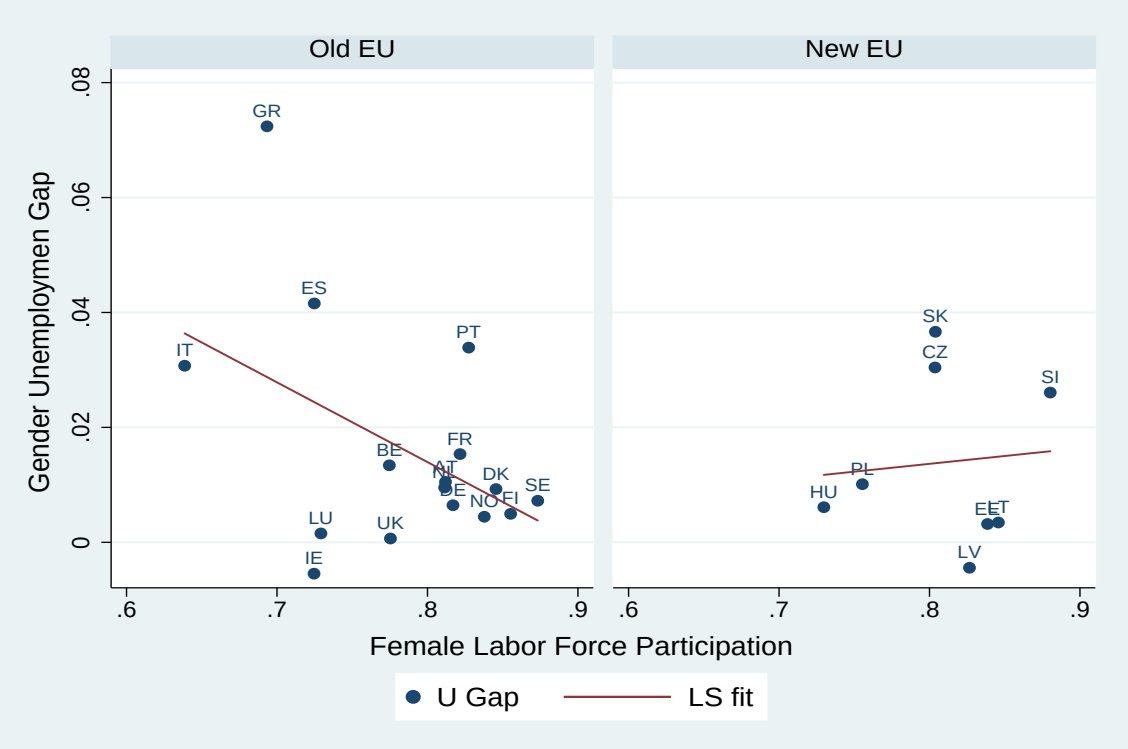
The main focus of research on gender inequality in labor markets has been on differences in pay rates over short periods of time, such as hours or months. However, life-long earnings are also affected by the probability of holding a job. While there is now a wealth of research on gender wage gaps in most countries around the world (see Altonji and Blank (1999) for an overview), evidence on gender differentials in unemployment rates remains scarce: Azmat, Güell, and Manning (2006) analyze West European countries and the US using ECHP and CPS data over the second half of the 1990s; and Stefanova-Lauerova and Terrell (2007) explore countries of Central and Eastern Europe in the first half of the 1990s, using micro-data for the Czech Republic and secondary data sources for East Germany, Poland and Russia.

This paper complements the existing literature by analyzing the gender unemployment gaps in the eight new EU member states, using the European Union Labor Force Survey data from 1996 to 2007. Our sample includes four Central European countries (Czech Republic, Hungary, Poland, and Slovakia), the three Baltic countries (Estonia, Latvia and Lithuania), and one South European country (Slovenia). The new EU member states – sharing features determined by their communist past when the state was creating vacancies in order to ensure zero unemployment – started the transition towards market-based economies with no gender unemployment gaps. Almost 20 years after the collapse of the communist regimes, in 2007, the aggregate unemployment rate among prime age individuals in the eight countries spans between 3.9% in Lithuania and 10.4% in Poland; and we observe a gender difference in unemployment rates among prime age individuals exceeding 3 p.p. in Slovakia and the Czech Republic on the one hand, and no gender unemployment gap in the Baltic states on the other. It is the aim of this paper to determine what drives the observed variation in gender unemployment gaps across these eight countries.

While documenting the gender unemployment gaps and analyzing their determinants in countries where research is lacking has value in its own right, the new

EU member states represent a particularly interesting group of countries for the analysis of gender unemployment gaps. Much of the previous research carried out on the old EU member states (and the U.S.) has typically emphasized the so-called North-South divide of Europe in terms of female labor force participation. Azmat, Güell, and Manning (2006) document substantial unemployment gaps in the Mediterranean countries, followed by the Benelux and the Germanic countries, but no or negative unemployment gaps in Nordic and Anglo-Saxon countries, suggesting that the unemployment gaps negatively correlate with the extent of female labor force participation. While such inverse relationship between the gender unemployment gaps and overall female labor force participation has been documented for the old EU member states, no such pattern exists among the new EU member states. Figure 1 plots the gender unemployment gaps and female labor force participation

Figure 1: Unemployment Gaps and Female Labor Supply in 2007



Note: The two panels show the relationship between female labor force participation and gender unemployment gap in the old EU and new EU member states, respectively, in 2007.

in the old and the new EU member states in 2007. While the relationship in the old EU member states is negative (the correlation of -0.46 is significant at 10%

significance level), there is no – and if any, then positive – relationship among the eight new EU member states (the correlation is 0.09 and not significant).

Most of the post-communist countries entered transition with very high female labor force participation rates, similar to the highest rates observed in the old European states. Note that in 2007, female participation rates in six of the eight studied countries were above 80%, a rate comparable only to the Nordic states of the old EU.

We start by documenting the gender unemployment gaps in the eight countries over the studied period. We use the International Labor Organization's definition of unemployment, which requires that an individual does not have a job, has been actively looking for a job in the past four weeks, and is available to start working within two weeks, throughout this paper. In addition, we explore the robustness of our findings using two alternative definitions of unemployment, which relax one and both of the last two conditions respectively. Next, we analyze whether gender differences in individual characteristics can explain some of the observed patterns. The key determinant for the observed gender unemployment gaps turn out to be family factors, and in particular, the presence of children younger than 15 years in the household. Decomposing the gender unemployment gaps by the presence of children suggests that, with the exception of Slovenia, the family gap is the primary source of the documented positive gender unemployment gaps in our sample: while there is no or negative difference between female and male unemployment rates among childless individuals, the gaps among those with children range from 7.3 p.p. and 7.2 p.p. in Slovakia and the Czech Republic to 3 p.p. in Hungary in 2007. As for the Baltic states, i.e., the countries with zero aggregate gender unemployment gaps in 2007, Estonia also has a family gap, but there is none in Latvia or Lithuania.

We use a flexible version of the Oaxaca-Blinder type decomposition, based on re-weighting the gender unemployment gaps across narrowly defined socioeconomic groups with overall gender-neutral weights, to analyze to what extent can the documented gender unemployment gaps be explained by the differences in the observable

individual characteristics between men and women in the labor force. Using 2007 data, the most recent year in our sample, the decomposition suggests that there is a positive "unexplained" discriminatory gender unemployment gap in all the countries, ranging from 0.8 p.p. in Lithuania and Latvia to 2.9 p.p. in Slovenia. As women in the labor force are on average more educated and older than men, and as unemployment probability decreases with education and age, the "unexplained" part of the gender unemployment gap *exceeds* the raw gender unemployment gap in six of the eight countries. Only in the Czech Republic and Slovakia, where women in the labor force are less educated than men, does accounting for individual characteristics reduce the raw gap by 17% and 24%, respectively. This finding is confirmed using a full parametric model of the probability of being unemployed conditional on being in the labor force, estimated by country on pooled data over the period 2002-2007.

We next focus on gender differences in labor force participation and their impact on the observed variation in gender unemployment gaps. While women with no children have more or less the same participation rates as men with no children, there is a sharp divide between participation rates of women and men with children at the early period of prime age in some of the countries. Despite the high aggregate female labor force participation, only about 40% of women with children are in the labor force between 25-29 years of age in the Czech Republic and Slovakia, the two countries with the lowest initial female participation rates. A substantial divide is also present in Hungary, Poland and Estonia. As these women return to the labor force, the low initial participation rate at the beginning of the prime age converges gradually back to the male participation rate by the age of 40. It is in the countries with high gender unemployment gaps where a high share of women with children tend to take substantial family leaves. Specifically, in the Czech Republic, with the lowest participation rates during the child-rearing period, only 32% of women with children below 5 years old are in the labor force, which implies that they on average take leaves longer than three years. It is when these women return to the labor

force after their career breaks that they face the highest risk of unemployment. It turns out that some of these women even become unemployed directly or soon after their family leave. In all countries except Slovenia and Lithuania, more than 50% of the currently unemployed women with young children were out of labor force to care for family members immediately before they became unemployed.

Different concepts of mothers' role in society are reflected in the family leave policies and the subsequent usage of formal child-care across the eight countries, with Slovenia and Lithuania supporting women's early return to their jobs as well as emphasizing the role of fathers on the one extreme and the Czech Republic and Slovakia encouraging women to spend the first years with their children at home on the other. These gender role attitudes are fully reflected in the participation of mothers with young children in the labor market and turn out to account for much of the cross-country differences in the gender unemployment gaps.

In order to compare the country specific effect of the presence of children on women's probability of being unemployed, what we call "unemployment cost of children," we report the coefficients of the variables describing the number of children at different ages from the same linear probability model of unemployment for women. We choose the effect of children between 5 and 10 years old, as it is the greatest in size in a majority of the countries and captures the period when the mother is likely to be back in the labor force after any of the family leave regimes. We then relate the estimated effects of children on unemployment probability to the family leave policies, the participation patterns and directly to the gender unemployment gaps. The estimated amounts of the country-specific unemployment cost of children are positively correlated with country's maximum and actual family leaves, and negatively correlated with the labor force participation of women with children younger than five years old. It seems that it is the higher cost of children that leads to higher and persistent gender unemployment gaps. We conclude that the differences in the country-specific family leave policies and labor force participation behavior of women after childbirth accounts for much of the observed cross-country variation

in the gender unemployment gaps.

Finally, we explore the raw transitions between employment and unemployment. While there is no or very small difference between the flow rates of women and men from employment to unemployment in any of the countries, the flow from unemployment to employment is significantly smaller for women in all the countries except in Estonia, Latvia and Slovenia, ranging from a 7 percentage point difference in Poland to approximately a 3 percentage point difference in Hungary. The gender gap in the transition rate between unemployment and employment again disappears or changes sign for childless individuals. We conclude that it is mostly the lower transition of women with children from unemployment to employment that stands behind the documented gender unemployment gaps.

Our findings also shed light on the absence of a negative relationship between gender unemployment gaps and female labor force participation among the new EU states. First, we show that while gender unemployment gaps are not correlated with the *level* of female labor force participation in the eight new EU member states, there is a clear negative relationship between the gender unemployment gaps and the *difference* between the participation rates of the two genders. Second, as most of the gender participation gaps are driven by mothers' temporary withdrawal from the labor force during child-rearing, when we correlate the gender unemployment gap with female labor force participation at the beginning of prime age, rather than the overall labor force participation, we "re-establish" the negative correlation.

The section following this introduction describes the data and documents the key facts about the aggregate gender unemployment gaps in the eight countries. In the next two sections, we first discuss human capital and family characteristics as the driving forces of the documented gender unemployment gaps, perform a flexible version of the Oaxaca-Blinder decomposition, and then estimate a full probability model of unemployment and its determinants. We then continue with the section that focuses on the gender differences in labor force participation and their relation to the gender unemployment gaps. It is followed by the section which summarizes

the country-specific family leave policies, estimates the cost of children in terms of the unemployment probability, and explores the country differences in women's child-care decisions as the driving force behind the observed cross-country variation in gender unemployment gaps. Finally, we examine the transitions between employment and unemployment and then we conclude.

2 Facts about the Raw Gender Unemployment Gaps

2.1 Data

The data comes from the European Union Labor Force Survey Dataset, which consists of standardized labor force surveys collected at national levels in the EU member states. These national surveys typically serve as the principal source of official national labor market statistics, and therefore should be the best suited for the analysis of unemployment. We use the annual surveys based on the data collected in the second quarter of the year over the period 1996-2007.[1]

We limit our sample to prime age individuals (25-54 year old) in order to avoid the differences in labor force participation at the beginning and the end of the working age of the population, which is strongly affected by the institutional features of the educational systems and retirement schemes and could thus drive the cross-country variation in the gender unemployment gap.[2] Whenever presenting descriptive statistics, we use sampling weights to convert the data to be representative of the whole population. The availability and sample size of the datasets by country and year are summarized in Table 20 in the Appendix.

We choose this data because of the large sample sizes, representativeness of the population, availability and comparability across years and countries, and detailed job, labor force status, and job search information, including information about year

[1]The datasets for some of the countries are not available for the first two years of the sample period, so most of the results are calculated and presented for the period 1998-2007, when data for all countries are available. Information about children is missing in the early surveys of Poland and Lithuania, so the period 2002-2007 is used for the estimation when this information is needed.

[2]We also exclude the few individuals who are in military service.

to year transitions. There are, however, substantial limitations relevant for our analysis:[3] no information about earnings or income, only age group (rather than age) information (five year band categories) and education (three levels), no information about adult children who have already left the family, and no information about the years of work experience.

2.2 Aggregate Gender Unemployment Gaps

There is a striking geographical divide in the gender unemployment gaps across the eight new EU member states. The last two columns of Table 1 present the raw gender unemployment gaps, defined as the difference between female and male unemployment rates, and their statistical significance in 2007. While the unemployment rates of men and women in the three Baltic states are not statistically different from each other, there is clear evidence of gender unemployment gaps against women in the rest of the countries. This gap ranges from 3.7 p.p. and 3 p.p. difference between female and male unemployment rates in Slovakia and the Czech Republic, respectively, to a mere 0.6 p.p. difference in Hungary. To comple-

Table 1: Raw Gender Unemployment Gaps in 2007

Country	Male U	Female U	ratio	diff	diff t-stat
Czech R.	0.035	0.066	1.86	0.030	10.36
Estonia	0.045	0.048	1.07	0.003	0.35
Hungary	0.063	0.069	1.10	0.006	1.92
Latvia	0.057	0.053	0.92	-0.004	-0.54
Lithuania	0.038	0.041	1.09	0.003	0.70
Poland	0.079	0.089	1.13	0.010	2.37
Slovakia	0.087	0.124	1.42	0.037	5.90
Slovenia	0.032	0.058	1.82	0.026	5.19

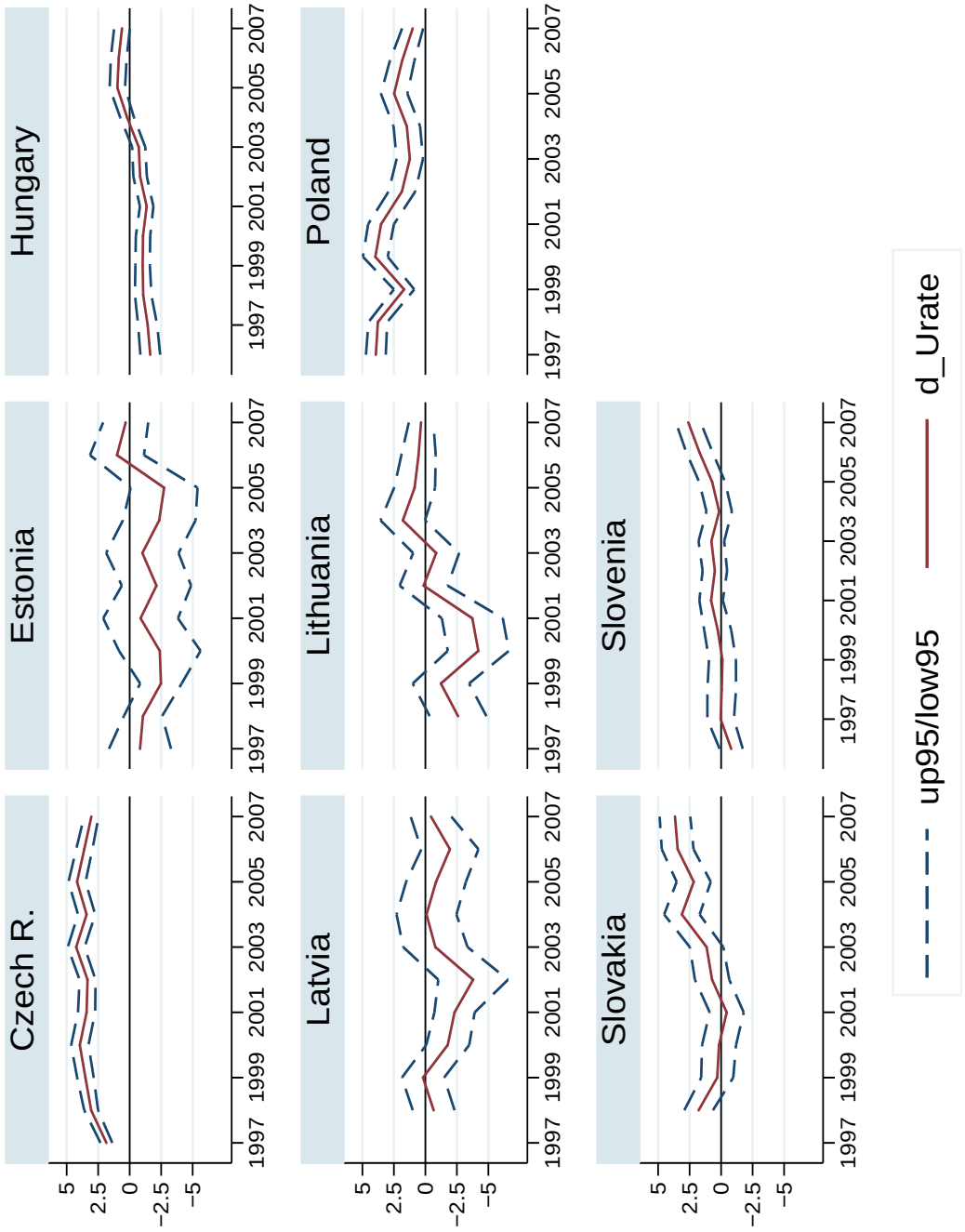
Note: EU LFS, weighted with sampling weights. Unemployment defined according to the International Labor Organization.

ment the cross-sectional evidence of gender unemployment gaps in the last year of

[3]Most of these limitations are the result of the anonymization process that the data undergo at Eurostat before they are available to researchers.

our data, Figure 2 shows the evolution of the gender unemployment gaps in the eight new EU member states over the past decade. The 95% confidence interval suggests whether the difference in the female and male unemployment rates is statistically different from zero.

Figure 2: Gender Unemployment Gaps 1996-2007



Note: Raw difference between female and male unemployment rates, the 95% confidence interval and zero line. ILO definition of unemployment.

Figure 2 suggests that gender unemployment gaps have been persistent in the Czech Republic and Poland (with a slight decline at the end of the period), and rising in Slovakia, Hungary, and Slovenia over time. A statistically significant gap in the last three countries emerged only in the last few years. In the Baltic states, on the other hand, the gap is almost never statistically different from zero.

It is apparent that at least in the Czech Republic, Slovakia, and Poland, the gender unemployment gap is not a transitory phenomenon, arising from different stages in the business cycle, but rather a persistent feature.[4] Moreover, against the overall trend of ever stronger anti-discrimination policies, the facts suggest that over time women are increasingly disadvantaged in terms of facing a higher probability of being unemployed than men.[5]

2.3 Alternative Definitions of Unemployment

So far, we calculated the gender unemployment gaps as the difference between the female and male unemployment rates based on the standard definition used by the International Labor Organization. Following the previous literature (Jones and Riddell (1999); Brandolini, Cipollone, and Viviano (2006)), which questions this definition, suggesting that some of the inactive may be indistinguishable from the unemployed in their probability of entering employment, we next examine the robustness of our findings about gender unemployment gaps in the eight new EU member states to alternative definitions of unemployment. We consider two alternative definitions of unemployment, which each adds a particular subgroup of inactive individuals to the unemployed. In the Alternative 1 definition, we add individuals who want to work, are available to start working within two weeks, but do not actively seek employment (irrespective of the reason why). Alternative 2 includes

[4]The neighboring countries follow similar business cycle patterns over the studied period, with unemployment rate peaking around the year 2000 or 2001. There is a second peak in the Czech Republic and Slovakia around the year 2004, whereas in Poland high unemployment rates last over the entire period 2000-2005. Hungary and Slovenia have fairly stable unemployment rates over the entire period with a slight rise starting in 2005.

[5]Jurajda (2005) finds that strengthening anti-discrimination policies in the post-transition countries have not had much effect on the gender wage gaps either.

all the inactive who want to work, but are not available to start working within two weeks and do not actively seek employment.[6]

Table 2 shows gender unemployment gaps in 2007 under the ILO and the two alternative definitions of unemployment in 2007. Both definitions increase female unemployment rates more than male unemployment rates, leading to bigger gender unemployment gaps than under the ILO definition. This is especially the case for the broadest definition of unemployment: in 2007, including all the inactive individuals who want a job among the unemployed leads to positive and statistically significant gender unemployment gaps in all eight countries, ranging from almost 7 p.p. in Poland to 1.3 p.p. in Lithuania.

Table 2: Gender Unemployment Gaps in 2007 - Robustness

Country	Want Work, Available, Search (ILO)		Want Work, Available		Want Work	
	(1)		(2)		(3)	
	U gap	t-stat	U gap	t-stat	U gap	t-stat
Czech R.	0.030	10.357	0.035	11.407	0.052	15.232
Estonia	0.003	0.349	0.009	0.910	0.029	2.470
Hungary	0.006	1.917	0.012	3.377	0.034	8.418
Latvia	-0.004	-0.538	0.006	0.617	0.044	3.938
Lithuania	0.003	0.697	0.003	0.615	0.013	2.252
Poland	0.010	2.374	0.033	6.744	0.069	13.034
Slovakia	0.037	5.901	0.045	6.997	0.055	8.174
Slovenia	0.026	5.189	0.026	4.803	0.034	5.550

Note: EU LFS, weighted with sampling weights. Column 1 shows the gap and the t-statistics of its significance for the unemployment definition which includes only those unemployed according to ILO definition. Column 2 corresponds to the unemployment rate that includes inactive individuals who want to work, are available to start working within two weeks, but do not actively seek employment (irrespective of the reason why). Column 3 corresponds to the unemployment rate that includes all the inactive who want to work, but are not available to start working within two weeks and do not actively seek employment.

When only those inactive individuals who want a job and who are available

[6]We have also tried to add just a subset of the inactive individuals included under the first alternative, the so-called discouraged workers, i.e., inactive individuals who want to work and are available to start working within two weeks, but do not actively seek employment because they believe that no jobs are available. We have omitted these alternative definitions as the results were practically unchanged, with gaps and significance levels almost identical to the ILO case.

to start working within two weeks are considered as unemployed, the results are qualitatively close to the ILO definition: while there is no gender unemployment gap in the three Baltic states, there is a substantial gap against women in the other five countries. Quantitatively, while the size of the gap triples in Poland (to 3.3 p.p.), and doubles in Hungary (to 1.2 p.p.), it increases by 0.8 p.p. in Slovakia and by 0.5 p.p. in the Czech Republic, and remains the same in Slovenia.

The evolution of the gender unemployment gaps under the two alternative definitions of unemployment over the entire period of our sample is as follows:[7] Under the first alternative, the dynamics of the gender unemployment gaps mimic the ones based on the ILO definition with the exception of Poland, where the alternative definition reverts the gradual decline in the gender unemployment gap based on the ILO definition, and reveals the gap to be rather persistent. Under the second alternative, there is a positive and rising gender unemployment gap in Hungary and Slovenia over the entire period. Under this broadest definition of unemployment, there is also a gender unemployment gap in the Baltic states but only in the very last years of the studied period, and with the exception of Latvia it is fairly small. We choose the second alternative definition of unemployment for the robustness checks in the sections that follow. As the broadest concept of unemployment, it is to be compared to the most narrow definition given by the ILO.

To summarize, allowing for alternative definitions of unemployment possibly includes Hungary and Slovenia among the group of countries with persistent positive gender unemployment gap but still leaves the Baltic states as countries with no or fluctuating gender unemployment gaps over most years of our sample, supporting further the geographical divide between the Baltic and non-Baltic states. We next start analyzing the gender differences in individual characteristics as the potential determinants of the observed gender unemployment gaps.

[7]Figures are not presented here but available from the author.

3 Disaggregated Gender Unemployment Gaps

3.1 Age and Education

Unemployment rates typically decrease with education and age and the same is true also in our data.[8] The question is whether the steepness of these age and education profiles vary by gender, resulting in an uneven distribution of gender unemployment gaps across these two dimensions. Table 3 reveals that there is a substantial variation in the unemployment gaps across age and education. In most of the countries, the greatest gap is either between 25 and 34 years of age (Czech Republic, Slovakia and Slovenia) or during the middle age group 35-44 (Hungary and Poland). For the age group 45-54, there is a positive gender unemployment gap only in the Czech Republic and Slovakia. As for education, female unemployment rates exceed male unemployment rates primarily among individuals with secondary education. There is a positive gap among the individuals with tertiary education only in Latvia and Slovakia, and there is a negative unemployment gap among the least educated in Hungary and Slovakia.

3.2 Presence of Children

It has been well established in the literature that there is a family gap in labor market outcomes between individuals who form a family and those who do not. There is typically a family premium for men and family disadvantage for women.[9] We explore how family gaps in unemployment rates translate into observed gender unemployment gaps and define the family by the presence of children younger than 15 years old.[10] The data confirms the presence of family gaps in unemployment

[8] The only exception is that in some countries and years there is an increase in the unemployment rate of the preretirement age group.

[9] See, for example, Dupuy and Fernandéz-Kranz (2007) for international evidence on the family gap in pay.

[10] Note that this gives the family gap a particular meaning, as only prime age individuals who live in households with at least one child younger than 15 years old are categorized as having a family. It follows that first, although unlikely, these children are not necessarily the legal children of that individual, and second, individuals, whose children are beyond 15 years of age or whose children are no longer present in the households are treated as individuals without a family. As

Table 3: Gender Unemployment Gaps by Age and Education in 2007

Country		Age Groups			Education Groups		
		25-34	35-44	45-54	Low	Medium	High
Czech R.	Gap	0.041	0.034	0.018	-0.011	0.031	0.001
	t-stat	7.103	6.918	3.634	-0.515	9.844	0.333
Estonia	Gap	0.014	0.019	-0.02	0.075	0.009	-0.002
	t-stat	0.706	1.268	-1.493	1.541	0.716	-0.119
Hungary	Gap	0.01	0.019	-0.007	-0.027	0.014	0.005
	t-stat	1.668	3.396	-1.368	-2.287	3.661	1.044
Latvia	Gap	0.017	-0.028	-0.001	0.059	-0.003	0.018
	t-stat	1.058	-1.972	-0.057	1.639	-0.3	1.963
Lithuania	Gap	-0.014	0.016	0.007	0.067	0.006	0.002
	t-stat	-1.421	1.874	0.933	1.853	0.956	0.307
Poland	Gap	0.007	0.026	-0.001	-0.002	0.024	0.006
	t-stat	0.934	3.553	-0.18	-0.087	4.428	1.066
Slovakia	Gap	0.052	0.018	0.041	-0.085	0.035	0.019
	t-stat	4.421	1.704	4.134	-2.16	5.233	2.079
Slovenia	Gap	0.047	0.024	0.006	0.006	0.042	0.009
	t-stat	4.505	3.163	0.829	0.314	6.193	1.257

Note: EU LFS, weighted with sample weights. Gender unemployment gaps by age and education in 2007, defined as the difference between the female and male unemployment rates. Below each unemployment gap is the t-statistics of its statistical significance, calculated for the test of the difference between two independent variables with binomial distribution.

rates. While the unemployment rate of men with children is lower than that of men without children, the opposite holds for women, resulting in a substantial gender unemployment gaps for individuals with children and a smaller or no gap for individuals without children.

The gender unemployment gaps for individuals with and without children for the entire period are presented in Figure 3. The disaggregated data reveals that not only is there no gender unemployment gap in favor of men in any of the countries among individuals without children, but there is actually a statistically significant and often non-negligible gender unemployment gap in favor of women in six of the

part of our robustness checks, we estimate models of the probability of unemployment also on a subset of individuals between 25 and 44 years old, as the children younger than 15 years of age are with very high probability theirs to rear (irrespective whether biological or not).

Figure 3: Gender Unemployment Gaps by Presence of Children 1996-2007

Note: Raw difference between female and male unemployment rates by presence of children in the family, the 95% confidence interval and zero line. ILO definition of unemployment. Surveys from Poland and Lithuania in early years have only information about individuals older than 15 years old, so the children variable cannot be constructed for these country-years.

eight countries. Looking at the individuals with children, on the other hand, there is again a statistically significant gender unemployment gap in most of the years in

all the non-Baltic states,[11] and in most of the countries it is substantially greater in size than their raw gender unemployment gaps.[12]

Exploring these results for the year 2007 in detail in Table 4, we see that there is a statistically significant unemployment gap among individuals with children in all the countries except in Latvia and Lithuania. Its size ranges from 3 p.p in Hungary to 7.3 p.p. in Slovakia, and it is much bigger than the size of the aggregate gender unemployment gaps. Among individuals without children, the gap is actually negative in four of the eight countries in 2007, however, none of the gaps are statistically significant at the 5% level except for Slovenia. There, in sharp contrast with the rest of the countries, the gender unemployment gap among individuals without children (3 p.p.) is bigger than the gap among individuals without children (2.2 p.p.), both gaps significantly different from zero.

Table 4: Unemployment and Gender Unemployment Gaps by Children

Country	Without Children				With Children			
	U_M	U_F	U gap	t-stat	U_M	U_F	U gap	t-stat
Czech R.	0.04	0.046	0.005	1.568	0.028	0.101	0.072	13.335
Estonia	0.055	0.037	-0.018	-1.493	0.029	0.063	0.034	2.42
Hungary	0.061	0.054	-0.007	-1.934	0.066	0.096	0.03	5.24
Latvia	0.057	0.052	-0.004	-0.405	0.058	0.053	-0.004	-0.357
Lithuania	0.042	0.047	0.005	0.723	0.033	0.035	0.002	0.263
Poland	0.099	0.087	-0.012	-1.85	0.058	0.091	0.033	5.707
Slovakia	0.098	0.109	0.01	1.306	0.072	0.146	0.073	7.429
Slovenia	0.038	0.068	0.03	4.388	0.023	0.045	0.022	3.12

Note: EU LFS, weighted with sample weights. "With Children" means that the individual lives in a household with at least one child younger than 15 years. The four columns give the male and female unemployment rates, its difference and the statistical significance of the difference.

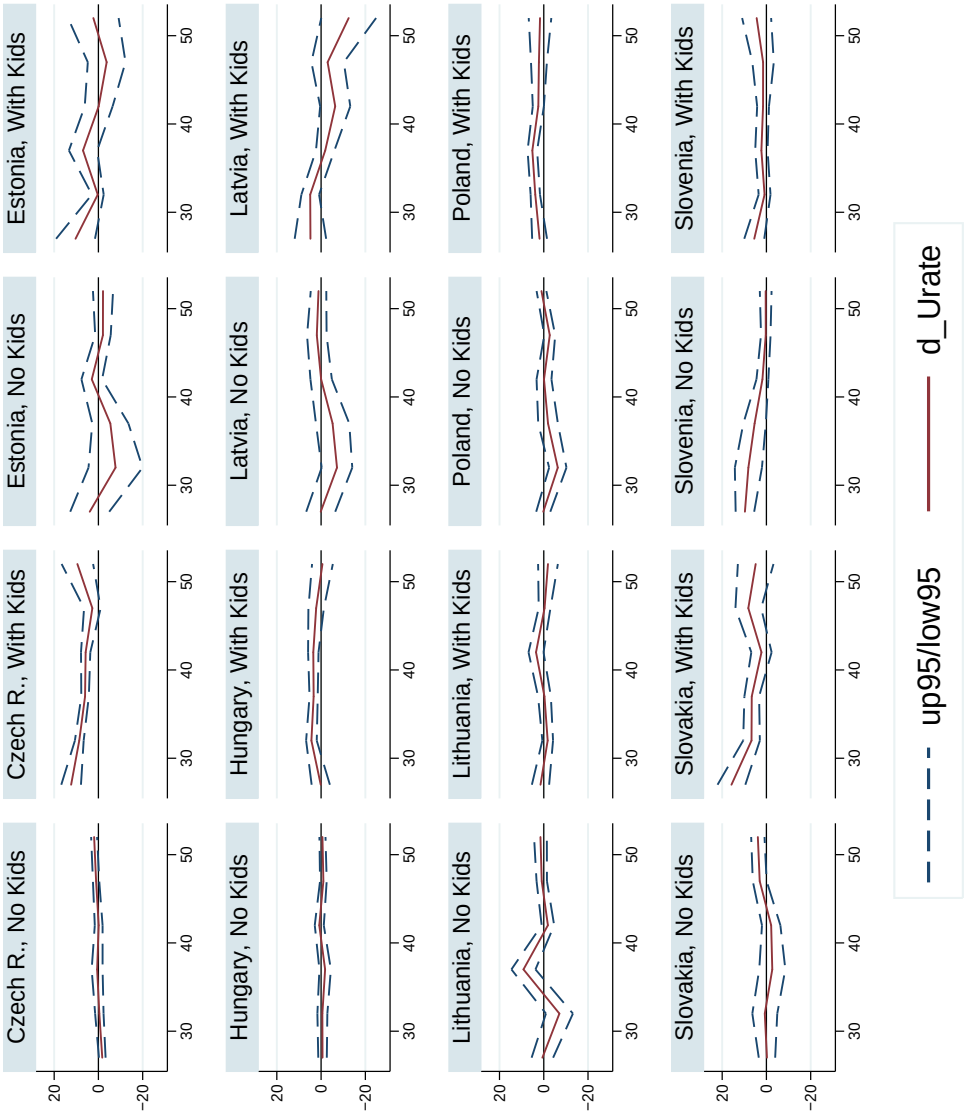
The broader definitions of unemployment only increase the family divide. Under the alternative definition of unemployment, which also includes inactive individuals

[11] Again, in Hungary starting only in 2003.

[12] As the family gap is negative for men (in favor of those with children) and positive for women (against those with children), the gender unemployment gap between men and women with children is the sum of the two gender-specific family gaps.

who want to work, there is a gender unemployment gap among individuals with children in all eight countries.[13]

Figure 4: Gender Unemployment Gaps by Children and Age in 2007



Note: Raw difference between female and male unemployment rates by presence of children in the family, the 95% confidence interval and zero line. ILO definition of unemployment. Age is defined in five-year bands in the original data.

[13]Figures are not presented here but available from the author.

To explore whether the family gaps span over the entire lifetime or whether they are strongest during the early years but fade away as children grow, we disaggregate the gender unemployment gaps one step further, by children and by age. Focusing on 2007, the last year of the data, Figure 4 shows that gender unemployment gaps among individuals with children do have a declining tendency over one's lifetime in about half of the countries, suggesting that the effect of children diminishes. This can be interpreted in two different ways: either the effect of children on the unemployment probabilities diminishes as children grow older, or else this effect decreases with the childbearing age of the mother. The latter would suggest that the later in their careers it is that women have children, the smaller the effect the children have on the mothers' employability. The family gaps in Hungary, Poland and Lithuania do not vary with age. Furthermore, in Slovenia, the decline by age is more pronounced for the unemployment gap among individuals without children.

Under the broadest definition of unemployment, the unemployment gap declines with age also in Poland and Hungary, leaving only Lithuania and Slovenia as the two countries with no decline among individuals with children.[14]

4 Flexible Oaxaca-Blinder Type Decomposition

We next analyze to what extent the documented gender unemployment gaps can be explained by differences in the observable individual characteristics between men and women in the labor force. We use a flexible version of the Oaxaca-Blinder type decomposition, based on re-weighting of the gender unemployment gaps across narrowly defined socioeconomic groups with overall gender-neutral weights to separate the impact of the variation in personal characteristics.[15] We construct J subgroups based on discrete versions of individual characteristics X. The overall gender unemployment gap U_{gap} defined as the difference between the female u^F and male u^M unemployment rate can then be written in terms of the J sub-groups as follows:

[14]Figures are not presented here but available from the author.

[15]This is a simplified version for discrete explanatory variables of the decomposition proposed in Nopo (2008).

$$U_{gap} = u^F - u^M = \sum_j w_j^F \, u_j^F - \sum_j w_j^M \, u_j^M$$

where u_j^G is the unemployment rate in subgroup j for gender G and w_j^G is the share of subgroup j among gender G.

Adding and subtracting terms for the overall gender-neutral unemployment rates weighted by the gender specific weights, $\sum_j w_j^F \, u_j$ and $\sum_j w_j^M \, u_j$, we get

$$U_{gap} = \underbrace{\sum_j w_j^F \, (u_j^F - u_j)}_{A} + \underbrace{\sum_j w_j^M \, (u_j - u_j^M)}_{B} + \underbrace{\sum_j (w_j^F - w_j^M) \, u_j}_{C}$$

While A and B reflect the part of the unemployment gap due to gender differences in unemployment within the respective subgroups, C captures the gender differences in the distribution of individuals across the subgroups, i.e., differences in observed characteristics.

We explore the variation in the gender unemployment gaps across the two main human capital characteristics, i.e., education and work experience. As we do not have a measure of actual work experience, only five-year age bands, we use the presence of children as an additional proxy to capture the differences in work experience among men and women.

It turns out that despite the relatively large sample size, the narrow group classification (defined by five-year age bands, three-level education and the binary variable for the presence of children) makes it impossible in some of the countries to "match" men and women in some of the groups. We therefore perform two different types of decomposition. The first is conducted on the basis of three levels of education and six age categories, forming together 18 groups; the second on the basis of three levels of education, three age bands, and two children (yes or no) categories, forming together another 18 groups.

The results for the first flexible Oaxaca-Blinder decomposition are presented in Table 5. The comparison of the first and the last column of the table shows

the impact of the differences in individual characteristics (age and education) in explaining the observed unconditional gender unemployment gap. While the first column shows again the raw difference between female and male unemployment rates in the country, $A + B$ is the unexplained part, i.e., the counterfactual gender unemployment gap, which we would observe if women and men were equally distributed across the age and education groups.[16]

Table 5: Flexible Decomposition I in 2007

	U gap	A	B	C	(A+B)
Czech R.	0.030	0.014	0.011	0.005	0.025
Estonia	0.003	0.005	0.005	-0.006	0.010
Hungary	0.006	0.005	0.004	-0.003	0.009
Latvia	-0.004	0.004	0.004	-0.009	0.008
Lithuania	0.003	0.004	0.004	-0.005	0.008
Poland	0.010	0.010	0.009	-0.008	0.018
Slovakia	0.037	0.015	0.013	0.009	0.028
Slovenia	0.026	0.015	0.014	-0.003	0.029

Note: The "U gap" is the raw (unconditional) gender unemployment gap computed as the difference between the female and male unemployment rate, $U_{gap} = u^F - u^M$.
$A = \sum_j w_j^F \, (u_j^F - u_j)$, $B = \sum_j w_j^M \, (u_j - u_j^M)$, $C = \sum_j (w_j^F - w_j^M) \, u_j$
18 groups are based on six age and three education categories.

The unexplained part of the gender unemployment gaps is positive in all the new EU member states. Furthermore, in six of the eight countries it is *greater* than the raw gender unemployment gap. This result suggests that in these six countries, women have more favorable distribution of age and education in the labor force than men. In our data, women are on average more educated than men in all of the new EU member states except for the Czech Republic and Slovakia,[17] which are exactly the two countries for which the size of the gender unemployment gap decreases when

[16] While, demographically, we would expect the distribution of age in the population to be very similar for men and women, this may not be the case in the labor force, which is the motivation for also controlling for the age differences.

[17] See Table 19 in the Appendix. Women are also on average older than men in all the countries (evidence consistent with the fact that women are out of the labor force at early ages when they have children), although in Slovenia the difference is rather small. Otherwise, one would expect older age to be on average an advantage, as unemployment probability in general decreases over the prime age.

we control for age and education as observed individual characteristics. The unexplained part of the gender unemployment gaps ranges from 0.8 p.p. in Lithuania and Latvia to 2.9 p.p. in Slovenia. The ranking of the countries according to the within-group unemployment gap changes as well. The highest within-group gap is in Slovenia, followed by Slovakia, the Czech Republic, and Poland. While in the Czech Republic and Slovakia, raw gender unemployment gaps are 3.0 p.p. and 3.7 p.p., the within-group gender unemployment gaps are only 2.5 p.p. and 2.8 p.p. This means that 17% of the raw gender unemployment gap in the Czech Republic and 24% of the raw gender unemployment gap in Slovakia are caused by unfavorable distribution of women across age and education.

The results for the second flexible Oaxaca-Blinder decomposition for year 2007 are presented in Table 6. They are very similar to the first decomposition results: the unexplained gender unemployment gap exceeds the raw gender unemployment gap in all the countries except for the Czech Republic and Slovakia, where 17% and 27% of the raw gender unemployment gap respectively are caused by unfavorable distribution of women in the labor force across age, education and children when compared to men. Likewise, the results from the second decomposition for the entire sample period, not presented here, are similar to the first decomposition.

The results[18] for the flexible Oaxaca-Blinder type decompositions for the remaining years of the sample period are similar to those for 2007. It is only in the Czech Republic and Slovakia, where a relatively small part of the gap is explained by the fact that women are on average less educated than men.[19]

The results for the flexible decomposition in 2007 using the alternative definition of unemployment are summarized in Table 7. In terms of the direction of the gap, the results remain the same: the unexplained part of the gap is greater than the raw gap for all the countries except for the Czech Republic and Slovakia. The ranking, however, changes, ranging from Poland with the highest unexplained gap of 8 p.p.,

[18]Not presented here but available from the author.

[19]The data shows that even in these two countries women gradually overtake men in educational level attainment; as for the younger generations (at younger ages), women are already on average more educated than men.

Table 6: Flexible Decomposition II in 2007

	U gap	A	B	C	(A+B)
Czech R.	0.030	0.014	0.011	0.006	0.025
Estonia	0.003	0.006	0.006	-0.008	0.011
Hungary	0.006	0.005	0.004	-0.003	0.009
Latvia	-0.004	0.004	0.004	-0.009	0.008
Lithuania	0.003	0.005	0.005	-0.006	0.009
Poland	0.010	0.011	0.009	-0.010	0.020
Slovakia	0.037	0.015	0.013	0.009	0.027
Slovenia	0.026	0.017	0.016	-0.007	0.033

Note: The "U gap" is the raw (unconditional) gender unemployment gap computed as the difference between the female and male unemployment rate, $U_{gap} = u^F - u^M$.
$A = \sum_j w_j^F \, (u_j^F - u_j)$, $B = \sum_j w_j^M \, (u_j - u_j^M)$, $C = \sum_j (w_j^F - w_j^M) \, u_j$
18 groups are based on three age, three education and two children categories.

followed by Latvia (6.4 p.p.), the Czech Republic and Slovakia (both 4.5 p.p.) to Lithuania (2.1 p.p.).[20]

To summarize, based on the flexible Oaxaca-Blinder decomposition, we conclude that accounting for gender differences in observable characteristics can explain only about 20% of the raw gender unemployment gaps in the Czech Republic and Slovakia, while it increases the gender unemployment gaps "to be explained" in the rest of the countries. We analyze and quantify the gender differences in the effect of the individual characteristics on the probability of unemployment next when we estimate a parametric model of the unemployment probability.

5 Estimated Model of Unemployment Probability

We estimate a parametric model of the probability of being unemployed conditional on being in the labor force with pooled cross-sectional data over the period 2002-

[20]The results from the robustness check for the second decomposition (not presented here) are similar to the first.

Table 7: Flexible Decomposition I in 2007 - Robustness

	U gap	A	B	C	(A+B)
Czech R.	0.052	0.025	0.021	0.006	0.045
Estonia	0.029	0.020	0.019	-0.010	0.039
Hungary	0.034	0.019	0.016	-0.001	0.035
Latvia	0.048	0.032	0.032	-0.016	0.064
Lithuania	0.013	0.010	0.011	-0.008	0.021
Poland	0.069	0.042	0.039	-0.011	0.080
Slovakia	0.055	0.024	0.021	0.010	0.045
Slovenia	0.034	0.020	0.018	-0.004	0.038

Note: These are results for the alternative definition of unemployment, which also includes inactive individuals who want to work. The "U gap" is the raw (unconditional) gender unemployment gap computed as the difference between the female and male unemployment rate, $U_{gap} = u^F - u^M$. $A = \sum_j w_j^F \, (u_j^F - u_j)$, $B = \sum_j w_j^M \, (u_j - u_j^M)$, $C = \sum_j (w_j^F - w_j^M) \, u_j$
18 groups are based on six age and three education categories.

2007 separately by country, using the following three specifications:[21]

$$
\begin{aligned}
Pr(U_{it} = 1 | LF_{it} = 1) &= \alpha + \beta \, FEM_{it} + \sum_j \rho_j D_t^j \\
Pr(U_{it} = 1 | LF_{it} = 1) &= \alpha + \beta \, FEM_{it} + X_{it}\gamma + \sum_j \rho_j D_t^j \\
Pr(U_{it} = 1 | LF_{it} = 1) &= \alpha + \beta \, FEM_{it} + X_{it}\gamma + FEM_{it} \, X_{it}\delta + \sum_j \rho_j D_t^j
\end{aligned}
$$

where U_i is an indicator whether an individual i is unemployed, LF_i is an indicator whether an individual i is in the labor force, FEM_i is a female dummy variable and D_t^j is a set of year dummies. The right-hand side variables X_i include the set of human capital characteristics (three age categories and three education categories of low, medium, and high) and the family characteristics (the number of children below 5, between 5-10, and between 10-15 years old).

As implied by the specification in the equations above, we estimate the model as a linear probability model, always using standard errors robust to an unspecified

[21] Surveys prior to the year 2002 for Poland and Lithuania lack information about children. To keep all the specifications and country estimation comparable, we restrict the estimation to the five-year period 2002-2007.

form of heteroskedasticity.

Table 8 presents the estimated gender unemployment gaps from the three different specifications as described above. The first column presents the unconditional unemployment gap, the second and third column shows the unemployment gap estimate when human capital (age and education) and human capital plus the three children variables are included, respectively. The fourth column of Table 8 shows the coefficient of the female dummy when the interactions of the female dummy and the human capital and family characteristics have been added to the regression. This last specification allows individual characteristics to affect female and male unemployment probabilities differently. The coefficient of the female dummy variable then corresponds to the gender unemployment gap for the base category in this specification, which are young, low educated individuals with no children.

As the year dummies are included, the estimated coefficients of the female dummy represent the average gender unemployment gaps over the given period. The average aggregate gender unemployment gap over the estimated period is positive in the Czech Republic (3.6 p.p.), Slovakia (2.3 p.p.), Poland (1.6 p.p.) and Slovenia (1.1 p.p.), zero in Lithuania and Hungary and negative in Estonia and Latvia (- 1.2 p.p. both). As the actual gender unemployment gap appeared and started rising in some of the countries only in the later years, the estimated coefficient somewhat undervalues the current actual gap in 2007 that we mostly focus on in this analysis. This is particularly true for Estonia, where the gap is negative; for Hungary, where there is no estimated gap; and for Slovakia, where the gap is lower than would have been using just the year 2007.

The comparison of the three columns in Table 8 shows that conditioning on human capital increases the gap everywhere except in the Czech Republic and Slovakia, where the gap is reduced, which is again due to the fact that women are on average less educated than men in these two countries and unemployment probability declines with education. Conditioning on the number of children at different ages does not alter the estimated gaps except for a slight increase in Hungary,

where the gap becomes positive (0.3 p.p.) and significant. It is allowing the effects to vary by gender (i.e., including the female dummy interactions with the right-hand side variables) which changes the picture completely. It reveals that among young low educated childless individuals, there is a negative gender unemployment gap (against men) in three countries (Czech Republic, Slovakia, and Hungary) and a zero gap in the Baltic states. However, in Slovenia and Poland, the gap is positive and large (3.2 p.p. in Poland and 3.6 p.p. in Slovenia).

Table 8: Unconditional and Conditional Gender Unemployment Gaps

	no Xs		+ age + educ		+ children		+ interactions	
cz	0.036	0.001	0.028	0.001	0.028	0.001	-0.026	0.009
ee	-0.012	0.005	-0.003	0.005	-0.003	0.005	-0.024	0.028
hu	-0.000	0.001	0.001	0.001	0.003	0.001	-0.020	0.006
lv	-0.012	0.005	-0.002	0.005	-0.002	0.005	0.009	0.023
lt	0.003	0.003	0.011	0.003	0.011	0.003	0.006	0.020
pl	0.016	0.002	0.027	0.002	0.026	0.002	0.032	0.010
sk	0.023	0.003	0.012	0.003	0.013	0.003	-0.101	0.016
si	0.011	0.002	0.013	0.002	0.013	0.002	0.036	0.010

Note: Coefficients of female dummy variables and robust standard errors from the linear probability model of the probability of being unemployed conditional on being in the labor force under different specifications. The data is the country-specific pooled cross-sections for the period 2002-2007. Year dummy variables are included.

The complete estimation results of the full model with interactions are included in Appendix. As expected, they suggest that unemployment probability decreases with education and age for both men and women.[22] On the other hand, children have opposite effects on the two genders: while they reduce the unemployment probability for men (except for Hungary, where they increase it, and Slovakia, where they have no effect), they substantially increase the probability of women to be unemployed.[23]

[22]There are cases, especially in the Baltic states, where the effect of age relative to the youngest group is insignificant and very few cases where it is actually positive, suggesting higher unemployment probability at later ages. Women have either the same age and education profiles as men (insignificant coefficients of the female dummy interactions), or steeper age profiles and less steep education profiles.

[23]Positive coefficients of children for women exceed the negative ones for men in absolute value.

When we consider the alternative definition of unemployment, which also includes inactive individuals who want to work, we see that besides the fact that the size of the gap increases in all the countries which had a positive gender unemployment gap under the ILO definition, there is now also a substantial gap in Hungary and Latvia. Conditioning on age and education, there is a gender unemployment gap under the broad definition of unemployment in all eight countries. When the female interaction variables are included, the gap for the base category disappears in all the countries but Slovenia and Poland, where the unemployment gap for the young, childless and low-educated exceeds the overall gap. In Slovakia, on the other hand, the base category shows a substantial negative gap (in favor of women).

Table 9: Unconditional and Conditional Gender Unemployment Gaps
(Alternative Definition of Unemployment)

	no Xs		+ age + educ		+ children		+ interactions	
cz	0.058	0.002	0.049	0.002	0.052	0.002	-0.012	0.010
ee	-0.001	0.006	0.017	0.006	0.017	0.006	0.003	0.033
hu	0.028	0.002	0.025	0.002	0.029	0.002	0.007	0.007
lv	0.029	0.006	0.047	0.006	0.048	0.006	0.044	0.027
lt	0.009	0.004	0.019	0.004	0.019	0.004	0.023	0.021
pl	0.061	0.002	0.072	0.002	0.072	0.002	0.079	0.010
sk	0.035	0.003	0.023	0.003	0.025	0.003	-0.092	0.016
si	0.022	0.003	0.025	0.003	0.025	0.003	0.067	0.011

Note: These results are for the alternative definition of unemployment, which includes all inactive individuals who want a job. Table shows the coefficients of female dummy variables and robust standard errors from the linear probability model of the probability of being unemployed (alternative definition) conditional on being in the broadly defined labor force under different specifications. The data is the country-specific pooled cross-sections for the period 2002-2007. Year dummy variables are included.

6 Labor Force Participation

6.1 Aggregate Gender Participation Gaps

Table 10 shows the participation rate of women and men at the beginning and the end of the sample period. Figure 5 plots the evolution of the two rates over the studied years. With the exception of Hungary and Poland, female participation rate was above the 80% level in the remaining six countries for the entire period. In contrast with the long-term trend in most mature market economies, labor force participation of women was either stagnant or it decreased over the studied period in six of the eight countries.[24] Only Hungary (from 68% to 73%) and Slovenia (from 84% to 88%) saw an increasing trend in women's participation in the labor market during the past decade.

Table 10: Labor Force Participation Rates by Gender in 1998 and 2007

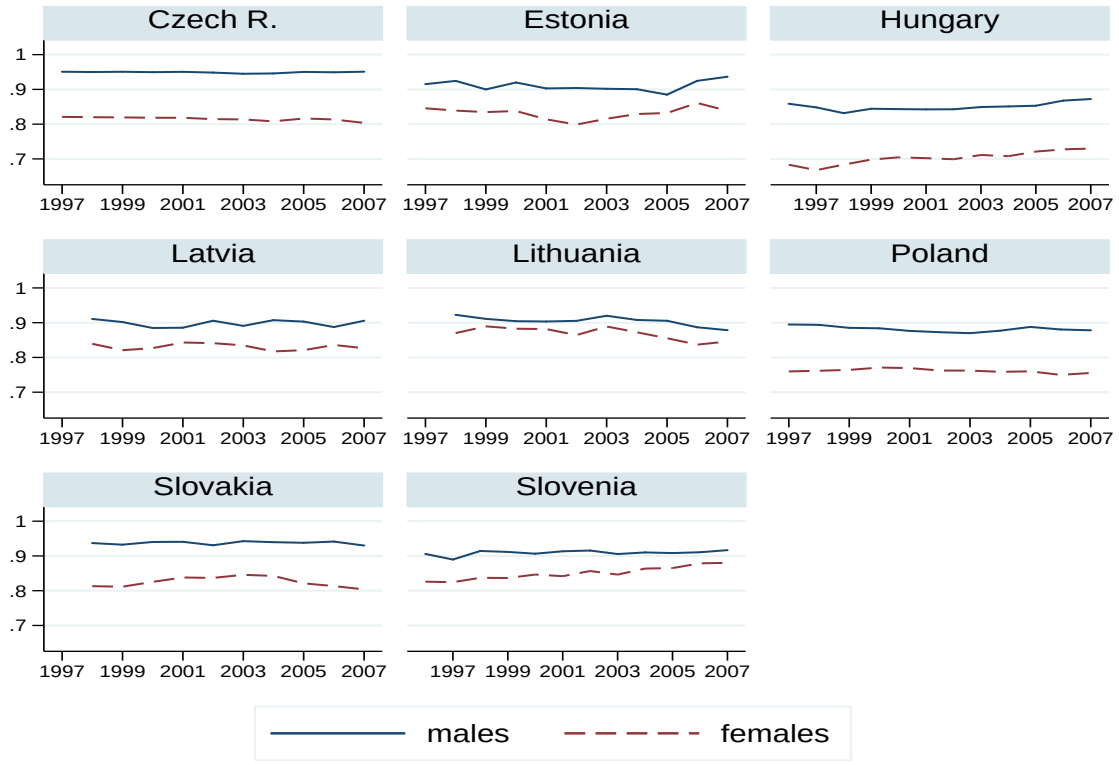
Country	Female		Men		Difference	
	1998	2007	1998	2007	1998	2007
Czech R.	82.0	80.4	95.0	95.1	13.0	14.7
Estonia	83.9	83.9	92.5	93.6	8.6	9.7
Hungary	68.4	73.0	83.2	87.2	14.8	14.2
Latvia	83.9	82.7	91.1	90.6	7.2	7.9
Lithuania	87.0	84.6	92.2	87.8	5.2	3.2
Poland	76.2	75.5	89.4	87.8	13.2	12.3
Slovakia	81.3	80.4	93.7	93.0	12.4	12.6
Slovenia	83.7	88.0	91.4	91.7	7.7	3.7

Note: Weighted with sampling weights. Male and female participation rates and the difference between the two are in percentage points.

While a negative relationship between gender unemployment gaps and female labor force participation has been found for the old EU countries (see (Azmat, Güell,

[24]Starting at very high levels, which were artificially maintained by the regimes' policies, female participation rates have been either stagnant or declining in many of the post-communist countries. Freedom to choose one's labor market status, reductions in child care provisions, and also sharp increases in unemployment during the transition periods resulted in some women leaving the labor force.

Figure 5: Labor Force Participation Rates by Gender 1996-2007



Note: Weighted with sampling weights. Prime age individuals (25-54 year old). The share of the sum of employed and unemployed in the population.

and Manning 2006)), we find no evidence of such relationship among the eight new EU member states. In 2007, the correlation between the gender unemployment gaps and female labor force participation is 0.09 and not significant among the eight new EU member states in the EU LFS data, in contrast with the old EU countries, where the correlation is -0.46 and significant at the 10% level. Previous research on cross-country differences in gender wage and employment gaps focuses on the cross-country variation in labor force participation of women. However, the participation rates of men vary as well. The male participation rates among the eight countries in our sample range from 87.2% in Hungary to 95.1% in the Czech Republic in 2007. They were stagnant in all the countries except for Hungary, where it increased (from 83% to 87%). Figure 5 suggests that while the male and female labor force participation is very similar in Slovenia (where female participation has converged towards the male level) and Lithuania, there is a substantial gender participation

gap in the other countries. The differences, presented in the last two columns of Table 10, vary from 3.2 p.p. in Lithuania to 14.7 p.p. in the Czech Republic in 2007. In Slovenia and the Baltic states, it remains below 10 p.p., but it is above 12 p.p. in the other countries.

Focusing on the gender unemployment gaps, we suggest that it is natural to look at the *difference* between the male and female labor force participation rather than just at the *level* of female participation. The upper two panels of Figure 6 compare the relationship between the gender unemployment gaps and female labor force participation on the one hand (first panel) and between the gender unemployment gaps and gender labor force participation gap on the other (second panel) among the eight countries in 2007.

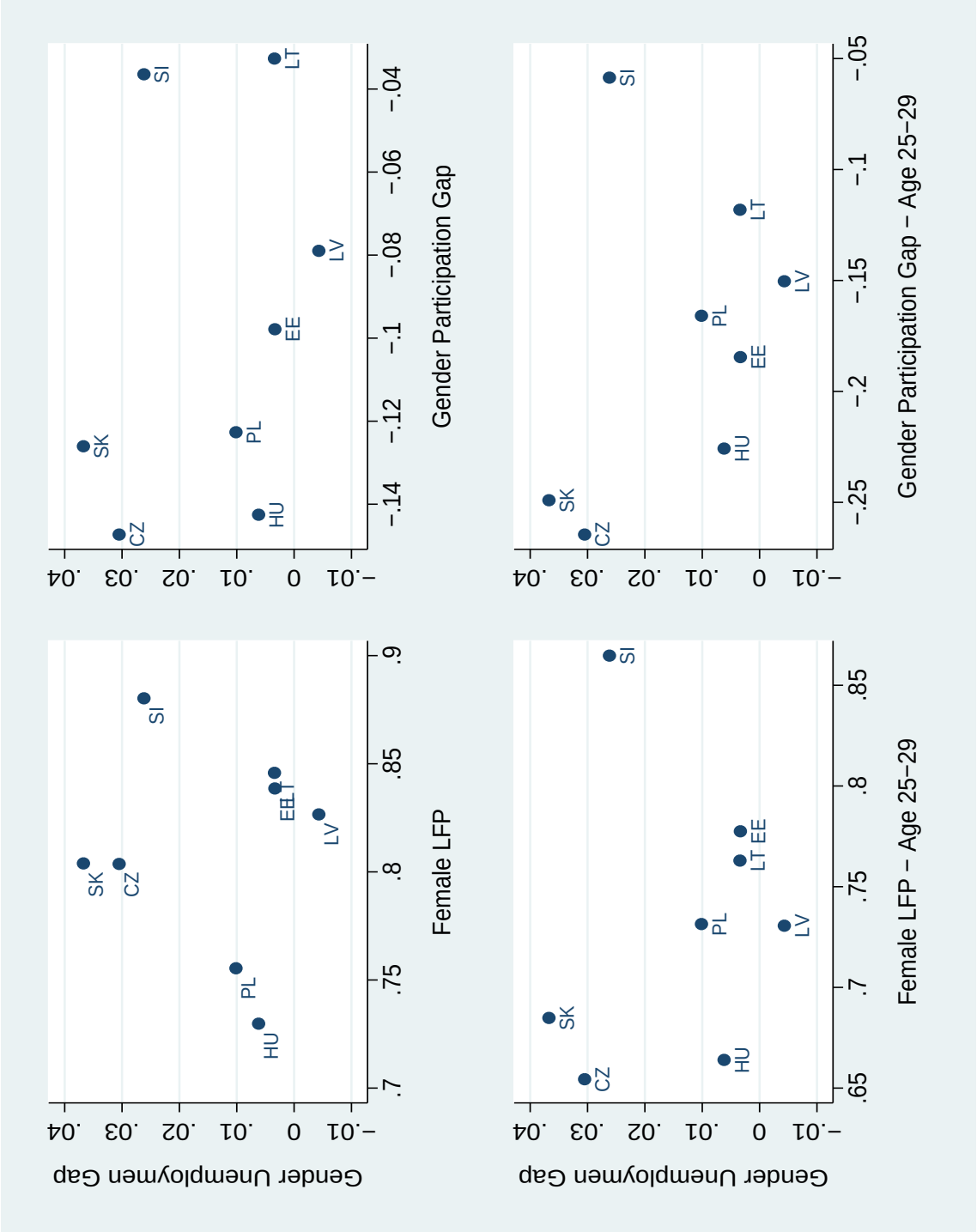
While the first panel shows no clear pattern, a negative relationship between the two gaps is clearly visible in the second panel. The only outlier is Slovenia, with a very small participation gap but relatively big unemployment gap.[25] When we consider all the available country-year observations in our sample, the correlation coefficient between the gender unemployment gap and female labor force participation is -13.4 and statistically not significant even at 20%, while the correlation coefficient between the gender unemployment gap and the gender labor force participation gap is -49.8 and statistically significant at less than 1%.

We conclude that gender labor force participation gaps are an important factor for the observed gender unemployment gaps.[26] To explore what drives the gender differences in labor force participation, next we focus on gender-specific participation patterns over prime-age life.

[25]However, Slovenia has a statistically significant gender unemployment gap only for the last two years. Prior to 2006, both the unemployment gap and the difference in participation rates of men and women were small in Slovenia. In addition, as we have discussed previously, Slovenia is indeed an outlier in the sense that the unemployment gap differs substantially in its character from the rest of the sample. Namely, it mostly reflects the difference in unemployment between young childless individuals, rather than the family gap, as in the remaining countries.

[26]While the causality could also go the other way, participation levels are typically more stable, long-term phenomenon and indeed precede the rise of gender unemployment gaps in some of the countries.

Figure 6: Gender Unemployment Gap and Various Participation Variables

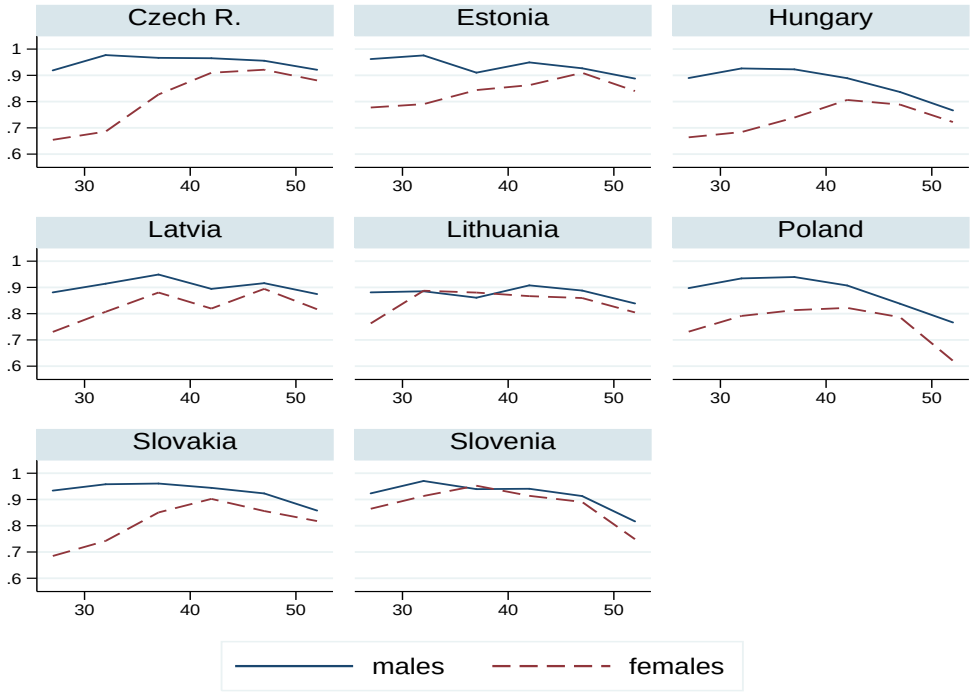


Note: Weighted with sampling weights. The upper two panels show the correlation between gender unemployment gaps and female labor force participation (first panel) and the labor force participation gap defined as female rate minus male rate (second panel) in 2007. The lower two panels show the correlation between gender unemployment gaps and female labor force participation for ages 25-29 (first panel) and the labor force participation gap for ages 25-29, defined as female rate minus male rate (second panel) in 2007.

6.2 Gender Participation Gaps by Age

Figure 7 plots the male and female labor force participation rates for different age groups in 2007.[27] There is a substantial divide between male and female labor force participation rates at the beginning of the prime-age period in most of the countries, with the female rate starting at a much lower level but gradually converging to the level of the male rate by the age of 40. The divide is the most pronounced in the Czech Republic, followed by Slovakia, Hungary, Estonia, and to some extent Latvia. Note that in all these countries, the two rates get very close at the later ages, whereas

Figure 7: Labor Force Participation by Age Group in 2007



Note: Weighted with sampling weights.

in Poland, the initial gap between male and female participation rates is smaller but it is maintained over the entire prime age, although it somewhat narrows around the age of 45. There is not much of a difference between the two rates for any age in Lithuania and Slovenia. The figure therefore reveals that, except in Poland, the

[27] While the observed differences at different stages of prime age life could be also driven by differences across generations, this does not seem to be the case. The patterns looks very similar to other years of the sample, suggesting a strong persistence in the labor force participation behavior overtime.

aggregate participation gaps are all driven by gender differences in participation for the early ages.

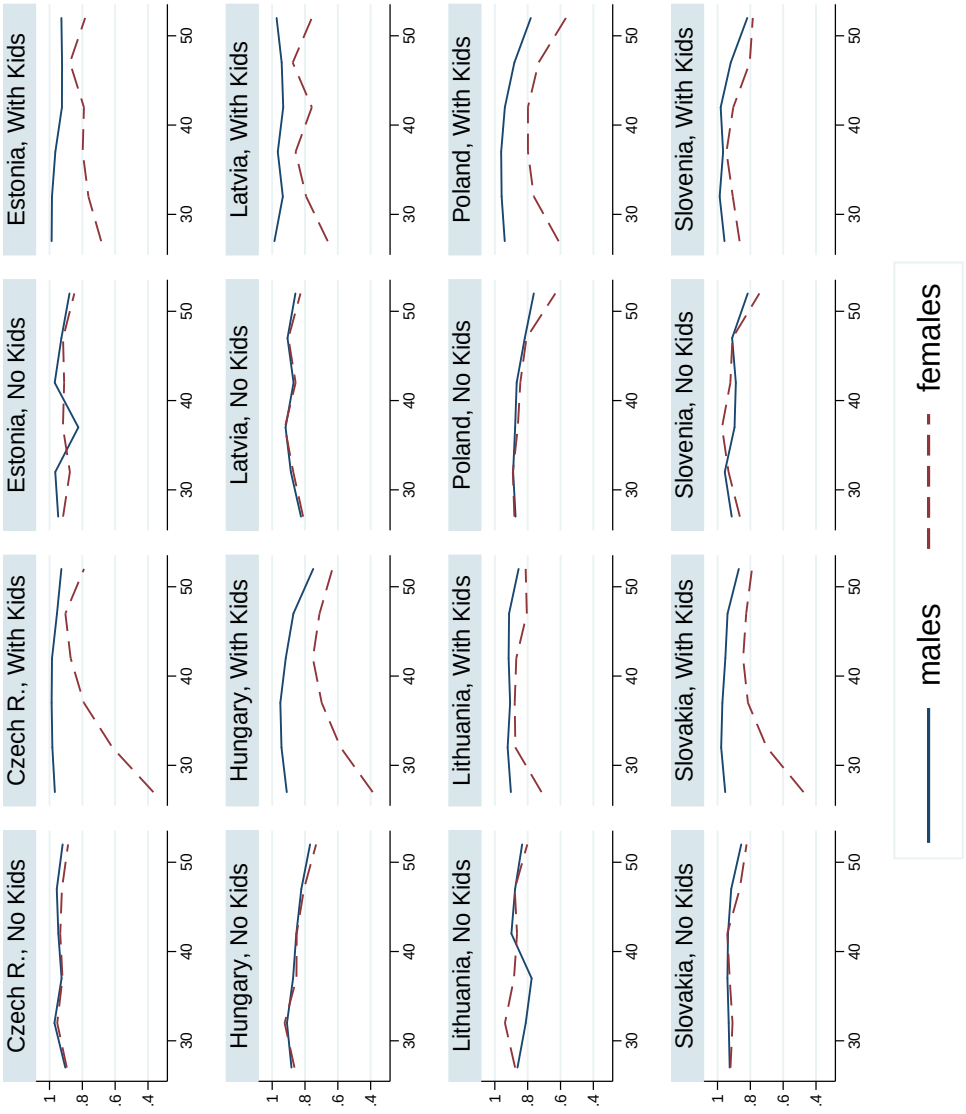
This also means that when we correlate the gender unemployment gap with female labor force participation for the ages 25-29 rather than the overall labor force participation, we again "re-establish" the negative correlation. The relationship is even more emphasized when we look at the gender labor force participation gap at the beginning of prime age. See the lower two panels of Figure 6. The only outlier is again Slovenia with a substantial unemployment gap in 2007 but high labor force participation over the child-rearing period.

6.3 Gender Participation Gaps by Age and Children

As the gender participation gap, driven by the temporarily low female participation rate, is greatest during women's childbearing age, the documented withdrawal of women from the labor market is likely to be related to child-bearing and child-rearing. This is confirmed by Figure 8, which plots the labor force participation of women by age and by presence of children in 2007.

We see that the low labor force participation in the first decade of prime age pertains only to women with children, while no such pattern exists for those without. The disaggregation by children reveals an even greater divide between the labor force participation of women and men with children, at the same time further emphasizing the cross-country differences: the female labor force participation age profile starts at the lowest level in the Czech Republic, Slovakia and Hungary, but in the first two countries it steeply rises again, reaching a level close to the male participation rate around age 40. In Hungary and Poland, the rise in female participation is more gradual and, especially in Poland, stays considerably below that of men throughout prime age. Furthermore, participation of both genders declines substantially in these two countries after the age of 45. In the Baltic states and Slovenia, there is only a small participation gap or no gap at all. There is no gender participation

Figure 8: Labor Force Participation by Age and Children in 2007



Note: Weighted with sampling weights. Male and female labor force participation rates by age and by the presence of children in the family.

gap for individuals without children in any of the countries.[28]

[28]The participation rate of women without children is actually higher than that of men without children in Lithuania during the early ages.

7 Family Leave and Cost of Children

7.1 Family Leave Policies

In the previous section, we have established a link between the variation in the extent of the female labor force participation withdrawal during the child-rearing period and the observed gender unemployment gaps across the eight countries. We will now discuss family leave policies as the likely driving force behind the observed cross-country differences in female participation profiles. Table 11 describes the family leave policies in the eight new EU member states: the maternity leaves of 28 weeks in the Czech Republic and Slovakia are among the longest in the whole EU. Hungary and Poland come next, followed by the Baltic states, and Slovenia with the shortest maternity leave of 15 weeks in our sample. On the other hand, Slovenia is the only country with a "non-negligible" paternity leave of 12 weeks, followed by Lithuania with 4 weeks and the other two Baltic states (2 and 1.5 weeks) and Hungary (1 week). Parental leaves vary substantially both in length and whether and how paid, with a flat rate or a percentage of previous earnings (with a ceiling).

The overall impact that the family leave policies (combined together) may have on women's career interruptions after childbirth is summarized in Table 12, which shows the length in months of the total paid postnatal leave available and the total "well-paid" postnatal leave, defined as the leave when the mother receives at least 70% of her previous salary. The Czech Republic, Slovakia, Hungary, and Estonia have the longest total postnatal paid leave of 36 months, Slovenia has the shortest total postnatal paid leave of 12 months. The "short leave" countries, however, offer better pay, as apparent from the second column. Although Poland has a relatively long parental leave of 24 months, but it is the only country where it is means-tested. It follows that there is zero parental leave for the part of the population of mothers with higher preceding salaries.

The last column of Table 12 shows the share of children below 3 years of age that attend formal child care. The percentage of mothers that opt for formal child

Table 11: Family Leave Policies

Country	Maternity Leave	Paternity Leave	Parental Leave (months)		
	(weeks)	(weeks)	Total	Paid*	Rate
Czech R.	28	none**	30.5	Yes(30.5)	Flat rate
Estonia	20	2	31.5	Yes(14.5 / 17)	100% (ceil.)
Hungary	24	1	30	Yes(18 / 12)	70% (ceil.)
Latvia	16	1.5	18	Yes(12/6)	70% (ceil.)
Lithuania	18	4	34	Yes(22)/No(12)	Flat rate
Poland	20	time off**	36	Yes/No(24)***	Flat rate
Slovakia	28	time off	30.5	Yes(30.5)	Flat rate
Slovenia	15	12	9	Yes(9)	100% (ceil.)

Note:
* The brackets show the length of the parental leave when different types of rates are paid as follows: (months of leave with earnings-related rate / months of leave with a flat rate). If there is an earnings-related rate, the rate is given in the column that follows.
** In Poland and the Czech Republic, fathers can take part of the maternity leave.
*** In Poland, parental leave payments are *means-tested*. Paid parental leave is 36 instead of 24 months if more than one child.
Source: The Council of Europe Family Policy Database (Figures 11, 15, Tables 4, 5)

care rather than staying at home with their children varies considerably across the eight countries, ranging from close to zero share in the Czech Republic, Slovakia and Poland to 29% in Slovenia.

To summarize, Slovenia has the shortest postnatal leave (12 months) for mothers but well paid, the longest paternity leave, and the highest usage of formal child-care (30%). The Baltic states and Hungary show similar features as Slovenia but the "well-paid" leave is twice as long (20 or 24 months), and the usage of formal child-care spans between 18% in Estonia and Latvia, and 7% in Hungary. In addition, Estonia and Hungary have a 1.5 and 1 more year of a lower paid leave respectively. The Czech Republic and Slovakia have a very short "well-paid" leave (maternity leave), a very long low-paid leave, and almost no usage of formal child-care for children younger than 3 years. The same holds for Poland, where, however, low-paid leave is only for 2 years, and moreover the pay is means-tested.

Different gender role attitudes emerge from the family leave policies and the

Table 12: Maximum Available Postnatal Leave and Formal Child-Care Usage

	Total Postnatal Leave in Months		Formal Child-Care***
	Paid*	Well Paid** (> 70% of salary)	Usage for Children Younger than 3 in %
Czech R.	36	5.5 (69%)	2
Estonia	36	18	18
Hungary	36	24	7
Latvia	20	20	18
Lithuania	24	24	11
Poland	24	4.5	2
Slovakia	36	5.5 (55%)	5
Slovenia	12	12	29

Note:
* Note that in Poland parental leave is means tested.
** Total postnatal leave during which the mother is paid at least 70% of her previous salary. In the Czech Republic and Slovakia the pay is never this high; the corresponding "well-paid" rate for the two countries is included in parentheses.
*** The share of children below 3 years of age who attend formal child care. Source: The Council of Europe Family Policy Database (Figures 13, 14, 18)

subsequent usage of formal child-care, with Slovenia and the Baltic states supporting mothers' early return to their jobs and also emphasizing the role of fathers, on the one hand, and the Czech Republic and Slovakia encouraging mothers to spend the first years with their children at home.

The actual labor force participation behavior of mothers after childbirth is summarized in Table 13. The participation of women with exactly one child younger than 5 in the labor force (second column) spans from only 34.6% in the Czech Republic to 86.6% in Slovenia. The last column shows the length of the "actual leave," imputed from the participation rate in the second column. It is constructed as the product of the labor force participation rate of women with exactly one child younger than 5 years old, times number 5, for the five-year interval of the age of the child.[29]

[29]This imputation assumes constant childbearing across years within the five-year band and identical leaves taken by women in the same country. It therefore captures the average length of leaves taken.

Table 13: Actual Leave Taken in 2007

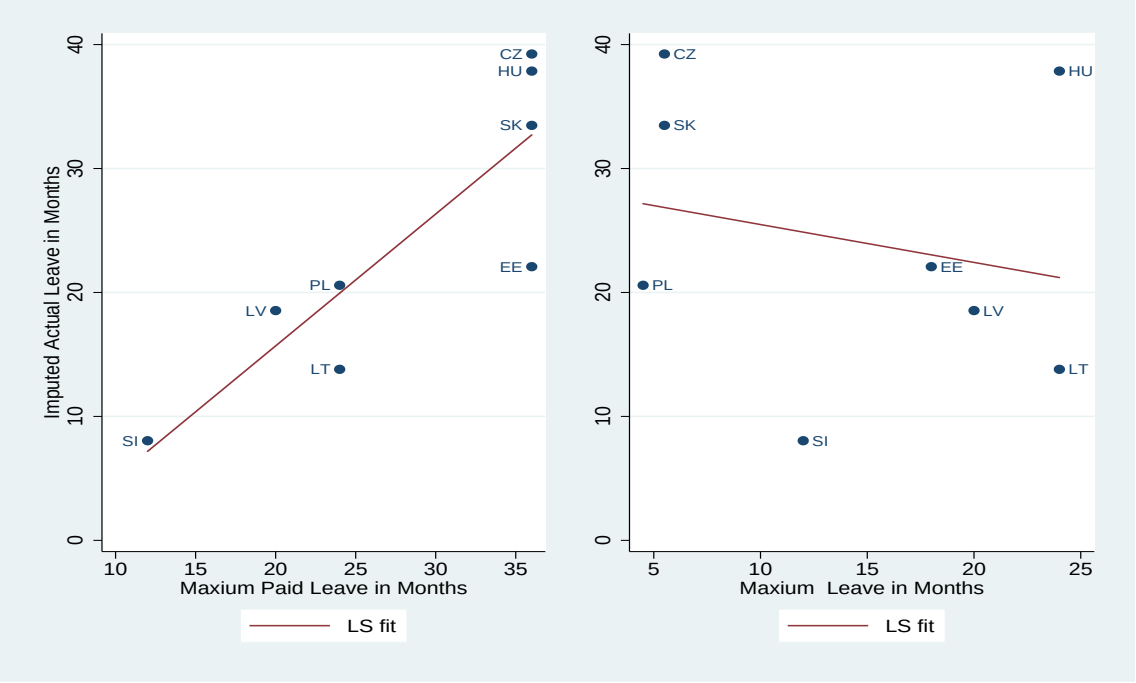
	LFP of Women with		Actual Leave	
	Child5>0	Child5=1	Imputed	
	in %	in %	in years	in months
	(1)	(2)	(3)	(4)
Czech R.	0.323	0.346	3.27	39.24
Estonia	0.595	0.632	1.84	22.08
Hungary	0.326	0.369	3.16	37.86
Latvia	0.662	0.691	1.55	18.54
Lithuania	0.747	0.77	1.15	13.80
Poland	0.642	0.657	1.72	20.58
Slovakia	0.405	0.442	2.79	33.48
Slovenia	0.848	0.866	0.67	8.04

Note: Column 1: labor force participation rate of women with at least one child younger than 5 years of age. Column 2: labor force participation rate of women with exactly one child younger than 5 years of age. Column 3 and 4: imputed leave (in years and months), constructed as the product of the inactivity rate (1- labor force participation) of women with exactly one child younger than 5 years of age times 5 (for the 5 year band of age). Weighted with sampling weights.

As Poland has a means-tested parental leave, the seemingly long parental leave of 24 months is effectively zero for the part of the population of mothers with high income. It can be therefore expected that the selection of low income mothers into taking the leave, due to lower opportunity costs, would be even stronger there than in other countries.

We next confront the family leave features with the cross-country differences in labor force participation of mothers of children less than 5 years old. Figure 9 correlates the imputed actual leave with the two key features of the country-specific family leave policies: the length in months of maximum postnatal leave available and the length in months of maximum well paid (above 70% of previous income) leave. There is clearly a strong relationship between the actual leave and the maximum postnatal leave available, suggesting that this is the key determinant of women's choice rather than the length of the well paid leave. In what follows, we will therefore

Figure 9: Leave Policies and Imputed Actual Leave in Months



The two panels plot the correlation between the maximum postnatal leave and the actual leave and the maximum well paid leave and the actual leave respectively. Actual leave is imputed as the product of the inactivity rate of women with exactly one child younger than 5 years times 5 (for the 5 year band of age) in 2007.

use the maximum postnatal leave as the key country-specific characteristic of the family leave policies.

7.2 The Estimated Cost of Children

In order to compare the country specific unemployment cost of children to women who participate in the labor force, we report the coefficients of the effect of children at different ages from the same linear probability model of the probability to be unemployed (conditional on being in the labor force) with both human capital and family variables, estimated for women only. We again include three variables describing children: the number of children younger than 5 years, the number of children between 5-10 years of age, and the number of children between 10-15 years of age.

The effects of children of any age are positive and substantial in the Czech Republic, Slovakia, and Hungary, followed by Estonia. The effect of children between

Table 14: Unemployment Cost of Children

	child5			child10			child15		
	coeff	se	t-stat	coeff	se	t-stat	coeff	se	t-stat
cz	0.042	0.005	9.033	0.066	0.003	20.422	0.017	0.002	7.256
ee	0.019	0.011	1.726	0.033	0.010	3.420	0.025	0.008	3.236
hu	0.043	0.004	10.929	0.027	0.003	10.191	0.015	0.002	6.976
lv	-0.009	0.008	-1.032	0.002	0.007	0.311	-0.005	0.006	-0.894
lt	-0.004	0.005	-0.710	0.010	0.005	2.234	-0.000	0.004	-0.056
pl	-0.010	0.004	-2.754	0.018	0.003	5.562	0.016	0.003	5.410
sk	0.043	0.006	6.824	0.060	0.005	12.586	0.031	0.004	8.103
si	-0.013	0.004	-3.246	-0.007	0.004	-1.924	-0.006	0.003	-1.975

Note: Coefficients from the linear probability regression of the probability of being unemployed, conditional on being in the labor force, estimated for women only. RHS variables also include constant and age, education and year dummies. Pooled data for years 2002-2007. Robust standard errors.

ages 5 and 10 is stronger than that of children younger than 5 years of age in most of the countries. This probably reflects the fact that a high share of mothers of children below 5 years of age are not in the labor force and therefore would not be part of the sample.[30] The impact of the interruption of the career comes into effect for mothers of children between 5 and 10 years of age, when – as shown in the descriptive statistics – these mothers return to the labor force. The effect of children older than 10 years is smaller than the effect of younger children, supporting the hypothesis that the effect of children on unemployment probability diminishes as children grow older and the woman is further along in their careers from the employment interruption following childbirth.

The effect of the number of children between 5 and 10 years old – the biggest effect among the three variables describing the number of children in different age groups in all countries but Hungary – is quite substantial, suggesting that one child of that age increases the probability of the mother to be unemployed by 6.6 and 6 percentage points in the Czech Republic and Slovakia, followed by Estonia

[30]See the statistics and discussion of the labor force participation of women in the next section.

(3.3 p.p.), Hungary (2.7 p.p.), Poland (1.8 p.p.), and Latvia (1 p.p.). There is a moderate unemployment-increasing effect of children 5 to 10 years old in Lithuania and a small negative (unemployment-decreasing) effect of children in Slovenia.

As already pointed out, these variables describe the presence of children of a given age in the household where the prime-age woman from the sample resides. It follows that women with no children and women with children who are older than 15 are treated the same in this model, with zeros in all the children variables. This shortcoming may not be as severe if we assume that the main effect of children is most pronounced soon after the mother's return to the labor force but fades away with the woman's age, and we focus our analysis on this immediate short-run effect. In order to confirm this conjecture, we re-estimate the model restricting our sample to women younger than 44 years old, whose children are with high probability still in the sample.[31] When we restrict the sample to women younger than 44 years of age, the results are very similar.[32]

7.3 Cost of Children in Light of Family Leave Policies

We will now relate the estimated country-specific effects of children on women's probability to be unemployed to the country differences in family leave policies. Figure 10 correlates the estimated coefficients of the variable describing the number of children between 5 and 10 years old from the linear probability model of unemployment estimated on women only using the pooled yearly data from 2002-2007 from section 7.2, with four different country specific outcomes or policies: gender unemployment gaps, gender participation gaps, the maximum postnatal leave available, and the imputed actual postnatal leave measured in 2007, the last year of the studied period. The lower two panels reveal that there is a strong positive correlation between the estimated effect of children and the maximum postnatal leave, as well as the imputed actual leave. Hungary is the only partial exception, with a long

[31] Of course, doing so, we potentially disregard the effect of children on mothers who gave birth at later ages.

[32] See Table 23 in the Appendix.

maximum as well as actual leave but relatively low cost of children. While maximum leave is also long in Estonia, it turns out that it is not fully used by women, resulting in shorter actual leave and correspondingly moderate cost of children.

The upper two panels suggest that there is a positive correlation between the cost of children and the gender participation gap and, most importantly for this study, a negative relationship between the cost of children and the gender unemployment gap. The hypothesis that the bigger the participation gap, the more substantial effect children have on unemployment probability is supported in the upper right panel. Only Hungary and Poland have a somewhat greater gap relative to the moderate cost of children. As these are the two countries with the lowest female labor force participation, which is persistent over the lifetime, it is natural to interpret this fact as follows: as greater proportion of women with children stay out of labor force for their entire life in these countries, they will never face the risk of unemployment, therefore resulting in lower estimated cost of children.

While participation gaps correspond well to the estimated unemployment cost of children, the upper left panel again confirms that not all the gender unemployment gaps can be explained by women's work interruptions after the childbirth. (The adjusted R^2 measures from the linear regressions of the gender participation gaps and gender unemployment gaps in 2007 on a constant and the estimated unemployment cost of children between 5 to 10 years old are 0.51 and 0.23.) The recently emerged gender unemployment gap in Slovenia is clearly unrelated to the presence of children, leaving this country as an outlier with a huge gap but zero cost of children. It is the only country with a gender unemployment gap which is greater among the childless than among individuals with children, and which cannot be explained by the family leave policy.[33] On the other hand, Estonia and Hungary have also somewhat lower unemployment gaps with respect to the relatively high cost of children. Note that these are the two countries (also together with Poland), with statistically significant negative gender unemployment gaps among childless individuals, which

[33]Note that the positive gender unemployment gap exists in Slovenia only in the last two years of the sample and affects only young individuals.

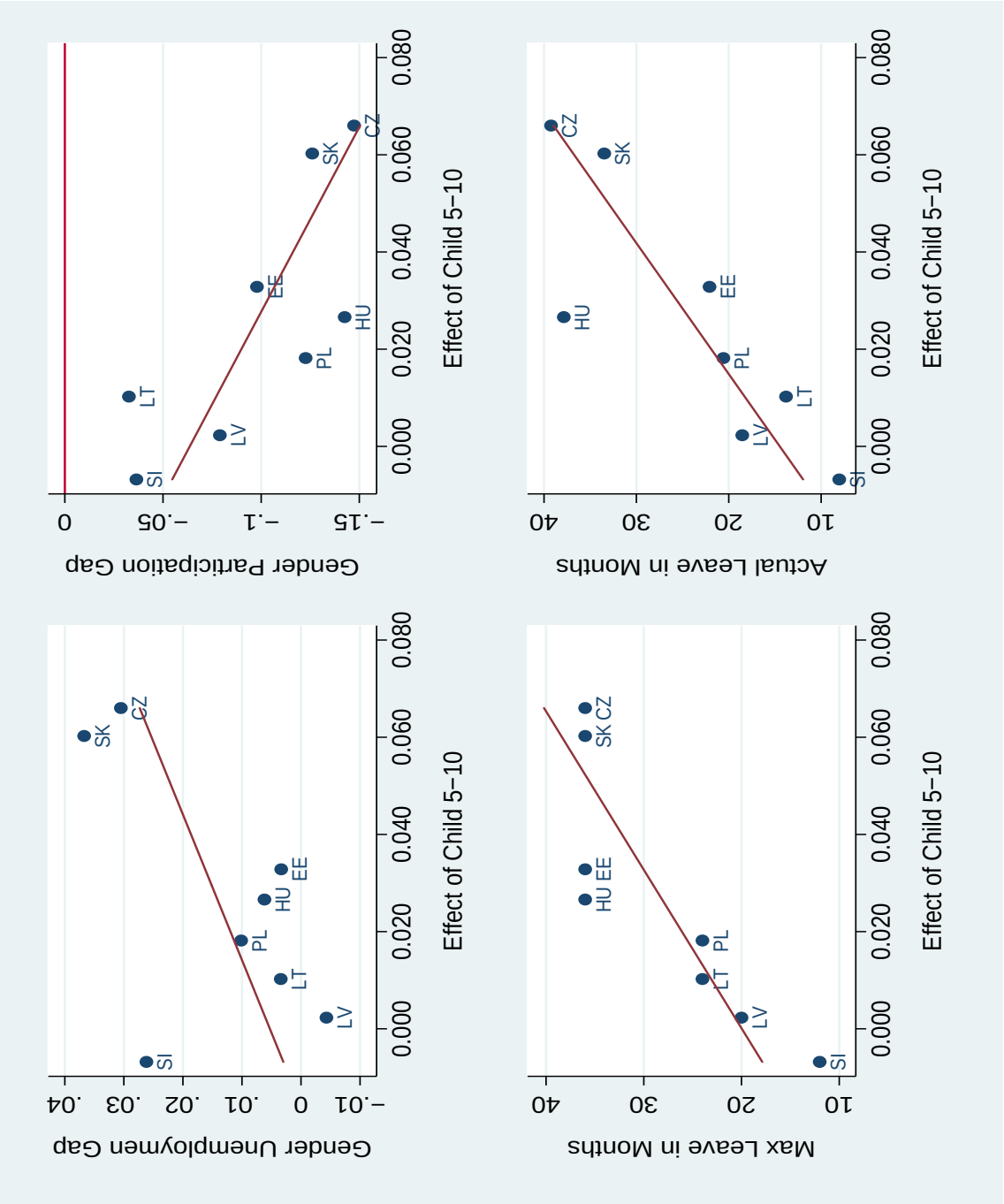
in turn mitigates part of the otherwise substantial positive gender unemployment gap among the individuals with children.

We conclude that the unemployment cost of children account for much of the cross-country variation in the observed gender unemployment gaps among individuals with children. The same holds for the aggregate gender unemployment rates with the caveats described above.

7.4 From Leave to Unemployment

As the imputed actual leave exceeds in some cases the maximum leave (paid or unpaid) available that the mother is granted after childbirth, it implies that women in some countries prolong their labor force withdrawal beyond the statutory maximum. No longer guaranteed their previous jobs, these mothers have to start looking for a new job after the end of the postnatal leave and therefore become unemployed. We next explore the evidence of the direct transition of women who are at home with children to unemployment in our data. Table 15 uses two different pieces of information available. The first column shows the share of the currently unemployed women with at least one child below 5 years of age in 2007 who report inactivity due to "caring for family members" as the state immediately preceding their current unemployment. The second and third columns show the share of the same subpopulation who report inactivity and employment respectively as their labor market state a year ago. The numbers suggest that a substantial share of currently unemployed women with young children entered their unemployment status directly (or within a year) after the family leave. In all the countries except for Slovenia and Lithuania, more than 50% of currently unemployed women with young children were out of labor force to care for family members immediately before they became unemployed. As for the year to year transitions, 66% of the same subpopulation of women were inactive a year ago in the Czech Republic, 61% in Hungary and 41% in Slovakia, followed by the other countries, with only 10% in Slovenia. The year to year transition from employment to unemployment, on the other hand, is rather

Figure 10: Unemployment Gap, Participation Gap, Maximum Leave and Imputed Actual Leave with Respect to the Cost of Children



Note: The four panels relate the gender unemployment gap in 2007, the gender participation gap in 2007, the maximum postnatal leave and the actual leave to the estimated effect of presence of one child between 5-10 years old on mother's likelihood of being unemployed. The effect is given by the coefficient from a linear probability model of unemployment estimated on the sample of women in the labor force over the period 2002-2007. Other RHS variables include age, education, year dummies and number of children below age 5 and between 10 and 15 years of age. Actual leave is imputed as the product of the inactivity rate of women with exactly one child younger than 5 and 5 (for the 5 year band of age) in 2007. Weighted with sampling weights. OLS regression projections included.

Table 15: Transitions to Unemployment of Mothers with Young Children in 2007

	Mothers with Children Younger than 5 Years			Share of
	From Inactivity		From Employment	Mothers with Children Younger than 5 Years
	Previous State	Year Ago	Year Ago	Among Unemployed
Czech R.	0.687	0.663	0.044	0.131
Estonia	0.505	0.377	0.122	0.236
Hungary	0.664	0.610	0.087	0.138
Latvia	0.614	0.393	0.433	0.126
Lithuania	0.225	0.324	0.478	0.087
Poland	0.591	0.380	0.113	0.129
Slovakia	0.552	0.413	0.085	0.135
Slovenia	0.330	0.101	0.321	0.143

Note: Weighted with sampling weights. The sample are currently unemployed women in 2007 with at least one child younger than 5 years of age. Column 1: share of the sample who report inactivity due to "caring for family members" as the state immediately preceding their current unemployment. Column 2: share of the sample who report inactivity as their labor market status a year ago. Column 3: share of the sample who report employment as their labor market status a year ago. Column 4: share of women with at least one child younger than 5 years of age among the currently unemployed women.

unlikely for mothers with young children in countries with long actual leaves, but it is 32%, 43% and 48% in Slovenia, Latvia and Lithuania, respectively, where women take shorter leaves and would already be back in the labor force. The remaining percentage (not presented) reflects those who were also unemployed a year ago, i.e., the long-term unemployed.

8 Flows between Employment and Unemployment

When women are unemployed with higher probability than men, it means that they are either more likely to become unemployed or less likely to find a job and leave unemployment. In the last section, we focus on the gender differences in the transitions between employment and unemployment among the individuals in the labor force in order to determine which of the two flows is more important in explaining gender differences in unemployment rates. Based on the simple decomposition of

steady state unemployment, we analyze whether the gender unemployment gaps are driven mostly by the gender differences in the transition from employment to unemployment or the transition from unemployment to employment. Call δ the transition rate from employment to unemployment (firing rate or job separation rate) and λ the transition rate from unemployment to employment (an acceptable job offer arrival rate or hiring rate). The steady state unemployment rate u is determined by the condition that inflows into unemployment equal outflows from unemployment, $(1-u)\,\delta = \lambda\, u$, yielding the following formula:

$$u = \frac{\delta}{\delta + \lambda}$$

The steady state unemployment formula suggests that if the gender unemployment gap is a steady state phenomenon,[34] it may be driven either by gender differences in δ or λ or both. For now, we abstract from transition from and to the labor force, considering only the movements between unemployment and employment within the pool of labor force participants. We will discuss the transition from inactivity to unemployment later.

In order to explore the gender differences in the two transition rates and the effect of human capital and family factors on these transitions, we estimate the same series of parametric probability models as above but now for the gender differences in the probability of moving from unemployment to employment and the probability of moving from employment to unemployment, respectively.

The first column of Table 16 shows that women leave unemployment for employment at a substantially lower rate in all the countries except for Estonia, Latvia and Slovenia. The gender gap in the unemployment to employment transition is the greatest in Poland, where female year-to-year transition rate from unemployment to employment is 7 percentage points lower, followed by Latvia (5.7 p.p.), Slovakia (4.7 p.p.), Czech Republic (3.8 p.p.) and Hungary (3.2 p.p.). Conditioning on age and

[34]While this is hardly the case for a couple of countries where the gap arose only during the studied period, it is less unlikely for the countries with a persistent gap, such as the Czech Republic or Poland.

education again somewhat lowers the difference between male and female transition rates in the Czech Republic and Slovakia but the results are overall very similar to the raw transition gap, and the same holds for the model, which also conditions on the number of children. Including the female interaction variables (see the last two columns of Table 16) suggests that there is no difference in the transition rates of the base group: the young low educated men and women without children.[35]

Table 16: Unconditional and Conditional Gender U to E Transition Gaps

	no Xs		+ age + educ		+ children		+ interactions	
	coeff	se	coeff	se	coeff	se	coeff	se
cz	-0.038	0.011	-0.031	0.011	-0.029	0.011	-0.041	0.032
ee	0.007	0.033	0.001	0.034	-0.002	0.034	0.133	0.122
hu	-0.032	0.007	-0.028	0.007	-0.032	0.007	-0.035	0.020
lv	0.009	0.025	0.008	0.025	0.004	0.025	-0.023	0.086
lt	-0.057	0.019	-0.053	0.019	-0.053	0.019	-0.039	0.068
pl	-0.070	0.006	-0.076	0.006	-0.078	0.006	-0.020	0.018
sk	-0.047	0.009	-0.036	0.008	-0.037	0.008	0.001	0.026
si	-0.001	0.013	-0.008	0.012	-0.006	0.012	-0.005	0.038

Note: Coefficients of female dummy variables and robust standard errors from the different specifications of the linear probability model of the probability of moving from unemployment to employment between two subsequent years. Period 2002-2007; year fixed effects included.

As for the transition from employment to unemployment (see Table 17) women are more likely to move from employment to unemployment only in the Czech Republic (0.9 p.p.) and Slovenia (0.4 p.p.), the difference is, however, less than one percentage point. In the rest of the countries, there is either no transition gap from employment to unemployment or the gap is negative, in favor of women. This is the case in Poland (-1.2 p.p.), Estonia (- 0.7 p.p.), Latvia (-0.5 p.p.) and Hungary (- 0.4 p.p.), but the size is again very small. Conditioning on age, education, and children again does not substantially alter the results. For the base category of young low educated individuals without children, once we include the female

[35]This is actually the case for the other childless groups, as most of the coefficients of the female dummy variable interacted with age and education are insignificant.

dummy interaction variables, there is no gap in four of the countries, but there is a positive gap, i.e., in favor of men, in Slovenia (1.2 p.p.), and there is a more substantial negative gap, i.e., in favor of women, in Hungary (1.6 p.p.), Poland (2.4 p.p.), and Slovakia (4 p.p.).[36]

Table 17: Unconditional and Conditional Gender E to U Transition Gaps

	no Xs		+ age + educ		+ children		+ interactions	
	coeff	se	coeff	se	coeff	se	coeff	se
cz	0.009	0.001	0.007	0.001	0.007	0.001	-0.009	0.006
ee	-0.007	0.003	-0.005	0.003	-0.005	0.003	-0.004	0.019
hu	-0.004	0.001	-0.003	0.001	-0.003	0.001	-0.016	0.004
lv	-0.004	0.003	-0.000	0.003	-0.001	0.003	0.004	0.016
lt	-0.005	0.002	-0.003	0.002	-0.003	0.002	-0.009	0.013
pl	-0.012	0.001	-0.009	0.001	-0.009	0.001	-0.024	0.006
sk	0.001	0.002	-0.001	0.002	-0.001	0.002	-0.040	0.013
si	0.004	0.001	0.005	0.001	0.005	0.001	0.012	0.005

Note: Coefficients of female dummy variables and robust standard errors from the different specifications of the linear probability model of the probability of moving from employment to unemployment between two subsequent years. Period 2002-2007, year fixed effects included.

We therefore conclude that it is the lower transition of women from unemployment to employment, which mostly drives the documented gender unemployment gaps in the new EU member states.[37] While this finding is in contrast with Azmat, Güell, and Manning (2006), who conclude that gender differences in both transitions rates are responsible for the observed gender unemployment gaps in the West European countries, it is consistent with the patterns observed in some of the Central and East European countries in the earlier transition period, as documented by Stefanova-Lauerova and Terrell (2007) for the first half of the 1990s.

[36]This is the case for the other childless groups, as most of the coefficients of the female dummy variable interacted with age and education are insignificant.

[37]The only exception is Slovenia, which has a substantial unemployment gap but no or a very small gap in the transitions. However, as the unemployment gap appears there only during the last two years, it is likely to be far from its steady state level.

9 Conclusion

Gender unemployment gaps among prime age individuals vary considerably across the eight new EU member states. While there are substantial gender differences in unemployment rates in favor of men in the four Central European countries and Slovenia, there are no unemployment gaps in the Baltic states. A flexible type of the Oaxaca-Blinder decomposition suggests that very little of the observed unemployment gaps can be explained by gender differences in individual characteristics. As women in the labor force often have more favorable characteristics than men, the unexplained unemployment gaps are actually bigger than the raw gaps in six of the eight countries. Only in the Czech Republic and Slovakia is about 20% of the gap explained by women's average lower education.

We show that the presence of children younger than 15 years old is the main factor that makes women subject to a higher risk of unemployment when compared to men. There are positive and statistically significant unemployment gaps among individuals with children in all the countries but Lithuania, ranging from 7.3 p.p. in Slovakia to 2.2 p.p. in Slovenia. There is no gap or a gap in favor of women among individuals without children in seven of the eight countries. (Only in Slovenia, the positive gap among individuals with no children is actually greater than for the individuals with children.)

A parametric model of the probability of being unemployed conditional on being in the labor force, estimated separately by country on pooled data for the period 2002-2007, confirms that conditioning on individual characteristics does not explain the observed gaps. It is only after allowing the coefficients of the presence of children to vary by gender that the gaps for the individuals without children disappear or reverse sign. (Slovenia and Poland are the only exceptions with a substantial positive gap among the base category of the young, low educated, and childless.)

There is a negative relationship between gender unemployment gaps and female labor force participation among the old EU member states. While this correlation breaks down in the sample of the eight new EU states, it is re-established when we

relate gender unemployment gaps to the difference between the male and female labor force participation or to female labor force participation at the beginning of prime age, during the child-bearing and child-rearing period of life. It turns out that despite the high overall female labor force participation in the high unemployment gap countries, such as the Czech Republic and Slovakia, a substantial percentage of women with young children temporarily withdraw from the labor force for a considerable period of time to raise their children. When these women return to the labor force after the end of their family leaves, their probability of finding and keeping a job is affected.

We estimate country specific cost of children younger than 5 years old, between 5-10 years old, and between 10-15 years old in terms of the higher probability of women's unemployment. We focus on the effect of children between the age of 5 and 10, whose estimated effects are the highest in most of the countries. It is during these ages that most women are back in the labor force after family leaves and that we expect the greatest impact of the career interruption due to childbirth. The cost ranges from a 6.6 percentage point increase in unemployment probability in the Czech Republic to no effect in Lithuania and Slovenia. The country differences in the estimated unemployment cost of children correspond to the cross-country variation in the extent and the length of women's career interruptions after childbirth. Generous family leave policies, in particular in terms of the length of the maximum paid leave, in the Czech Republic, Slovakia, Hungary, Poland and Estonia result in substantial drops in female labor force participation during the child-rearing period. Family leaves of about 2 years or more in these countries represent a substantial break in human capital accumulation in women's careers, which is likely to reduce their employability. Moreover, leaves prolonged beyond the legal maximum may prevent women from being able to continue with their previous jobs, implying a direct transition to unemployment once they return to the labor force. Analysis of the transition between employment and unemployment among individuals in the labor force shows that it is predominantly the lower rate of women leaving un-

employment to employment when compared to men, which results in their higher unemployment rates, and it is again the presence of children that explains much of the difference. The country differences in the unemployment cost of children account for much of the cross-country variation in the observed gender unemployment gaps among individuals with children, which in turn, with the exception of Slovenia, is the major source of cross-country differences in aggregate gender unemployment gaps. Slovenia stands out as a country with a gender unemployment gap which is greater among the childless than among individuals with children, and which cannot be explained by the family leave policies. At the same time, the positive gap there is a very recent phenomenon and affects only young individuals. Further investigation is needed to determine what is the source of the gender unemployment gap there and whether it is a permanent or a transitory phenomenon.

While we have showed in this study that country differences in family leaves can explain much of the cross-country variation in the aggregate gender unemployment gaps in the eight new member states, we have not attempted to interpret why this is the case. Do children increase women's probability to be unemployed because of the lower work experience and job-specific human capital deterioration during their career interruption after childbirth? Or are women with children less likely to be employed because of lower productivity due to more frequent absences whenever their children are sick or due to lower motivation or work effort due to child-rearing responsibilities?[38] Is the lower rate at which women with children leave unemployment for employment when compared to men due to the higher reservation rate in accepting job offers, reflecting a greater utility from leisure or home production in the presence of a male earner with a higher wage rate, or due to costly or unavailable child care? Or do women indeed face a lower hiring rate due to statistical gender discrimination that interprets presence of young children as a signal of higher absenteeism and lower effort? Likewise, we have not attempted to explain why women in different countries have different participation patterns, to what extent is this

[38] As opposed to men with wage rates exceeding their wive's in an optimal time allocation of duties.

driven by availability of quality formal child-care and flexible work arrangement and to what extent this is women's choice reflecting their preferences to stay at home? Does women's behavior reflect cross-country differences in more permanent social norms and gender role attitudes, also reflected in the family leave policies? These are questions for future research.

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Appendix

Table 18: Raw Gender Unemployment Gaps in 1998

Country	Male U	Female U	ratio	diff	t-stat of diff
Czech Republic	0.038	0.068	1.814	0.031	10.933
Estonia	0.101	0.091	0.896	-0.011	-1.361
Hungary	0.083	0.072	0.870	-0.011	-3.214
Latvia	0.134	0.127	0.951	-0.007	-0.774
Lithuania	0.143	0.117	0.819	-0.026	-2.256
Poland	0.072	0.110	1.521	0.038	9.965
Slovakia	0.094	0.112	1.190	0.018	3.082
Slovenia	0.063	0.062	0.992	-0.000	-0.083

Note: EU LFS, own calculations, weighted with sampling weights. The columns represent the male and female unemployment rate, the ratio of the female to male unemployment rate, the difference between the female to male unemployment rates, and t-statistics of the statistical significance of the difference between two independent variables with binomial distribution.

Table 19: Age and Education Across Gender

Country	Average Age		Average Educ Level	
	Men	Women	Men	Women
Czech R.	38.776	40.011	2.106	2.058
Estonia	38.918	40.098	2.18	2.417
Hungary	38.607	39.838	2.05	2.099
Latvia	39.174	40.074	2.049	2.254
Lithuania	39.233	39.841	2.215	2.355
Poland	38.891	39.232	2.096	2.212
Slovakia	38.722	39.789	2.097	2.083
Slovenia	39.321	39.256	2.084	2.205

Note: Weighted with sampling weights. Samples are prime age individuals in the labor force. Age is the average of the six five-year band groups denoted by the middle year (e.g. 27 stands for 25-29). Education is the average of the three education levels (low= 1, medium= 2, high= 3).

Table 20: Sample Size and Data Availability

Country	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Czech R.	NA	29,880	29,318	28,610	27,363	26,968	26,254	25,678	26,265	25,929	25,915	25,639
Estonia	NA	2,621	6,719	6,591	1,881	2,097	1,979	1,942	1,823	1,777	2,035	2,405
Hungary	25,913	25,477	34,361	35,501	34,505	34,500	34,003	36,993	34,517	32,109	31,727	31,333
Latvia	NA	NA	7,312	7,366	7,558	7,535	2,461	2,445	2,504	2,310	1,918	3,565
Lithuania	NA	NA	3,831	3,841	3,847	3,899	5,404	5,043	5,085	4,991	4,566	7,148
Poland	NA	28,141	28,386	27,571	23,810	24,195	24,421	24,464	24,075	23,264	22,419	21,321
Slovakia	NA	NA	12,728	12,360	12,893	12,867	12,190	12,274	12,058	12,122	11,897	11,409
Slovenia	10,699	8,036	8,045	8,812	8,508	8,976	9,074	9,255	8,658	8,139	7,830	7,642

Note: EU LFS, prime age individuals (25-54 year old), conscripts excluded.

Table 21: Full Model of the Probability of Unemployment - Male Coefficients

	age32		age37		age42		age47		age52		educM		educH	
	coeff	se	coeff	se	coeff	se	coeff	se	coeff	se	coeff	se	coeff	se
cz	-0.012	0.003	-0.006	0.003	-0.008	0.003	-0.008	0.003	-0.005	0.003	-0.188	0.007	-0.212	0.007
ee	-0.009	0.014	0.013	0.015	-0.008	0.013	-0.010	0.013	0.031	0.015	-0.078	0.016	-0.116	0.016
hu	-0.021	0.003	-0.022	0.003	-0.023	0.003	-0.022	0.003	-0.029	0.003	-0.096	0.003	-0.135	0.003
lv	-0.010	0.012	0.030	0.014	0.013	0.013	-0.005	0.012	0.020	0.014	-0.079	0.012	-0.125	0.013
lt	-0.012	0.009	-0.020	0.009	-0.020	0.009	-0.029	0.008	-0.008	0.009	-0.068	0.011	-0.124	0.011
pl	-0.040	0.005	-0.063	0.005	-0.063	0.005	-0.061	0.005	-0.069	0.005	-0.115	0.005	-0.215	0.006
sk	-0.019	0.006	-0.012	0.007	-0.010	0.006	-0.022	0.006	-0.026	0.006	-0.404	0.011	-0.492	0.011
si	-0.018	0.005	-0.021	0.005	-0.019	0.006	-0.033	0.005	-0.028	0.005	-0.044	0.005	-0.055	0.005

	child5		child10		children15	
	coeff	se	coeff	se	coeff	se
cz	-0.004	0.002	-0.000	0.002	-0.006	0.002
ee	-0.018	0.008	-0.007	0.008	-0.010	0.006
hu	0.005	0.002	0.012	0.002	0.000	0.002
lv	-0.004	0.009	-0.020	0.007	-0.011	0.007
lt	-0.007	0.005	0.004	0.005	-0.006	0.004
pl	-0.023	0.003	-0.017	0.003	-0.012	0.002
sk	0.004	0.004	0.005	0.004	0.002	0.003
si	-0.016	0.003	-0.012	0.003	-0.011	0.003

Table 22: Full Model of the Probability of Unemployment - Female Interaction Coefficients

	age32		age37		age42		age47		age52		educM		educH	
	coeff	se	coeff	se	coeff	se	coeff	se	coeff	se	coeff	se	coeff	se
cz	-0.014	0.006	-0.022	0.005	-0.017	0.005	-0.020	0.005	-0.015	0.005	0.052	0.008	0.017	0.009
ee	-0.061	0.022	-0.059	0.022	-0.039	0.021	-0.041	0.020	-0.064	0.022	0.044	0.024	0.048	0.024
hu	-0.006	0.005	-0.008	0.005	-0.003	0.005	-0.017	0.005	-0.015	0.005	0.025	0.005	0.021	0.005
lv	-0.009	0.018	-0.052	0.019	-0.036	0.018	-0.013	0.018	-0.040	0.019	0.011	0.020	0.007	0.021
lt	-0.011	0.013	0.010	0.013	0.006	0.012	0.018	0.012	0.012	0.013	-0.005	0.018	-0.008	0.018
pl	-0.037	0.008	-0.021	0.008	-0.029	0.008	-0.041	0.008	-0.050	0.008	0.007	0.008	-0.018	0.008
sk	-0.021	0.010	-0.037	0.011	-0.037	0.010	-0.024	0.009	-0.028	0.010	0.121	0.014	0.115	0.014
si	-0.025	0.009	-0.038	0.009	-0.042	0.008	-0.042	0.008	-0.046	0.008	0.014	0.007	-0.005	0.007

	child5		child10		children15	
	coeff	se	coeff	se	coeff	se
cz	0.046	0.005	0.066	0.004	0.024	0.003
ee	0.037	0.013	0.039	0.013	0.034	0.010
hu	0.038	0.004	0.015	0.003	0.015	0.003
lv	-0.004	0.012	0.022	0.010	0.006	0.009
lt	0.003	0.007	0.006	0.006	0.006	0.006
pl	0.013	0.005	0.035	0.004	0.028	0.004
sk	0.039	0.007	0.055	0.006	0.029	0.005
si	0.003	0.005	0.005	0.004	0.004	0.004

Table 23: Cost of Children - Probability of Unemployment, Age<44

	child5			child10			child15		
	coeff	se	t-stat	coeff	se	t-stat	coeff	se	t-stat
cz	0.045	0.005	8.997	0.063	0.003	19.100	0.014	0.003	5.348
ee	0.023	0.013	1.796	0.033	0.010	3.144	0.017	0.008	2.073
hu	0.055	0.005	11.803	0.025	0.003	9.224	0.010	0.002	4.453
lv	-0.011	0.010	-1.096	0.005	0.008	0.564	0.001	0.007	0.153
lt	-0.006	0.006	-1.002	0.014	0.005	2.762	-0.001	0.005	-0.309
pl	-0.009	0.004	-2.257	0.016	0.004	4.540	0.011	0.003	3.522
sk	0.046	0.007	6.280	0.057	0.005	11.321	0.025	0.004	6.060
si	-0.014	0.004	-3.374	-0.008	0.004	-2.130	-0.009	0.004	-2.498

Coefficients from the linear probability regression of the probability of being unemployed, conditional on being in the labor force estimated for women younger than 44 years of age. RHS variables also include constant and age, education and year dummies. Pooled data for years 2002-2007. Robust standard errors.