WORKPACKAGE 6

FLEXIBLE EMPLOYMENT REGIMES IN MANAGING WORK AND CARE

CONTENTS

PART 1: FEMALE LABOUR SUPPLY AND CHILDCARE PROVOSIONS IN EUROPE

JÁNOS KÖLLŐ – ÁGOTA SCHARLE

PART 2: HUNGARY'S FAILED ATTEMPTS AT INCREASING MATERNAL EMPLOYMENT

JÁNOS KÖLLŐ

PART 3: THE ROLE OF TIME-FLEXIBILITY IN MANAGING WORK-FAMILY CONFLICTS

ANDRÁS GÁBOS

PART 1

FEMALE LABOUR SUPPLY AND CHILDCARE PROVOSIONS IN EUROPE

JÁNOS KÖLLŐ – ÁGOTA SCHARLE

1. INTRODUCTION

The paper presents the results of an analysis of the effect of childcare provisions on female labour supply in Europe. Sections 1 and 2 review trends and existing evidence on female labour supply, highlighting the importance of child care policies. Section 3 is a summary of variation in childcare provisions across EU member states. Section 4 outlines the results of a cross country multivariate analysis of mothers' labour supply and family provisions in selected in EU member states, where labour supply indicators are calculated from micro-level LFS data.[1] Section 5 presents estimates of the same effect on individual level data using the EU-LFS.

Although the analysis was constrained by lack of data, results confirm earlier estimates using a rougher measure of labour supply and also lead to more precise conclusions concerning education specific effects. In the country level data we find that day care services are more likely to help increase participation for mothers with no education, while cash transfers have a strong negative effect on their probability of employment, at least in the CEE. By contrast, higher educated mothers are less discouraged by cash transfers than their less educated peers and are practically not affected by the availability of day care services – except in transition countries. A conversion of cash transfers into day care provision would yield the highest rise in employment rates among mothers with secondary education, where both effects are strong, and especially so in transition countries. The effects in the individual level data are less clear as there is no information on transfers available to the individual – we use the country level aggregates as context variables instead. In transition countries, the effects are strong, significant and of the same sign as in the country level estimates. The negative effect of cash transfers on maternal employment is unclear in EU-15 countries.

[1] János Köllő is a senior researcher at Institute of Economics, Hungarian Academy of Sciences, Budapest. Ágota Scharle is a senior researcher at Budapest Institute for Policy Analysis. The authors are grateful to Zsuzsanna Gulybán and Zsuzsa Blaskó for their technical assistance.

2. FEMALE LABOUR FORCE PARTICIPATION IN EUROPE

Female participation in the EU-15

The female employment rate varies considerably across old EU member states. The lowest rates (around 60 % in 2005) are observed in the South (Spain, Greece and Italy), but Catholic Ireland (67%) and Belgium (70 %) are also at the low end. At the high end, with employment rates of around 80 %, we find Nordic countries (Sweden, Denmark and Finland) while the others are around or somewhat above the average of the EU-15 (70 % in 2005). On average, female employment has risen steadily since the early 1990s. Most countries followed this trend, but some exhibited a much steeper rise (Ireland, Spain and Holland). The convergence of employment rates is quite spectacular: in 1992, rates varied between 39 and 87 %, and over 25 years, this reduced to a range of 59 to 82%.

Female participation in transition countries

In former socialist accession countries, women took an almost equal share of jobs and as a legacy of this, female labour force participation is still high in most Central and Eastern European countries (CEE) newly admitted to the European Union (EU). The marked drop in female participation after the collapse of the socialist system was almost universal in CEEs,[2] but there seems to be considerable variation in labour market developments following the economic recovery. In the Baltic States and the Slovak Republic, participation has remained high and has been increasing recently. In Hungary, the female activity rate dropped to 50 percent (from 66% in 1980), the lowest among all new member states, but has increased steadily since 1997. The Czech Republic, Poland, and Slovenia have followed an altogether different path: the female participation rate has been continuously falling in these countries and is now below or just above the average of the EU-15.

[2] The drop in the female participation rate (age 15-64) from 1990 to 1993 varied between 2 % (in Hungary) and 8 % points (in the Czech Republic) (Nesporova 2002 and Eurostat on-line database).

3. THEORY AND EXISTING EVIDENCE ON THE DETERMINANTS OF FEMALE LABOBUR FORCE PARTICIPATION

In the economic literature, standard labour supply models describe the choice of labour force participation as essentially dependent on the expected gains and cost of employment, and on personal preferences for non-market time. In this framework, the costs of child care and the value of household production may be interpreted as a cost or opportunity cost of employment, while the value of children may be assumed to increase the value of time spent at home and outside formal employment.

There is a large empirical literature that explains the gradual increase of women's labour force participation since World War II in the above economic framework (see Killingsworth and Heckman 1986 and Blundell and MaCurdy 1999 for an overview). In this literature, the emphasis is on technology development, which made workplaces more suitable for women and also reduced the time needed for managing the household. Skill-biased technological change in recent years may have favoured women, so that the increase in female employment is increasingly determined by rising demand. Recent studies focus on the effect of wage offers to women and typically find that, although rising real wages have contributed to further increases in female labour supply, much of it is due to not easily measurable social phenomena such as the break-up of the traditional division of roles in the family (Blau and Kahn 2005).

A wealth of microeconomic studies look at the labour supply of married women in the US, where the main finding is that women have a higher own-wage elasticity compared to men.[3] Also, being secondary earners within the family, women are likely to be more affected by their spouse's wages (Blau and Kahn 2005). A related strand of the literature that examines the husband's unemployment as an incentive to married women's employment (the added worker effect) tends to find a positive, but small effect (Stephens 2001).

Pissarides, et al. (2005) note however that there is still considerable variation in female participation across countries, which cannot be explained by technology development and the associated changes in wage levels and the gender pay gap. In a detailed examination of European labour markets, Pissarides, et al. (2005) suggest some factors that may shape cross country differences in women's employment, including the institutional features of the labour market, social norms and attitudes perhaps based on religious affiliation, and also, the availability of publicly financed child care facilities.[4] Examining a sample of OECD countries, they find that, controlling for fixed characteristics of countries (such as attitudes), product market regulation (measured as start-up costs) tends to discourage female employment, while the effect of public child care provisions is positive but not statistically significant.

Jaumotte (2003) focuses on policy instruments aimed at increasing female labour supply and provides some more conclusive evidence on the role of state financed support for families. Using data from OECD countries for 1985-1999, she

[3] This is explained by the traditional division of labour in the family, in which women choose between market work, home production and leisure, while men choose between market work and leisure (Mincer 1962). As women have closer substitutes for time spent in market work than men do, changes in market wages are expected to have larger substitution effects on women's labour supply.

[4] Childcare and day-care are used interchangeably throughout this paper. These are meant to include nurseries (for children aged under 3) and kindergartens (educationally oriented care for children over 2).

finds that lower tax disincentives to the second earner in the household, childcare subsidies, and paid parental leave increase the female participation rate while child benefits tend to reduce it. The availability of part time jobs also has a positive effect in most countries. Apps and Rees (2001) also find that individual rather than joint taxation, and a policy to provide alternatives to domestic childcare as opposed to cash payments, is likely to increase female labour supply. In a study of nine EU member states Ruhm (1998) shows that parental leave increases women's employment, but long periods of leave tend to reduce relative wages. Chevalier and Viitanen (2002) show that the availability of childcare determines participation (and not the other way round) and that women could be constrained in their labour force participation by the lack of childcare facilities. Scharle (2007) examines the impact of the transition shock on female labour force participation in former socialist countries in Central and Eastern Europe. These countries encouraged women to work full time and provided various in-kind and cash transfers to mothers. Accordingly, female labour supply was high in socialism but decreased sharply during the transition to market economy, which could be explained either by the structural changes in the labour market, or by the withdrawal of family benefits and services. Based on regression analysis of a country panel, Scharle (2007) finds that labour market conditions, rather than welfare policies, explain most of the decline in female participation during the transition. However, child-care provisions are an important determinant of current variation in the level of female participation in CEE.

There is also some evidence from micro studies of publicly provided child-care programmes in individual countries that show small but positive effects on female labour supply (see Blau 2003 for a review of the US literature).

Demographic trends, and most notably, fertility is also a key factor. In most empirical studies, the presence of young children tends to reduce the labour force participation of women, but it is unclear if this is a causal relationship. Engelhardt, et al. (2004) find causality between fertility and female employment in both directions and suggest that this may be due to the influence of a common third factor or factors such as social norms, social institutions and financial incentives. In a similar vein, Apps and Rees (2001) note that the historical trend of rising participation and falling fertility is changing in high income countries, and suggest that the previously observed negative correlation between fertility and participation was never a structural relationship but a result of institutional structures that made employment and home duties incompatible.

Finally, there is some evidence that attitudes towards male and female roles may influence the labour supply decisions of women. Antecol (2003) uses attitude survey data from a wide range of countries (also including some CEEs) and finds that women are more likely to work in paid jobs if men in their country approve of women's labour force participation. Using data for OECD countries, Algan and Cahuc (2005) show that attitudes to gender roles in the family have a strong influence on female labour force participation even after controlling for cross country variation in labour market institutions and family policies.

4. CHILD CARE PROVISION

Childcare provision in old member states

Provisions for pre-school childcare vary considerably across old member states, depending on the welfare regime, attitudes, and to some extent, on labour market institutions. Traditionally, Nordic countries provide publicly funded services, universally available to mothers, while in Southern and Anglo-Saxon countries state support under school age is minimal as mothers are expected to rely on their extended families or on private service providers. Continental countries lie somewhere in between with a stronger role for employment or insurance based provisions. Recent reforms aimed at increasing female participation seem to have shifted provisions towards the Nordic model in several EU member states, as it seems to answer concerns both about employment levels and gender equality in reconciling work and family responsibilities.

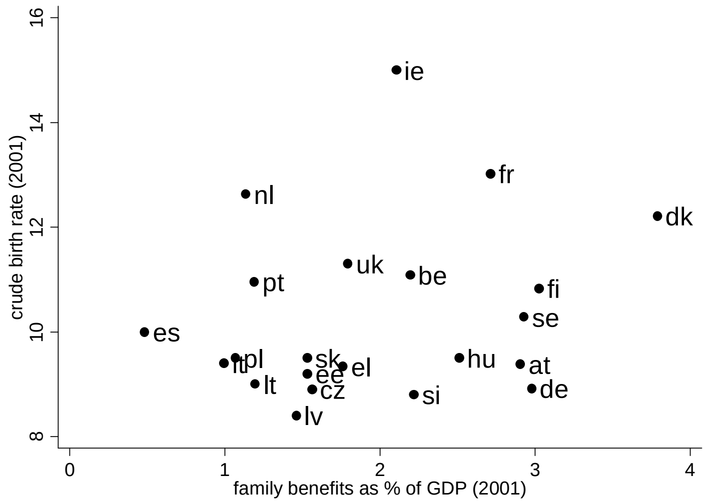
Childcare provision in transition countries

In most former socialist countries governments sought to increase female labour supply and introduced various provisions in order to facilitate female participation. Cash benefits included a birth grant, paid maternity and parental leave, childcare benefit, and family allowances to parents of school age children. Such benefits were widespread and usually more generous than in Western Europe. In the 1980s, governments in Central and Eastern Europe spent twice as much on cash and in-kind family support as OECD countries in proportion to their national income (Sipos 1994). The most important in-kind benefit was cheap or free day care for pre-school children, often maintained by enterprises, so that eligibility depended on the mother's employment.

Reviewing social policy reform during and after the transition, Barr (2005) argues that the direction of reforms followed from the nature of the transition process and from constraints imposed by EU accession. For example, the decline in state revenues forced the Czech Republic, Hungary and Poland to reduce benefit amounts or tighten eligibility around 1995, moving away from universal access to family policies and introducing an income test (Förster and Tóth 2001). In other countries such reforms came later, or took less severe forms. Latvia for example even extended entitlement to maternity benefit and abandoned means testing in 1996. Or, while most CEEs reduced the replacement rate of insured maternity benefit, Slovenia retained a 100 % rate. As Stropnik (2004) notes, such reforms resulted in a wide range of scenarios with no clear pattern of change across former socialist states.

However, a reduction in cash benefits for families was apparently unavoidable in all CEEs. As the figure below shows, by 2001, levels of spending dropped below the average of the EU-15, so that spending on family benefits became by and large proportional to fertility rates, as in the old member states.

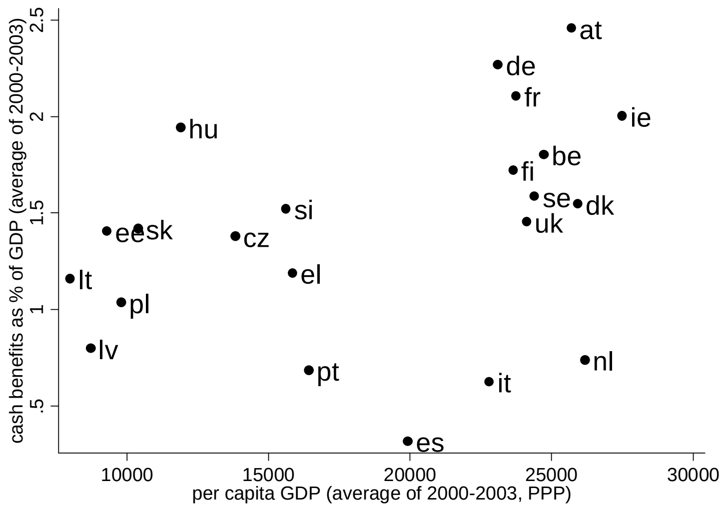
Figure 1. Family benefits (cash and in kind) and fertility in 2001 (8 new and 14 old member states)



Source: Scharle (2007), Eurostat on-line database. Note: cz=Czech Republic, ee=Estonia, lv=Latvia, lt=Lithuania, hu=Hungary, pl=Poland, si=Slovenia, sk=Slovak Republic, and eu15= old member states of the EU at=Austria, be=Belgium, fr=France, de=Germany, el=Greece, es=Spain, ie=Ireland, it=Italy, nl=Netherlands, pt=Portugal, fi=Finland, uk=United Kingdom.

Total spending on cash transfers to families is still large in CEEs in comparison with the level of national income. The figure below shows that Hungary devotes a particularly high share of their national income to cash family benefits, not only compared to lower income EU members Portugal and Greece, but also compared to Sweden and Denmark, ‼ which both have an extended welfare system and a high level of national income. In some CEEs, concerns about slowing (or in some countries, negative) population growth override economic arguments for implementing further cuts in family provisions.

Figure 2. Average of cash transfers and GDP in 2000-2003 (8 new and 14 old member states)



Source: Scharle (2007), Eurostat on-line database.

Recent adjustments in in-kind benefits show more variation across CEEs. Enrolment in kindergarten for children aged 3-5 dropped markedly in the Baltic states between 1989 and 1992, and smaller reductions were reported in other countries (UNICEF 1999). The availability of childcare tended to increase in most CEEs during the years preceding EU accession (see Figure 4). Ten years after the start of the transition, the proportion of children admitted to kindergartens and preparatory schools was over 50 percent and increasing in most CEEs, but still below the average of the old member states (73 percent in 2003). Estonia and Hungary do especially well in providing day care for small children, and Poland stands out at the other extreme, where only one in four children aged 3 go to kindergarten.

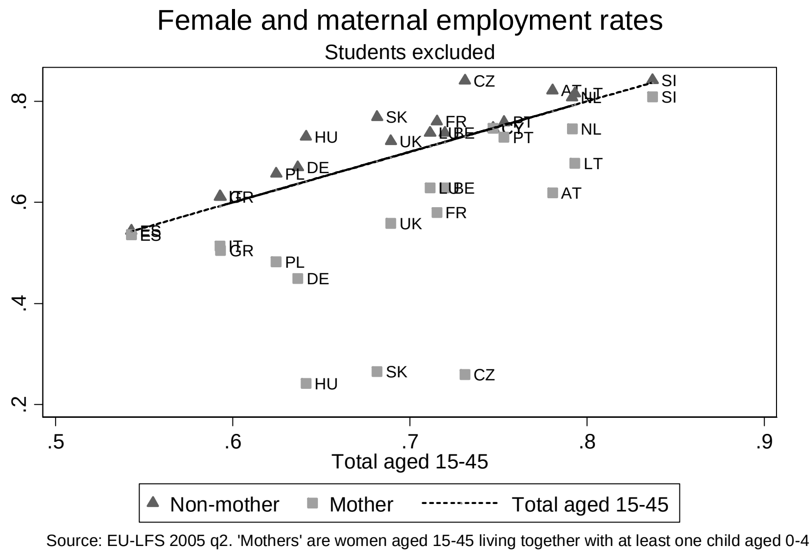
The provision of day care for children under 3 varied considerably across CEEs even during the socialist era, with enrolment rates ranging from 5 % in Poland to over 50 % in East Germany (Moss (1997). Enrolment rates sharply declined during the transition − with the notable exception of Hungary − and are now rather low compared to the EU-15 average, and especially compared to Nordic countries (Saxonberg and Sirovátka 2006 and OECD 2006).

5. A COUNTRY LEVEL MODEL OF FEMALE LABOUR FORCE PARTICIPATION IN EUROPE

Female versus maternal employment

Female employment rates hide substantial variations depending on how maternal status and gainful employment are reconciled in the different parts of Europe. Mediterranean countries have the lowest female employment rates with relatively small differences between the mothers of small children and other women. The gap between female and maternal employment is somewhat larger in Western and Northern Europe including the Baltic states. Three out of the four Central European accession countries for which data are available (Czech Republic, Hungary, Slovakia) appear as *severe outliers* with a gap between 50 and 60 percentage points, and maternal employment rates barely exceeding 25 per cent. Poland also belongs to the low-employment group on both accounts but is located inside the range characteristic of the old EU member states. (Fig 3).

Figure 3. Female and maternal employment rates



Source: EU-LFS 2005.

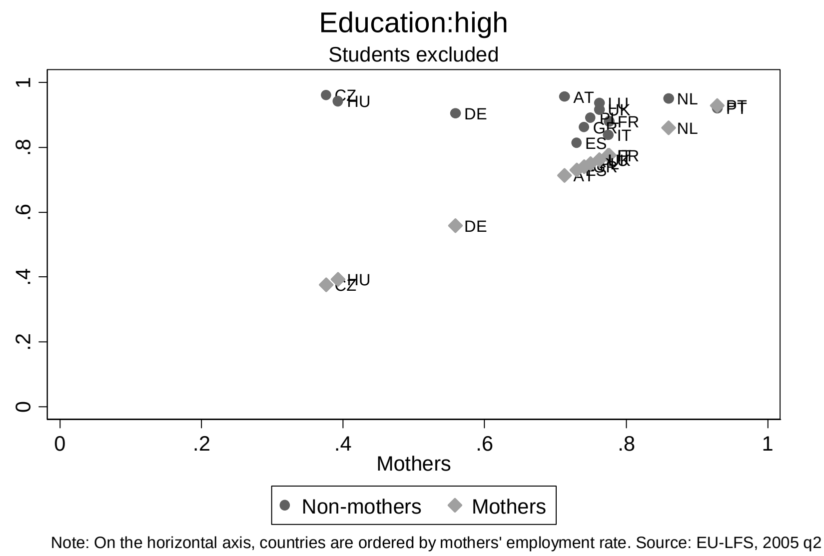
In search of an explanation of why the vast majority of Hungarian, Slovakian and Czech mothers stay away from work, the welfare regimes of these countries certainly rate among the prime suspects. The three countries are ranked 1st, 4th and 5th in terms of spending on maternity and parental leave, sharing the leading positions with Scandinavian countries and Finland (OECD Family Database, Table Pf.7.2.). However, while the Nordic states spend generously on day-care facilities, in the three Central-European countries child-care support is heavily biased in favor of cash benefits (compare op.cit. Pf.7.2. and Pf.11.1).

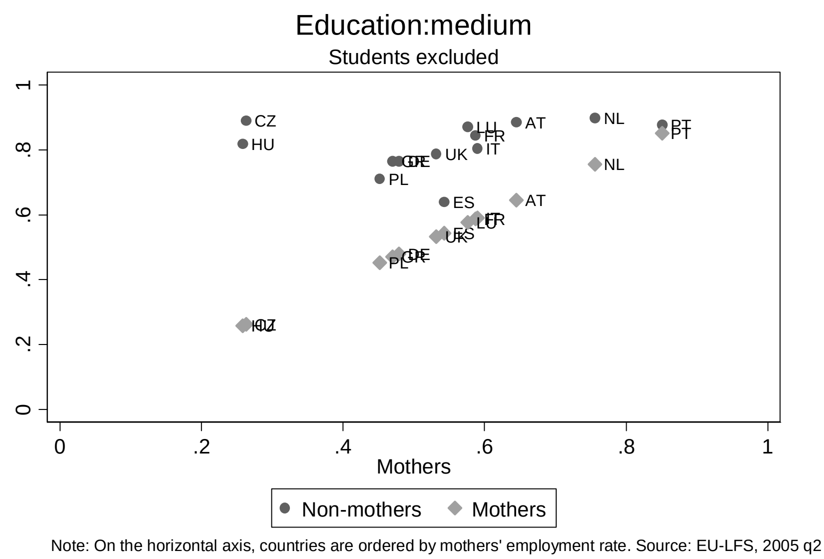
However, welfare provisions cannot account for all the observed variation in the absolute and relative levels of maternal employment. Reconciling child care and work is easier in large households, in families engaged in farming or running small businesses at or near their homes, while it is more difficult if transport costs are high and part-time jobs are scarce. Further, it is likely that the potential effect of pro-employment policies vary across countries and level of education, as discussed in the next point.

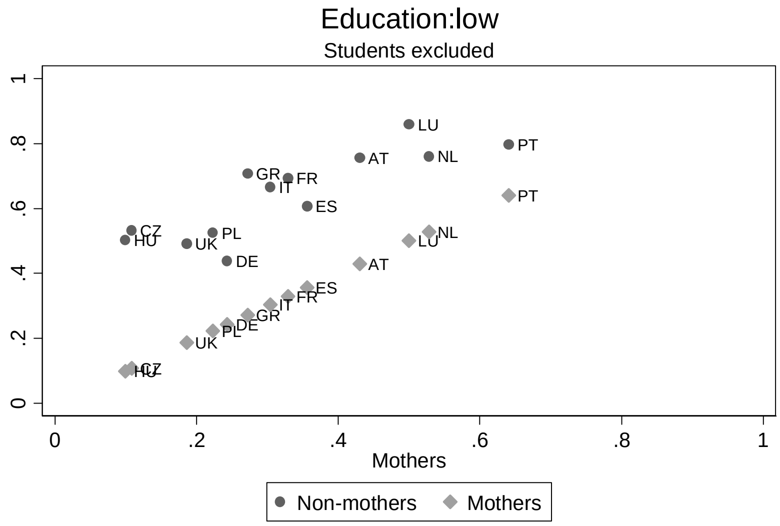
Female and maternal employment by education

High-educated women who do not have small children are almost fully employed in both Western and Eastern Europe while in Greece, Italy and Spain their employment rates are about 80 per cent.

Figure 4. Female and maternal employment rates by level of education







Note: On the horizontal axis, countries are ordered by mothers' employment rate. Source: EU-LFS, 2005 q2

While the maternal employment rates vary in a wide range between 30 and 90 per cent at this educational level, the rates of the high-educated non-mothers average to 90.5 per cent with a coefficient of variation of only 0.051. The picture is fairly similar with women having medium-level educational attainment, with a mean amounting to 81.1 and a CV of 0.096.

In the case of low-educated women the patterns are strikingly dissimilar: the employment rates of mothers and non-mothers are strongly correlated within countries. There clearly are some common country-specific factors promoting or restraining the employment of all low-skilled women, irrespective of whether or not they have children. Such factors may include a variety of institutional and structural arrangements such as technologies, the share of self-employment and family-run businesses, general welfare provisions and the minimum wage. (Fig 4) The average employment rate of unskilled women is 64 per cent with a CV of 0.13. While the rates of skilled mothers and non-mothers are not significantly correlated (the coefficients are -0.29 and 0.27 with significance levels of 0.32 and 0.30 for college graduates and high-school graduates, respectively) the two employment levels are very strongly correlated in the case of low-educated women (r=0.85 significant at the 0.0001 level).

An important implication of the patterns arising in Figure 4 is that the potential impact of pro-active support (via day-care institutions or benefits for working mothers) on labour force participation should vary with (i) the level of education (ii) the level of female unskilled employment and therefore (iii) by countries. The effectiveness of programmes raising the value of work relative to the value of staying at home can be largely reduced if the expected gain from entering the labour market is limited by a low probability of finding a job.

Modelling mothers' employment by level of education: data and methods

Our analysis will build on Scharle (2007), already mentioned in the literature review. This paper estimated the effect of welfare provisions and labour market characteristics on pooled cross sections of thirteen old EU member states and eight new member states, for ten years between 1995 and 2004.[5] The model was estimated using OLS regression

[5] Two old member states (Luxembourg and Belgium) were excluded for the lack of some variables and two new member states (Malta and Cyprus) were excluded both on account of their different past and missing data.

methods and included variables to capture the effects of changes in the labour market, the welfare system, and demographic factors. Lagged values of selected variables were used to overcome potential endogeneity problems. The analysis included only 39 observations for the new and 128 observations for the old member states. The dependent variable was the ratio of the female participation rate over the male participation rate for the population aged 25-49. The estimated model took the following general form:

$$\text{Participation gap}_i = \text{constant} + \delta D_i + \mu M_i + \alpha X_i + \beta Y_i + \gamma Z_i + \nu_i,$$

where D_i and M_i are dummies for CEEs and Mediterrainean countries respectively, X_i represent a set of government spending on cash and in-kind family benefits, Y_i represent labour market conditions (unemployment rates, share of female part time employment and the gender pay gap), and Z_i are basic economic and demographic characteristics (per capita GDP and the birth rate), and ν_i is an error term for which standard OLS assumptions are made.

We estimate exactly the same model, except that the left hand side variable is now defined as the motherhood employment gap, i.e. the difference in the employment rate of mothers and women with no children. Mothers are defined as women with at least one child younger than five years living in the same household, and non-mothers are defined as women with no child aged below ten living in the same household. Employment rates were calculated for variously defined age groups using microdata from the Eurostat LFS.[6] Access to microdata also allows us to distinguish levels of education, so that we can define employment rates for mothers and non-mothers in three groups: basic, secondary and higher education.

This refinement of the left-hand side variable considerably reduces the sample: we now have 22 observations for new member states and 65 for old member states for the years between 1998 and 2005. The range of countries and years are considerably different from the sample used in Scharle (2007): there are two new countries in our sample (Cyprus and Luxembourg) and we lose six countries, including two Nordic states (Finland and Denmark).[7] The overlap between the two samples is reduced to 16 countries and 56 observations, and most importantly, much of the variation in child care systems is lost with the omission of the Scandinavian observations, which will no doubt affect some of the parameter estimates.

Assuming that old and new member states may differ not only in the level of female participation but also in the response of participation to family policies, the model includes an interaction for these variables with the dummy for CEEs. The income elasticity of labour supply may be higher in poorer CEEs, and this would imply a stronger effect of cash benefits, while in-kind transfers and especially day care services may be less efficiently organized, less flexible, or of poorer quality, which may weaken their positive effect on labour supply. A dummy for Mediterranean countries (Greece, Italy, and Spain) captures traditional attitudes to gender roles in the family.

The gap between male and female wages (expressed in proportion to the average male wage) indicates monetary incentives to work or the opportunity cost of staying home: a larger gap means lower incentives. The proportion of women working part time accounts for the flexibility of available jobs and is expected to increase mothers' participation. Male and female

[6] We defined the following five age groups: 15-54 as the broadest, 20-44 as the narrowest, and three in-between categories: 15-49, 25-49, and 25-54.

[7] This is due to data restrictions in the Eurostat LFS: in most countries it includes the codes that identify households but these were not available for Nordic countries, and thus we could not identify mothers with young children.

unemployment are included to capture labour market tensions but their interpretation is unclear: while female participation may vary predictably with male and female unemployment (as was expected in the model by Scharle, 2007), it is unclear how these would affect the relative chances of mothers as opposed to non-mothers. Mothers with young children may be less favoured by employers and may have more difficulty in finding a job at times of high unemployment, but - in countries that provide job protection for mothers - they may be keener to return to work as soon as possible so as not to lose their job.

Along with Apps and Rees (2001) and Jaumotte (2003), cash and in-kind provisions for families are distinguished, assuming that cash benefits reduce the incentive to find paid employment and thus decrease female labour force participation. By contrast, in-kind benefits (which include day care facilities and other services) reduce the cost of formal employment and hence encourage female participation in the labour market. In the model, both are expressed in proportion to national income. Cash benefits include all cash payments in connection with the costs of pregnancy, childbirth and adoption, bringing up children and caring for other family members. In-kind transfers are further divided into (1) day care, which covers public spending on day care facilities for pre-school children, (2) home help, shelter and board provided to children on a permanent basis (not included in the empirical model), and (3) other benefits in-kind, which cover price subsidies and miscellaneous goods and services to families and children (Eurostat 1996: 64). The crude birth rate is included to control for long-term demographic trends associated with a change of values and attitudes towards female roles in the family and at the workplace. Finally, the log per capita GDP is included to control for the economic environment.

‼ Estimation results

Results presented in Table 1 are generally in line with the estimates of Scharle (2007) using a similar model. Most importantly, the coefficient estimates on cash benefits and day care provisions appear robust despite the considerable change in the sample and despite the fact that only one Scandinavian country (Sweden) is included.

Cash transfers to families provide a clear disincentive for some women to work. The effect is strongest for women with a secondary education, where a 0.1 % of GDP rise in cash transfers would imply a 7 percentage point drop in the motherhood participation gap (i.e. raise the participation rate of mothers compared to non-mothers) in the CEEs, and a 1 percentage point drop in old member states.[8] A similar rise in spending on day care would increase female participation by 13.6 % points in new and 1.5 %points in old member states. This implies that a regrouping of spending on cash transfers to day care provisions will yield the highest rise in employment rates among mothers with secondary education. In the CEE, a slightly higher rise could be expected for mothers with primary education, while the effect would be smaller on higher educated mothers.

One should also note that the separation of educational subgroups did not eliminate the east-west differential in the parameter estimates, i.e., effects remain stronger for the CEEs. The CEE dummy however is no longer significant for the higher educated group, which suggests that the effect in the pooled data may have mostly come from the unobserved variation in educational composition.

---

[8] The effect of cash transfers in CEE is the sum of the coefficient of cash transfers and of the coefficient of cash transfers in CEE. The same applies to day care and other in-kind transfers in CEE. Percentage point increases are calculated at the mean. E.g., a practicable increase of 0.1 % in cash benefits reduces female participation by (0.003+0.006)*92.2=0.8 percentage points, where 92.2 is the average male participation rate in the CEEs.

As expected, the effect of in-kind benefits varies considerably depending on the level of education within countries. In earlier estimates without Sweden, for old member states it was only significant for women with secondary education, while for new member states it was high and significant both for secondary and higher educated mothers. This is in line with the above discussed assumption that low educated mothers may be less affected as their probability to find employment is constrained as much by their low skills as the lack of alternative arrangements for child care. With the inclusion of Sweden, the coefficient for primary educated mothers is in fact higher than for the other two groups: this clearly requires further investigations. A plausible explanation for the strong positive coefficient for higher educated women in CEE – but not in old member states might be that the private provision of child care is less developed in the CEE, so that public facilities are important even for those families who could otherwise afford private services as well.

Most of the above effects appeared robust across various specifications of the dependent variable. However, the parameter estimates for the other variables appeared rather unstable across specifications and proved to be sensible to the addition or removal of some variables. This calls for further efforts to increase the sample size and explore the potential sources of this instability. Most importantly, we need to include another Scandinavian country in the sample. An alternative strategy may be to estimate labour force participation using individual level data from the EU LFS where welfare spending is included along with other country-level contextual variables as contextual indicators. This would permit controlling for a variety of factors that affect the participation decision, but the data allow only repeated cross-section or pooled regressions rather than panel estimation: this is explored in the next section.

Table 1. Mothers' employment rate+ by level of education (country level)

	Primary	Secondary	Higher
New member states (CEE)	0.913523	-0.20814	0.09204
	0.116833	0.119601	(0.0764)
Mediterranean countries	-0.17776	-0.43104	-0.0521
	0.074059	0.076939	(0.0524)
Cash transfers to families, % of nominal GDP (lagged)	0.044151	-0.10471	0.020257
	(0.0338)	0.032855	(0.0213)
Cash transfers in CEE (lagged)	-1.05851	-0.55888	-0.53064
	0.089936	0.092727	0.056415
Day care transfers to families, % of nominal GDP (lagged)	0.311391	0.149235	0.153337
	0.054957	0.055948	0.036724
Day care in CEE (lagged)	1.037611	1.210405	1.045887
	0.176263	0.183792	0.114403
Other in kind transfers to families, % of nominal GDP (lagged)	0.23789	-0.19623	0.035716
	0.123785	0.117142	(0.0809)
Other in-kind transfers in CEE (lagged)	0.760283	1.045665	0.429747
	0.240541	0.250898	0.156824
Gender pay gap (lagged)	-0.01077	-0.02826	-0.00594
	0.002592	0.002467	0.001697
Female unemployment rate, 15-74 (lagged)	0.019645	0.023201	0.010246
	0.007461	0.007036	0.005221
Male unemployment rate, 15-74 (lagged)	-0.05092	-0.03006	-0.01147
	0.009623	0.008249	0.006767
Log GDP per capita, PPP basis (lagged)	-0.27532	-0.21351	-0.1949
	0.078937	0.07914	0.049977
Crude birth rate, %	0.003619	-0.03326	0.022127
	(0.01582)	0.016086	0.011203
Constant	3.518679	4.143409	2.688774
	0.703651	0.702373	0.440731
Observations	87	90	87
R-squared	0.79	0.88	0.88

Notes: +Measured as the ratio of mother / non-mother employment rate in the population aged 20-44.

Standard errors in second row. All coefficients are significant at 5% except where st error is put in parantheses.

6. AN INDIVIDUAL LEVEL MODEL OF MOTHER'S EMPLOYMENT

In this section we use an alternative estimation strategy to examine the same problem. We estimate the likelihood of employment for mothers on individual level data of the European Labour Force Survey with country-level welfare variables as crude indicators of available welfare provisions. The advantage over the country panel used in section 4 above is that the individual models permit controlling for a wider range of factors that affect the participation decision, but the data allow only repeated cross-section or pooled regressions rather than panel estimation. Also, there are still some important constraints on the availability of explanatory variables. There is no information on incomes (not even on child benefits), nor on the alternative forms of childcare (grand parent, other inactive family member, price of private care arrangements, etc) available to the household.

The data cover sixteen countries and the years between 1998 and 2005, and mothers aged 20-49. Five CEE countries are included, namely Czech Republic, Hungary, Latvia, Lithuania and Slovenia, ten of the EU-15 (excluded Holland, Luxembourg, Finland, France and Sweden) and Cyprus. As in the previous section, the main focus is on the effect of child-care provisions. We estimate logistic regression models where the dependent variable is 1 if the mother is working, for three education groups. The definition of mothers and educational levels are the same as in the county panel. In an alternative specification we also estimate multinomial logit models with four outcomes: inactive, unemployed, part time and full time employment. We expect the effect of in-kind benefits to vary considerably depending on the level of education within countries.

Estimation results

Results are by and large in line with the country level estimates in the previous section (see Table 2 below). Transfers seem to have a small or insignificant effect on mother's employment in the EU-15 while their effect is high and significant in CEE. In the five CEE countries included in the sample, cash transfers reduce the likelihood that the mother works while day care provisions increase it. The latter effect tends to decline with the level of education, possibly due to the fact that the relative value (compared to earnings) of childcare provision is smaller for graduates.

Age and number of young children in the family is quite understandably the most powerful predictor of mothers' employment. Family responsibilities of women tend to increase with the number of children in the household and decrease with their age. Unfortunately there is no precise information available about the age of the youngest child in the family, so instead we use the number of children in the age group 0-4 as an indicator, and also the number of children between 5 and 14 years. The former can also be interpreted as a proxy of the age of the youngest child: if there is more than one child under 5 in the family it is very likely that some of them belong to the youngest ones within this age-group. Indeed, our models show that the number of children below 4 is an important predictor of mother's labour market inactivity at each educational level: the more children they have in this age-group, the less likely they are either to work or seek employment. This pattern is slightly less marked among higher education graduates for whom there is a higher cost of inactivity that makes them return to work sooner after child birth. As expected, the number of older children has a weaker but significant effect in the same direction.

The higher the mother's age the more likely she is to work, either part time or fulltime, and increasingly so as we move from the primary educated to the highly educated. At the same time, the likelihood of inactivity, as well as the risk of unemployment decreases with age. These findings are consistent with the predictions of human capital theory: accumulated human capital is increasing with age and older women therefore have more to loose if they stay away from the labour market.

We find that single mothers and also mothers whose partner is either inactive or unemployed are less likely to work than those who have an employed partner living with them. As we can see from our second set of models this points to the high probability of these women being unemployed, rather than them choosing to stay away from work. Although not less likely to work than others, mothers with higher education who are either single or have an inactive partner are also at a greater risk of unemployment than their counterparts. If working however, single mothers tend to work fulltime rather than part-time.

Table 2. Mothers' employment rate⁺ by level of education (individual level)

	Pimary	Secondary	Higher
Cash transfers to families, % of nominal GDP	0.074	0.069	-0.016
	0.027**	0.023**	0.041
Cash transfers in CEE	-1.296	-1.370	-1.259
	0.162**	0.063**	0.108**
Day care transfers to families, % of nominal GDP	0.139	-0.014	-0.105
	0.095	0.088	0.105
Day care transfers in CEE	4.743	4.440	3.208
	0.672**	0.241**	0.397**
Other in kind transfers to families, % of nominal GDP	0.657	1.011	1.636
	0.152**	0.179**	0.266**
Other in-kind transfers in CEE	0.667	0.208	-0.718
	0.571	0.269	0.442
Age	0.021	0.047	0.052
	0.002**	0.002**	0.003**
Number of children aged 0-4	-0.662	-0.692	-0.519
	0.029**	0.020**	0.025**
Number of children aged 5-14	-0.276	-0.260	-0.126
	0.013**	0.011**	0.017**
Rural	-0.005	-0.105	0.029
	0.026	0.020**	0.027
Urban	-0.011	-0.046	0.018
	0.026	0.022*	0.032
No partner	-0.069	-0.237	0.037
	0.032*	0.023**	0.043
Partner unemployed	-0.482	-0.468	-0.284
	0.049**	0.048**	0.079**
Partner inactive	-0.670	-0.459	-0.002
	0.059**	0.053**	0.084
Employment rate of non-mothers aged 20-49	3.359	1.524	2.085
	0.188**	0.166**	0.328**
Pay gap	-0.028	-0.028	-0.035
	0.003**	0.002**	0.003**
Crude birth rate	0.079	0.158	0.124
	0.016**	0.011**	0.020**
Log GDP per capita, PPP basis	+0.000	+0.000	+0.000
	0.000**	0.000**	0.000**
Constant	-1.675	-1.430	-1.482
	0.190**	0.152**	0.244**

7. SUMMARY AND CONCLUSIONS

Although the analysis was constrained by lack of data, results confirm earlier estimates using a rougher measure of labour supply and also lead to more precise conclusions concerning education specific effects. In the country level data we find that day care services are more likely to help increase participation for mothers with no education, while cash transfers have a strong negative effect on their probability of employment, at least in the CEE. By contrast, higher educated mothers are less discouraged by cash transfers than their less educated peers and are practically not affected by the availability of day care services – except in transition countries. A conversion of cash transfers into day care provision would yield the highest rise in employment rates among mothers with secondary education, where both effects are strong, and especially so in CEE.

The effects in the individual level data are less clear as there is no information on transfers available to the individual – we use the country level aggregates as context variables instead. In transition countries, the effects are strong, significant and of the same sign as in the country level estimates. However, in contrast to the country level estimates, mothers with primary education seem to benefit equally or more than their better educated peers from child care provision in transition countries.

Data limitations appear to be a serious concern in both country level and individual level estimates. The first may be remedied in two ways: either by obtaining access to national LFS data which would in most cases have the necessary detail for our analysis (but which is omitted from the Eurostat version), or by giving up on the more refined definition of the dependent variable and using instead the female employment rate for the three educational groups.

References

Algan, Y. and P. Cahuc (2005): The roots of low European employment: Family culture?, *CEPR Discussion Paper* No. 5169.

Antecol, H (2003): Why is there cross-country variation in female labour force participation rates? The role of male attitudes toward family and sex roles, In Department of Economics, Claremont McKenna College, Claremont, Canada: *Claremont Colleges Working Papers in Economics* 2003/03.

Apps, P, and R. Rees (2001): Fertility, female labour supply and public policy, *IZA Discussion Papers*, No. 409, Institute for the Study of Labour (IZA), Bonn.

Barr, N. (2005): *Labour markets and social policy in Central and Eastern Europe: The accession and beyond.* Washington D.C.: The World Bank.

Blau, D. M. (2003): Childcare subsidy programs, In: R. Moffitt (ed.): Means-tested transfer programs in the US, Chicago: University of Chicago Press.

Blau, F. D. and L. M. Kahn (2005): Changes in the labour supply behaviour of married women: 1980-2000, *NBER Working Paper* No. 11230.

Blundell, R., and T. MaCurdy (1999): Labor supply: A review of alternative approaches, In: O. Ashenfelter and D. Card (eds.): *Handbook of labor economics*, Amsterdam: Elsevier, 1559-1695.

Chevalier, A., and T. K. Viitanen (2002): The causality between female labour force participation and the availability of childcare, *Applied Economics Letters* Vol. 9(14): 915-918.

Engelhardt, H., T. Kögel and A. Prskawetz (2004): Fertility and female employment reconsidered: A macro-level time series for developed countries, 1960-2000, *Population Studies* Vol. 58(1): 109-120.

Eurostat (1996) Esspros manual 1996. Luxembourg: Office for the Official Publications of the European Communities.

Förster, M., and I. Gy. Tóth (2001): Child poverty and family transfers in the Czech republic, Hungary and Poland, *Journal of European Social Policy* Vol. 11: 324-334.

Jaumotte, Florence, 2003, Female labour force participation: Past trends and main determinants in OECD countries, In *Economics Department Working Papers*, No. 376, Paris: OECD.

Killingsworth, M. R., and J. J. Heckman (1986): Female labour supply: A survey. In: O. Ashenfelter and R. Layard (eds.): *Handbook of labour economics*, Amsterdam: North-Holland, 103-204.

Mincer, J. (1962): Labour force participation of married women: A study of labour supply, In: H. Gregg Lewis (ed.): *Aspects of labour economics*. Princeton: National Bureau of Economic Research, Princeton University Press, 63-105.

Moss, P. (1997): Early childhood: The European dimension. Paper presented at the Educating the Young Child in Europe, Final Report of the European Seminar, 24 - 27 October 1997.

Nesporova, A, (2002): Why unemployment remains so high in Central and Eastern Europe, *ILO Employment Paper* 2002/43. Geneva: ILO.

OECD (2006): *Starting strong: Early childhood education and care*. Paris: OECD.

Pissarides, Ch., P. Garibaldi, C. Olivetti, B. Petrongolo and E. Wasmer (2005): Women in the labour force: How well is Europe doing?, In: T. Boeri, D. del Boca and Ch Pissarides (eds.): *Women at work: An economic perspective,* Oxford: Oxford University Press.

Ruhm, Ch (1998): The economic consequences of parental leave mandates: Lessons from Europe, *The Quarterly Journal of Economics* Vol. 113(1): 285-317.

Saxonberg, S. and T. Sirovátka (2006) Failing family policy in post-communist Central Europe, *Journal of Comparative Policy Analysis* Vol. 8(2): 185-202.

Sipos, S. (1994): Income transfers: family support and poverty relief, In: N. Barr (ed.)

Labour markets and social policy in Central and Eastern Europe, Washington D. C.: World Bank and Oxford University Press). 226-259.

Stephens, M. (2001): Worker displacement and the added worker effect, *NBER Working Paper* No. 8260.

Stropnik, N. (2004): Childbearing and parenting in low fertility countries: Enabling choices. Paper presented at the European Population Forum 2004: Population Changes and Policy Responses, Geneva, Switzerland 2004.

UNICEF (1999): Women in transition. *Regional monitoring reports* no.6. Florence: UNICEF International Child Development Centre.

APPENDIX

Table A1. Summary statistics of country panel

	Mean	Std. Dev.	Min	Max
Primary (83 obs)				
Mother's employment gap (aged 20-44)	0.62	0.22	0.19	1.18
CEE	0.27	0.44	0.00	1.00
Cash benefits	1.37	0.76	0.28	3.30
Cash benefits in CEE	0.36	0.63	0.00	2.05
Day care	0.19	0.18	0.00	0.59
Day care in CEE	0.04	0.12	0.00	0.59
Other in-kind benefits	0.26	0.15	0.03	0.55
Other in-kind benefits in CEE	0.11	0.21	0.00	0.64
Pay gap	15.96	5.48	6.00	26.00
Female unemployment	8.35	4.37	2.11	22.81
Male unemployment	6.23	2.87	1.59	14.79
Log GDP per capita, PPP basis	9.90	0.42	9.04	10.99
Crude birth rate	10.53	1.36	8.32	13.12
Proportion of women working part time, %	25.22	18.53	4.79	75.12
Secondary (84 obs)				
Mother's employment gap (aged 20-44)	0.87	0.30	0.32	1.67
CEE	0.27	0.45	0.00	1.00
Cash benefits	1.36	0.76	0.28	3.30
Cash benefits in CEE	0.38	0.66	0.00	2.05
Day care	0.20	0.18	0.00	0.59
Day care in CEE	0.04	0.12	0.00	0.59
Other in-kind benefits	0.26	0.15	0.03	0.55
Other in-kind benefits in CEE	0.12	0.22	0.00	0.65
Pay gap	15.95	5.46	5.00	26.00
Female unemployment	8.39	4.58	2.11	22.81
Male unemployment	6.35	3.17	1.59	19.56
Log GDP per capita, PPP basis	9.88	0.42	9.01	10.91
Crude birth rate	10.49	1.36	8.32	13.12
Proportion of women working part time, %	24.39	18.54	4.79	75.12
Higher (84 observations)				

Mother's employment gap (aged 20-44)	0.88	0.20	0.38	1.13
CEE	0.27	0.45	0.00	1.00
Cash benefits	1.37	0.74	0.28	3.30
Cash benefits in CEE	0.38	0.66	0.00	2.05
Day care	0.20	0.17	0.00	0.59
Day care in CEE	0.04	0.13	0.00	0.59
Other in-kind benefits	0.27	0.14	0.03	0.55
Other in-kind benefits in CEE	0.12	0.22	0.00	0.65
Pay gap	15.39	5.45	5.00	26.00
Female unemployment	8.49	4.49	2.11	26.62
Male unemployment	6.38	2.80	1.59	14.61
Log GDP per capita, PPP basis	9.87	0.42	8.95	10.99
Crude birth rate	10.46	1.31	8.32	13.12
Proportion of women working part time, %	24.63	18.58	4.79	75.12

Table A2. Summary statistics of individual repeated cross-sections

	Primary	Secondary	Higher
Employed	0.311	0.412	0.606
Pay gap	14.692	17.426	16.506
Crude birth rate	10.281	10.299	10.449
GDP per capita, PPP basis	19399	20602	20906
Cash transfers to families, % of nominal GDP	0.894	1.364	1.079
Cash transfers in CEE	0.165	0.357	0.144
Day care transfers to families, % of nominal GDP	0.264	0.200	0.241
Day care transfers in CEE	0.008	0.015	0.008
Other in kind transfers to families, % of nominal GDP	0.262	0.262	0.247
Other in-kind transfers in CEE	0.044	0.084	0.036
Age	31.199	31.050	33.886
Number of children aged 0-4	1.183	1.185	1.223
Number of children aged 5-14	0.755	0.562	0.482
Rural	0.382	0.459	0.544
Urban	0.338	0.280	0.216
No partner	0.145	0.159	0.073
Partner unemployed	0.061	0.031	0.018
Partner inactive	0.052	0.026	0.017
Employment rate of non-mothers aged 20-49	0.547	0.703	0.816
N	52178	75876	38700

PART 2

HUNGARY'S FAILED ATTEMPTS AT INCREASING MATERNAL EMPLOYMENT

JÁNOS KÖLLŐ

1. INTRODUCTION

The Hungarian welfare system provides the mothers of young children with an exceptionally generous paid parental leave program.[9] Currently, a quasi-insurance based cash benefit (GYED) replacing 70 per cent of the mother's previous earnings is available up to the 2nd birthday of the child. For those not entitled to and/or exhausting GYED, a flat-rate cash benefit (GYES) amounting to about 20 per cent of the economy-wide average wage is available up to the 3rd birthday of the child. Furthermore, the mothers of 3 or more children are eligible for GYET, a cash benefit lasting until the 10th birthday of the child. The parental leave programs are supplemented with a pregnancy/puerperal allowance (tgyás); a universal, flat-rate child allowance (családi pótlék), personal income tax credit for families raising 3 or more children (családi adókezdvezmény), and a plethora of other benefits and programs available for poor families, lone parents and children with disability.

According to the OECD Family Data Base (OECD 2007), Hungary has the highest level of per-child, per-GDP cash expenditure (on parental leave) within the OECD – a level 3 times the OECD average, 2 times the level of Austria and 1.5 times the level of Sweden. The child support system is heavily biased for cash payments, with the proportion of small children enrolled in day care institutions lagging far behind the OECD average. The fraction of 0-3 year olds enrolled in créche or kindergarten fell from 16.8 per cent in 1987 to 8.5 per cent in 2006 (CSO 2007). Using data from the SILC Fazekas and Ozsvald (2008) estimates the proportion of 0-2 year olds enrolled in some kind of day-care to be 8 per cent in 2006, which compares to 27 per cent in the EU-27 and a 33 per cent target set in Barcelona for 2010. The enrollment rates in Hungary fall closest to levels prevailing in Southern Europe, some other CEEs, Mexico and Turkey.

Consistent with the patterns of support, Hungarian maternal employment rates are among the lowest within the OECD. The labor force participation rate of women raising children aged 0-2 is the single lowest in Europe. That of mothers with children aged 3-5 is the second lowest (with Slovakians having a slightly lower rate). The participation gap between mothers with children aged 0-2 versus mothers with children aged 6-16 is the widest in Europe.[10] Maternal employment is not only low but also fell substantially in the last decade in both absolute and relative terms as shown in Table 1.

Originally, the parental leave programs intended to provide a lengthy, job-protected stay at home. Until 1990 working while receiving childcare was forbidden. Later, the changing regulations allowed part-time employment (1990), full-time work at home (1999) and full-time work anywhere (2006) while receiving *gyes*. (Working under *gyed* remained prohibited until recently). Furthermore, an attempt to

[9] János Köllő is a senior researcher at Institute of Economics, Hungarian Academy of Sciences, Budapest.

[10] For the comparative data see charts PF7.2, PF11.1., LMF2.1. and LMF2.2. of OECD (2007).

stimulate the earlier return of mothers to work took place in 1995-98 when *gyed* was abolished and *gyes* became available on a means-tested basis.

Table 1. Female and maternal employment rates. Women aged 15-40, 1993-2005

	Employment/population rate			Relative to „other women aged 15-40"	
	Other women aged 15-40	Mothers of youngest child aged 0-2	Mothers of youngest child aged 3-5	Mothers of youngest child aged 0-2	Mothers of youngest child aged 3-5
1993	.595	.119	.533	0.200	0.896
1994	.583	.137	.504	0.235	0.864
1995	.568	.105	.474	0.185	0.835
1996	.558	.088	.456	0.158	0.817
1997	.552	.089	.450	0.161	0.815
1998	.556	.094	.455	0.169	0.818
1999	.562	.093	.464	0.165	0.826
2000	.563	.086	.457	0.153	0.812
2001	.564	.082	.448	0.145	0.794
2002	.567	.072	.432	0.127	0.762
2003	.562	.069	.447	0.123	0.795
2004	.543	.079	.449	0.145	0.827
2005	.547	.079	.423	0.144	0.773

Source: Labor Force Survey

In this paper we present data suggesting that major changes in the amount and conditions of the child-care benefits (CCB), such as those taking place in 1995 and 2006, had little or no impact on the level of maternal employment. The 1995 reform cut the level of the benefit for the first two years by 40 per cent and made the third-year benefit unavailable for at least some skilled mothers. Still, the take-up of CCB did not fall and the probability of exit from CCB to employment did not rise among the affected mothers. The 2006 reform transformed gyes into a universal benefit available for all mothers irrespective of their labor market status. As a result of the reform the proportion of working mothers receiving gyes increased, exit from gyes to unsupported employment fell and, taken together, the fraction of working mothers did not increase. Such outcomes are consistent with the existence of (i) high costs associated with maternal employment (travel costs, day care costs), (ii) low quality of the day-care institutions and/or (iii) high returns to home production. Policies restricted to the manipulation of the cash benefits have so far proved inefficient in promoting the reconciliation of child rearing and work. We conclude from the data that maternal employment could better be supported by the development of day-care institutions and active support for working mothers.

2. THEORETICAL CONSIDERATIONS

In most European countries, including those with the highest female labor force participation rates, mothers prefer to stay at home with their babies for protracted periods.[11] In contrast to the US, where more than 60 per cent of the mothers return to work within 12 weeks (Berger et al. 2005) in Europe mothers typically stay at home for at least a year. (On the cross-country variations in the OECD see Ruhm 1998 and Tanaka 2005, among others).

In deciding the optimal duration of the leave the mother is likely to consider the pecuniary gains from employment versus staying at home (with the gains being affected by wages, the fixed costs of working, benefits and the value of home production) and the value of leisure. On top of the elements of the standard labor supply decision mothers furthermore consider the quality of institutional (or market-based) versus home-provided day-care. We can write the decision to return to work after time t spent at home with a single child as in equation 1 below:

[1] $\Pr(\text{exit}|t) = \Pr[U(w_t\text{-}c_t, I_t) > U(b_t\text{+}h_t, L_t, H_t)] = f(X,t)$

where w is the wage expected after a break of t periods, c represents the fixed costs of working (including the costs of institutional day care or a baby sitter for a t-old child), b stands for child-care benefits, h for household production and L for leisure, while I and H denote the utilities attached to the contributions of institutional versus home-provided day-care to the child's cognitive development and emotional well-being.

In most cases c_t falls substantially with t as the costs of dealing with older children are lower and in most countries kindergartens and pre-school institutions are easily available compared to crèches. Likewise, the literature of child development suggests that I_t increases steeply relative to H_t as the baby gets older. Most studies agree that mother's early return to full-time work has negative effect on the child's cognitive development and emotional stability (Waldfogel et al. 2002, Kamerman 2000, Gregg et al. 2005, Dex and Ward 2007). The results on mothers' return to work in the second and third year are mixed and vary with the type of the job and kind of the day care but few studies suggest negative effects after age 1.5 (but see Gruber et al. 2005 for an example). After age 3 children's involvement in organized peer group activity is unequivocally recommended (see an overview in Melhuish 2004).

The fall in c_t and the rise in I relative to H is usually sufficient to ensure that at a point in time the utility of returning to work exceeds the utility of staying at home. However, such a point may not exist

[11] The burden of child-rearing can be (and to some extent it usually is) shared by the two parents. Furthermore, in many countries including Hungary fathers can go to parental leave, too. However, in the overwhelming majority of the cases it is the mother who stays at home with the baby. For this reason, and for sake of brevity, the forthcoming sections concentrate on the decision of mothers.

if (i) the expected wage falls steeply with the duration of the leave, (ii) day care expenses or other fixed costs are prohibitive, (iii) home production yields high returns, (iv) the quality of institutional day care is mediocre resulting in low I relative to H, or, (v) benefits are too generous. It follows that *changes in the benefit do not necessarily affect the behavior of the CCB recipients*: even if they impact the right-hand side of the inequality in [1] they may leave the relation of the two sides unaffected.

The optimal duration of the leave (as suggested in equation 1) also has a selection effect. Women, who predict that the optimal duration of the maternal leave is very long or indefinite *and* attach a high value to their career, may choose not to rear children at all. A comprehensive analysis of the duration of parental leave therefore should regard *childbirth* as an endogenous decision. Unfortunately, in lack of instruments affecting childbirth but not the optimal duration of maternal leave, we shall not be able to formally incorporate the childbirth decision into the analysis in this paper. However, some of the empirical results we arrive at will suggest that Hungarian women can bear children *only* at the cost of very long leave from employment, and they increasingly opt for not having children.

3. TWO REFORMS OF THE CHILD CARE BENEFIT SYSTEM

The foundations of the Hungarian system of maternity leave were laid down in 1967 with the introduction of GYES. The frequent changes to the system primarily affected coverage rather than the conditions of receipt. GYED (first introduced in 1984) has always been tied to employment before childbirth but the entitlement regulations on GYES and GYET have been modified on a number of occasions. The most important changes occurring within the period under study are summarized in Table 2 (based on Table 2 in Ignits and Kapitány, 2006).

Table 2. Rules of entitlement to GYES, GYED and GYET, 1992–2005

Year	GYED Year 0-2	GYES Year 0-3	GYET Year 3-10	Regime*
1992	I	I, PTE	–	1
1993	I	I, PTE	I, T	1
1994	I	I, PTE	I, T	1
1995	I	I, PTE	I, T	1
1996	–	T, PTE	I, T	2
1997	–	T, PTE	I, T	2
1998	–	T, PTE	I, T	2
1999	–	U, FTEH	U	3
2000	I	U, FTEH	U	4
2001	I	U, FTEH	U	4
2002	I	U, FTEH	U	4
2003	I	U, FTEH	U	4
2004	I	U, FTEH	U	4
2005	I	U, FTEH	U	4
2006	I	U, FTEH	U	5

Note: *I: insurance based (*employment before childbirth), *T:* means tested, *U:* universal, –: not applicable, did not exist. PTE: part-time employment allowed, FTEH: full-time employment at home allowed, FTE: full-time employment allowed

*The period under study is divided into five subperiods of substantially different systems – indicated in the last column of the table – which we refer to as 'regimes'.

In this paper we look at the implications of two regime changes: the one in 1995-1998 and that of 2006.

1995-1998. This reform was part of a stabilization program known as the 'Bokros package' (named after minister of finance Lajos Bokros). The package abolished GYED and introduced means testing for GYES. While these measures implied a major tightening of the program for skilled women the program substantially relaxed the regulations for unskilled mothers by revoking the requirement of employment before childbirth. Over the period from 1995 to 1998, the government essentially treated maternity leave as a *social assistance* program. In the empirical analysis we focus on how the take-up of benefits and exit to employment changed among those women who would have received GYED with a high probability under the old (pre-1995) rules. For these mothers the reform brought about major tightening since the amount of GYES was substantially lower than GYED (Ft 7,958 as opposed to an average of Ft 13,215 in 1995), and many of them lost eligibility for a third-year benefit.

2006. The right-wing Orbán government in charge between 1998 and 2002 made entitlement to GYES and GYET universal in 1999 and re-introduced the insurance-based GYED in 2000. These rules of eligibility have been left untouched by the current socialist-liberal coalition, which came into power in 2002. Both government administrations have at the same time tried to ease the choice between employment and staying at home. Most importantly, in *January, 2006 all restrictions on employment while receiving GYES were lifted*. This measure has practically eliminated GYES as a parental leave program, as the family allowance and GYES are now only differentiated in a legal sense, and thus the reform has effectively created a front-loaded family allowance, which provides more generous support for children under age 3.

The potential labor supply responses to the 2006 reform seem rather complex. (i) We can expect that such a reform stimulates shifts from inactivity to full-time employment. (ii) Those, whose optimal choice was part-time employment in the old regime are unaffected by the reform, except for those on the margin between part-time and full-time employment. We expect shifts from part-time to full-time employment in the latter group. (iii) Mothers who found it optimal to work full-time without receiving GYES in the old regime are likely to apply for benefits in the new regime. While shifts (i) and (ii) are unambiguously positive from the point of view of employment and fiscal balance, shift (iii) simply increases the costs of the child support system.

4. ANALYSING THE EFFECTS OF THE REFORM: ESTIMATION AND DATA

1995-1998. Assuming that the gains from returning to work are systematically related to individual and environmental characteristics (*X*) and the duration of the leave (*t*) the decision to return can be analyzed with a *hazard fun*ction estimating the conditional probability of leaving CCB for employment after time *t* spent outside work. In case the observations on the mother's labor market status relate to various points in time (as in our case) a *discrete time duration model* (Jenkins 1995) can be applied, which is tantamount to estimating a logit for a sample of CCB spells (rather than individuals), and including a time variable measuring the duration of stay in the risk group.

The data come from the Hungarian Labor Force Survey (LFS), a rotating panel data set comprising a maximum of 6 quarterly observations on the individuals entering the survey. The LFS covers a representative sample of households and individuals within the households – over 80 thousand observations per quarter. Each household is contacted 6 times in a 1.5-year period and then replaced for another randomly chosen household. The 6 observations can be connected so we have information on the status of the respondent at the beginning and end of (a maximum of) 5 quarterly periods. The status of the respondent at the end of the 6^{th} quarterly period is unknown.

The members of the risk group are those women, who received some kind of CCB at the beginning of a quarterly period *and* did not work. The CCB recipients could (i) stay in the risk group (ii) exit from CCB to employment (iii) exit from CCB to non-employment (iv) start working while remaining on CCB or (v) drop out of the LFS between the beginning and end of the quarterly period in question. Accordingly, we estimate a *multinomial logit* model with 4 outcomes treating the stayers as the base category and observations (v) as censored. [12]

The explanatory variables in the models include demographic and human capital variables affecting expected wages (age, age squared and education); variables capturing prior employment probabilities (local unemployment rate, travel to work conditions) and the availability of day care (day care institutions at the place of living, several households sharing the apartment). Since we lack information on the duration

[12] We also estimated a *binary logit* treating the observations ending in exit to non-employment as censored, too, and treating work (irrespective of CCB receipt) as the positive outcome. This choice can be justified by the fact that the interviews take place only 1.5 months following exit from the benefit, on average. If the respondent received maternity pay in quarter *t* but not in quarter *t* + 1, it is reasonable to assume that the period of maternity leave terminated halfway between the two dates. Only six weeks after leaving the CCB many respondents can be on their way to a job so the information on their labour market status is uncertain. The results from the binary logit and the exit-to-job equation of the multinomial logit were qualitatively identical.

of the CCB spell we use the age of the youngest child as a measure of time spent in the risk group. This is an admittedly imprecise measure as the mothers of several children may have had several consecutive CCB spells – a possibility we can not control for with the data at hand. (The number of children aged 0-7 is included in the equation but it does not compensate for the lack of information on the actual duration of CCB). We estimate the model on a pooled sample of observations from 1993-2005 and control for calendar time effects using year dummies.

We hope to capture the effects of changes in the CCB rules by adding dummies standing for the *regime at the birth of the child.* The Bokros package was announced in March 1995 but the modifications of the child support system did not become effective until February 1996. The delay was explained by a decision of the Constitution Court, which ruled out such changes in the parental leave system that could have affected mothers already expecting a baby. Likewise, the reform of 2000 was announced in February 1999. Parents thus had the time to adjust their plans to the reforms including a decision to postpone or give up childbirth. Since we can not separate the fertility effects from the decision to spend shorter/longer time on CCB, the coefficients of the regime dummies will capture both, that is, they will reflect the changing composition of parents as well as parents' decision on the duration of the parental leave. We shall try to disentangle these effects by discussing the changes in duration and fertility one by one and considering the direction of selection bias.

The decision to use the LFS for the analysis of maternal leave is dictated by the unavailability of better data. The LFS is designed to assess labor market participation and its applicability to a study on maternity leave is therefore limited.[13] It is difficult to establish with acceptable precision whom each child belongs to in a given family and with which child a parent is staying at home. Answers to questions on the type of parental leave benefit received (GYES, GYED or GYET) are obviously imprecise. There is no information on the starting date of benefit receipt. The year and month of leaving the last employer *before the interview* is recorded rather than the date of leaving the last job *before childbirth*. The sample is also too small for a detailed year-to-year analysis. Nonetheless, we believe that, given the lack of knowledge of how the system works in Hungary - and the possible lessons from such an extreme case for the study of maternal leave systems in general - even the simple information supplied by the LFS may prove to be useful.

2006. The LFS is far too small for the study of changes in a single year. Therefore we use administrative data provided by the Health Insurance Fund (HIF) and the Hungarian Treasury (HT) on the receipt of GYES and social security contribution payments (employment). The data come from a sample of 200,000 observations selected by the HIF following

[13] This statement does not apply to occasional complementary surveys targeting mothers with young children, which provide information on their *intentions* and *expectations.* The complementary surveys have given rise to a series of detailed analyses (Lakatos 1996, Frey 2001, 2002). These, however, cannot replace research on maternity pay claims and actual labour market outcomes.

stratification guidelines provided by the Research Department of the Ministry of Finance (MoF). The register of Social Security ID Numbers served as the sampling frame. The regional and gender and age-related quotas were set by the MoF so as the composition of the sample corresponds to the composition of the 2001 Census.[14] Both data sets relate to January 2004- October 2007 and, in principle, comprise data on the starting and closing dates of benefit and employment spells. In practice, 27.9 per cent of the employment spells have no credible closing date (December 31, 2099 was inputted). Part of the incomplete spells may indeed be open but in many cases the end-date of 2099 reflects failure to input the actual closing date of the spell. This problem is particularly severe in the case of employment spells preceding GYES: taking the closing dates at face value would imply that about 90 per cent of the GYES recipients are at work, a ratio about 20 times the ratio we know from the LFS (4-5 per cent in 2004-2005). Therefore we only considered the *starting dates* of employment spells, which restricted the set of questions we could address. The procedure was the following.

(i) The period under investigation (January 2004- October 2007) was split into 36 monthly periods. (ii) We recorded if the observed person received GYES some time during the month. In the overwhelming majority of the cases the GYES spells started on the first day of the month and lasted until the last day. (iii) We recorded if the person started an employment spell at least once some time during the month.

[14] I thank Ágota Scharle for allowing access to the data and Attila Osztotics for the extremely hard work of cleaning the data sets.

(iv) The sample created this way covers 6,672 individuals receiving GYES at least once during the observed period. Each individual has 36 variables measuring GYES receipt in months 1-36, and 36 variables measuring employment start-ups in months 1-36. Out of the 6,672 individuals 6,170 had complete data.

We defined the following critical events for the study of changes in response to the 2006 reform (that was announced in August 2005 and put in effect in January 2006).

(i) *Starting work while on GYES*. This event was measured in three ways: (1) the person received GYES in month t and t+1 and started an employment spell in t or t+1. (2) the person received GYES in t and t+1 and started an employment spell in t. (3) The person received GYES in t-1, t and t+1 and started an employment spell in t.

(ii) *Exit from GYES to employment*. The person received GYES in *t*, did not receive GYES in *t+1*, and started an employment spell in *t* or *t+1*. We considered here the possibility that the employment spell was started during month *t* but the GYES spell was not closed until the last day of the month.

(iii) *Reentry of working mothers to GYES*. The mother had an open employment spell in *t-1* did not receive GYES in *t-1* but did receive GYES in *t*. Since in the case of 'regular' entries (when their babies are 0-1 years old) the mothers typically do not work, this event basically captures the case of mothers who left GYES for a job but re-entered the system as they became eligible for the benefit until their children reached age 3. Due to the existence of erroneously open spells this event is measured with an error but we have no a priori reason to think that the errors are concentrated in the period of the reform.

(iv) *The age of the child at the start of employment spells*. The 2006 reform intended to stimulate female employment with or without financial support. Therefore the most important summary statistics relate to the age of the child when an employment spell begins. Falling average age at the mother's entry to work (with or without GYES) would indicate a success of the reform even though at the cost of increased expenditures on CCB.

In lack of meaningful control variables we shall simply look at the time series of indicators (i)-(iv) and try to assess if we can observe breaks in their trends at the dates of the announcement or putting in effect of the reform.

5. RESULTS

In this section we present descriptive evidence on the working of the Hungarian maternity aid system, present the estimation results for the 1995-98 period and look at the changes induced by the 2006 reform.

5.1. The duration of maternal leave – Descriptive evidence

The most important indicators of the Hungarian maternity aid system are summarized in Table 3. The first panel of the table suggests that in the current regime the overwhelming majority of mothers rearing children aged 0-2 receive some kind of CCB. In the first year the fraction on CCB is relatively low (about 80 per cent) that is explained by the fact that mothers typically apply for CCB after exhausting their paid holidays and childbirth/ puerperal benefit (tgyás). In the second year 90 per cent receives CCB on average with only a small difference between skilled and unskilled mothers. The fractions are lower (about 84 per cent) and still rather similar in the 3rd year of the child. Only in the fourth year does the proportion of recipients fall to 32 per cent with skilled mothers and 43 per cent with the unskilled. The relatively high proportion receiving CCB after the child's third year is partly explained by delayed payments made shortly after the 3rd birthday of the child, continuing payments to GYET recipients and those receiving GYES on an equity basis (*méltányossági gyes*). In the fifth year still about 1/10 of the skilled mothers and 1/5 of the unskilled get some kind of parental leave benefit.

The second panel shows that skilled mothers are much more likely to be eligible for GYED, the generous quasi-insurance based benefit available for previously working mothers: 60 per cent of them get GYED in the first year as opposed to 1/3 of unskilled mothers while in the second year the proportions are 53 per cent versus 30 per cent. While GYED is available until the 2nd birthday of the child 18 and 11 per cent of the CCB recipients report GYED as their type of benefit after that date: a figure hinting at delayed payments and (most probably) reporting errors.

Table 3. Benefit receipt and exit from the maternity leave system

	Total	High	Low
		level of education	
1. Receipt of benefit	Current regime (2000–2005, % of mothers)		
Child aged 0-12 months	80.8	80.4	81.2
Child aged 12-24 months	90.1	92.1	88.8
Chiled aged 24-36 months	83.6	82.6	84.3
Child aged 36-48 months	38.2	31.9	42.7
Child ages 48 months or older	16.5	9.2	21.5
2. Fraction receiving GYED	Current regime (2000–2005, % of CCB recipients)		
Child aged 0-12 months	43.7	59.0	32.6
Child aged 12-24 months	39.3	52.8	29.8

Chiled aged 24-36 months	13.3	18.1	10.8
3. Status after exit	1993–2005, % of those leaving CCB		
Full-time employment	47.8	60.8	37.6
Part-time employment	5.5	7.1	4.3
Unemployment	10.1	7.8	12.0
Inactivity	36.6	24.3	46.1
Total	100.0	100.0	100.0
4. Age of youngest child at the time of exit	1993–2005, % of those leaving CCB		
0-12 months	4.3	4.6	4.1
12 to 24 months	8.2	10.1	6.6
24 to 36 months	46.9	49.4	44.8
36 to 48 months	33.0	30.6	35.2
4 years or older	7.6	5.4	9.2
Total	100.0	100.0	100.0
5. Years between last employment and exit			
Status after quitting	1997-2005, average number of years, s.d. in brackets		
Full-time employment	3.7 (2.4)	3.3 (1.8)	4.2 (2.9)
Part-time employment	4.5 (3.9)	5.6 (4.7)*	3.4 (2.4)*
Unemployment	4.8 (3.2)	4.0 (2.1)	5.1 (3.5)
Inactivity	5.5 (4.7)	4.3 (3.0)	6.1 (4.2)
Total	4.7 (3.4)	3.8 (2.6)	5.3 (3.8)
5. Years between last employment and exit, 1997–2005			
Number of children aged 0-7 in household	1997-2005, average number of years, s.d. in brackets		
One	3.7 (2.7)	3.2 (1.9)	4.2 (3.0)
Two	5.3 (2.5)	4.6 (2.2)	5.9 (2.6)
Three	7.5 (3.8)	6.3 (0.8)	7.9 (4.3)
Four	10.8 (0.7)	–	10.8 (0.7)

Source: own calculations using Labour Force Survey data.
*Fewer than fifty cases.

Panels 3-6 of Table 3 summarize data on the direction of exit from CCB and the duration of maternal leave spells. As shown in panel 3, only about 60 per cent of the skilled and 40 per cent of the unskilled mothers leave CCB by immediately entering a job. About 1/10 of the mothers looked actively for a job 1.5 months after leaving the CCB system (on average) while more than 1/3 had no job and did not actively search. *The data on duration suggest extremely long periods of leave in international comparison.* Only 4.3 per cent of the Hungarian mothers returned to work before their babies reached age 1, and only 12 per cent returned before the baby reached age 2 in 1993-2005, on average. Exactly 1/3 of the recipients left the benefit register after the 3rd birthday of the child and 7.6 per cent took a leave lasting longer than 4 years.

Information on time between separation from the last employer (if any) and exit from the CCB system is only available from 1997 onwards. The data for 1997-2005 suggest an average duration of 4.7 years (3.8 years for skilled mothers and 5.3 for the unskilled). Duration is shortest for those entering full-time employment, followed by those entering part-time jobs, unemployment and inactivity, respectively. Note that these figures are biased in both directions. At any point in time about 5 per cent of the CCB recipients work while receiving benefit and mobility between inactivity and work while on CCB is rather intense. In the case recipients engaged in work the time between 'last employment' and exit from the CCB is shorter than the time between pre-birth employment and exit. In the same time the duration figure is longer than the actual duration of the leave in cases when childbirth was preceded by a spell of unemployment or inactivity. Apart from these biases the duration figures also reflect the existence of multiple spells of those having several children. Average duration with one child amounts to 3.7 years but the respective figures are 5.3 years with 2 children, 7.5 years with 3 children and 10.5 years with four or more children.

The biases are unlikely to falsify the conclusion that Hungarian mothers return to employment after extremely long leaves compared not only to the US (where 60 per cent of the mothers return to work within 12 weeks Berger et al. 2005) and the Nordic countries (about 40 weeks of parental leave in Sweden and less than 30 weeks in Denmark as shown in Pylkkannen and Smith 2003) but other OECD countries, too. According to the OECD Family Database (Figure PF7.1./C) full-time equivalent parental leave (weeks times the benefit/average wage ratio) is the far the highest in Hungary within the OECD matched only by some other Central and East European countries like the Czech Republic and Slovakia.

5.2. Exit to employment

Turning to the question of how the duration of CCB varies with personal and contextual characteristics and changes in the benefit rules we first look at the estimation sample at our disposal. Table 4 gives a summary of observations on the risk group considered and the number of exits to different directions. We have a total of 69,945 observations in the whole period and from 900 to 1500 cases of exits depending on direction. The variable means and standard deviations are presented in Table 5.

Table 4. Estimation sample

	Total receiving CCB and not working	Continued to receive CCB and not working	Left CCB for employment	Left CCB for non-employment	Started to work while receiving CCB
1993	4,145	3,946	31	43	125
1994	3,828	3,601	34	66	127
1995	5,048	4,746	83	91	128
1996	4,635	4,367	87	70	111
1997	4,587	4,373	63	48	103
1998	4,703	4,383	85	120	115
1999	6,374	6,087	68	109	110
2000	6,411	6,174	42	59	136
2001	6,237	5,992	41	55	149
2002	5,209	4,951	67	103	88
2003	6,722	6,378	114	116	114
2004	5,982	5,655	108	98	121
2005	6,064	5,792	92	115	65
Total	69,945	66,445	915	1,093	1,492

Source: own calculations using Labour Force Survey data.

Table 5. Variable means and standard deviations in the estimation sample

Variable	Observations	Mean	Standard deviation	Minimum	Maximum
Age	69945	28.04426	5.018565	15	40
Educational attainment					
Primary	69945	.3297162	.4701134	0	1
Vocational	69945	.2905998	.4540424	0	1
Secondary	69945	.2844807	.45117	0	1
Age of the youngest child					
0-12 months	69945	.2249911	.4175794	0	1
12-24 months	69945	.3277861	.4694098	0	1
36-48 months	69945	.0823647	.2749215	0	1
49- months	69945	.0915719	.2884228	0	1
Number of children aged 0-7	69945	1.456316	.640488	1	6
More than 1 household in the flat	69945	.0738866	.2615882	0	1
Day care/1000 inhabitants	69945	.0384929	.0626738	0	.8097166
Settlement unemployment rate	69945	.0877117	.0575521	0	.6447268
Good transport connections	69945	.1252699	.331027	0	1
Budapest	69945	.0709558	.2567528	0	1
Population (000)	69945	146.051	453.7544	.055	1931.743
Type of support: GYES	69945	.5817714	.4932716	0	1
Type of support: GYED	69945	.3070984	.4612939	0	1

Source: own calculations using Labour Force Survey data.

As a preparation for the study of the 1995-98 reform we split the sample to two groups in order to disentangle the affected and unaffected populations. The reform mostly affected those mothers, who would have been eligible for GYED under the survival of the pre-1996 rules. We tried to identify these respondents by estimating the probability of GYED receipt in the child's second year using 1993-95 data and variables available for all observations and years (age, education, family status, local unemployment, and public transport connections). Using the coefficients presented in Table 6 we then predicted the probability of GYED receipt and split the observations at the mean of the predicted values (0.68).

Table 6. Estimating the probability of GYED receipt using data from 1993-95 (probit)

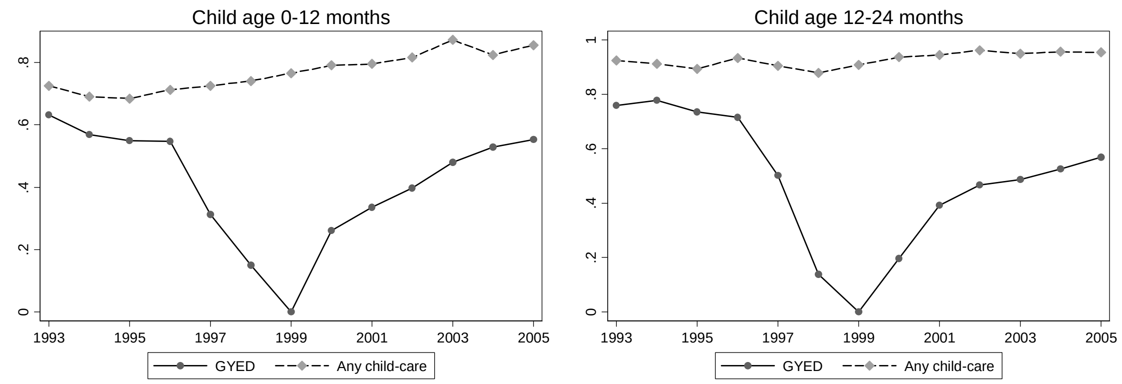
	Coefficient	Z
Primary*	.5360093	6.09
Vocational	.8700199	9.61
Vocational secondary	.804727	8.31
General secondary	.8609559	9.21
Colleges	.7486044	7.35
University	.3339695	2.54
Age	.2209297	7.45
Age squared	-.0038668	-7.39
Micro-region unemployment rate	-1.578289	-4.43
Divorced, widowed	-.3973296	-5.94
Single	-.372495	-6.35

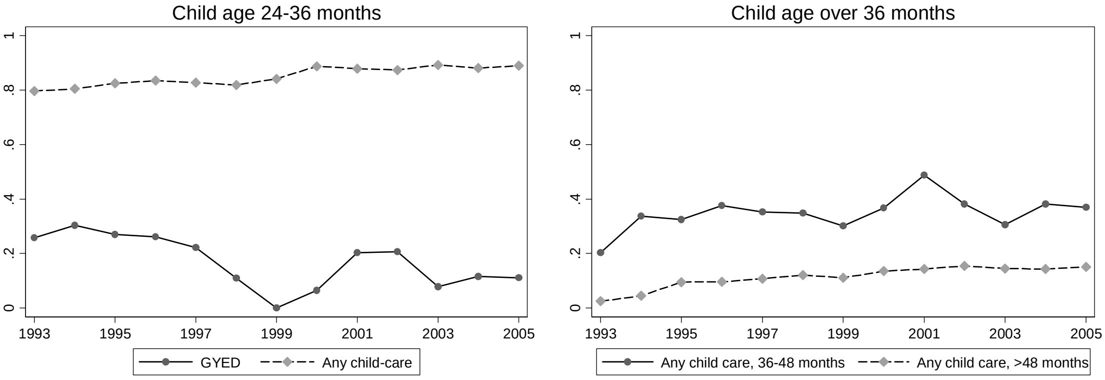
Family status: child	-2.218558	-11.55
Number of public transport connections**	.0401853	2.80
Constant	-3.122505	-7.48
Number of observations	7.665	
LE Chi2	1070.94	(0.0000)
Pseudo R2	.1095	
Predicted mean of gyed receipt	0.68	

Source: own calculations using Labour Force Survey data.
Sample: Mothers of children aged 12-24 months
*) Reference: incomplete primary. **) Number of urban centers (min: 0, max 4) available using public transport between 5 am and 8 am. Data: Köllő (1997)

The first important results are presented in Figure 1 showing the take-up of CCB by members of the affected population (mothers with a high probability of GYED receipt or 'high-status' mothers, for short). Due to grandfathering the fraction receiving GYED did not fall to zero immediately but the number of recipients approached zero by 1999. However, as shown by the upper curves, most mothers losing eligibility for GYED took up GYES, which resulted in only a negligible reduction in the proportion of mothers receiving some kind of CCB. The data also reflect the fact that the introduction of means-testing for GYES hardly had any impact on the probability of take-up. (The income limit was set so that the bulk of one-earner families passed the per-capita income limit).

Figure 1. Receipt of GYED and any CCB by the age of the child, 1993-2005 (mothers with a high probability of GYED receipt)





Source: own calculations using Labour Force Survey data.

While most high-status mothers apparently preferred receiving a much lower benefit to receiving no benefit at all they had the opportunity to have shorter breaks in their careers. Duration was analyzed with the multinomial logits introduced in Section 3. The results for the whole sample and the high-status and low-status groups are presented in Tables 7-9. We first draw some general conclusions from the results on the whole sample (Table 7) and then turn to the sub-groups and the effects of the 1995-98 reforms.

Table 7.- Exit from CCB – Multinomial logit

	Exit to employment		Exit to non-employment		Started to work while on CCB	
Age	1.196886	2.38	.9078687	-1.49	1.223506	3.33
Age squared	.9970779	-2.29	1.001406	1.26	.9968524	-3.07
Educational attainment						
Primary	.2471998	-10.71	1.471837	2.52	.3739171	-9.70
Vocational	.4663162	-6.96	1.362536	2.03	.5384306	-6.78
Secondary	.6253784	-4.70	1.319421	1.84	.6665888	-4.66
Age of the youngest child						
0-12 months	.0573204	-13.48	.1725169	-13.01	.0850661	-16.32
12-24 months	.1852266	-17.06	.1070975	-16.28	.2078828	-18.81
36-48 months	1.591441	4.88	3.236817	14.89	1.885101	8.49
49- months	.358862	-4.80	1.238106	1.54	.5626339	-4.31
Number of children aged 0-7	.6253755	-6.95	.8005393	-3.87	.6527881	-8.01
More than 1 household in the flat	1.334522	2.30	1.096269	0.80	1.019658	0.17
Day care/1000 inhabitants	4.425068	2.79	1.542633	0.81	2.74037	2.72
Settlement unemployment rate	.0442986	-3.63	2.685966	1.65	.1122662	-3.83
Good transport connections	1.73113	3.57	.9648577	-0.22	1.181951	1.22
Budapest	22.10145	2.23	.0541036	-2.00	1.451176	0.32
Population (000)	.9979664	-2.39	1.001675	1.93	.9994481	-0.78
Type of support: GYES	4.792543	7.67	4.773603	11.47	2.213371	6.99
Type of support: GYED	3.431256	5.48	2.85867	5.99	1.926792	4.85
1994	1.099968	0.38	1.483971	1.96	1.004655	0.04

1995	2.18508	3.60	1.812222	3.12	.8124559	-1.61
1996	2.237044	3.71	1.42649	1.77	.7101268	-2.54
1997	1.706171	2.35	.9597231	-0.19	.6833808	-2.75
1998	2.207871	3.38	2.357292	4.41	.7678635	-1.79
1999	1.230943	0.77	1.490013	1.80	.5482425	-3.39
2000	.7113591	-1.14	.7766978	-1.00	.645763	-2.39
2001	.6873346	-1.17	.7532601	-1.08	.7727707	-1.33
2002	1.513162	1.17	2.065734	2.70	.6997826	-1.49
2003	2.73079	2.72	1.977095	2.32	.858173	-0.60
2004	2.646682	2.55	1.692043	1.70	.9360098	-0.25
2005	2.526496	2.39	1.996081	2.23	.537882	-2.16
Regime when the child was born						
No GYED, GYES means-tested	.9332069	-0.40	1.033109	0.23	.8948338	-0.84
No GYED, GYES universal	1.0775	0.27	.9218187	-0.38	.6475822	-2.20
GYED + GYES universal	.6597811	-1.30	.846012	-0.69	.5486922	-2.55

Source: own calculations using Labour Force Survey data.
Sample: All inactive CCB recipients
*) At least 4 urban centers available using public transport between 5 am and 8 am. Data: Köllő (1997)

Table 8. Exit from CCB – Multinomial logit

	Exit to employment		Exit to non-employment		Started to work while on CCB	
Age	1.149282	1.23	1.087682	0.65	1.384038	3.23
Age squared	.9978204	-1.13	.9982831	-0.77	.9946782	-3.10
Educational attainment						
Primary	.2975848	-6.56	1.317969	1.34	.4430663	-5.74
Vocational	.4884767	-5.63	1.314063	1.49	.5568615	-5.44
Secondary	.6397389	-3.82	1.332879	1.59	.7142474	-3.28
Age of the youngest child						
0-12 months	.0499284	-11.64	.1825851	-9.33	.0833778	-13.78
12-24 months	.1927587	-14.93	.1161795	-12.42	.2019876	-16.30
36-48 months	1.70774	5.01	3.443155	12.07	1.948041	7.69
49- months	.3853749	-3.77	1.104889	0.53	.5715096	-3.46
Number of children aged 0-7	.6204289	-6.17	.8302798	-2.38	.6724397	-6.31
More than 1 household in the flat	1.32448	1.94	1.057777	0.35	.9774283	-0.17
Day care/1000 inhabitants	4.137231	2.33	1.337736	0.41	3.187174	2.83
Settlement unemployment rate	.2098267	-1.50	3.272865	1.21	.5591219	-0.79
Good transport connections*	1.653682	2.90	1.041341	0.21	1.249733	1.45
Budapest	24.50487	2.03	.0593884	-1.59	1.448561	0.28
Population (000)	.9979804	-2.10	1.001588	1.50	.9994252	-0.71
Type of support: GYES	5.450187	6.69	4.357695	8.04	2.177081	5.65
Type of support: GYED	4.136	5.15	2.598298	4.15	1.873174	3.86
1994	1.471246	1.28	1.793791	2.04	.9289606	-0.46
1995	2.471904	3.31	2.359053	3.15	.9255228	-0.50
1996	2.714156	3.70	1.706343	1.87	.7816287	-1.54
1997	2.421637	3.19	1.186705	0.55	.7851865	-1.48
1998	2.824286	3.62	2.879014	3.81	.8752135	-0.77
1999	1.396162	1.01	2.078804	2.37	.6190479	-2.31
2000	.9115895	-0.26	.995596	-0.01	.6510817	-1.98
2001	.8775384	-0.35	1.070592	0.19	.8598592	-0.67
2002	1.763707	1.38	2.739945	2.77	.7996811	-0.81
2003	3.381591	2.85	2.662514	2.45	.9302403	-0.24
2004	3.133413	2.58	2.368538	2.05	1.103356	0.31
2005	2.704516	2.19	2.618145	2.29	.6390842	-1.34
Regime when the child was born						
No GYED, GYES means-tested	1.06465	0.32	1.093587	0.47	.9589456	-0.27
No GYED, GYES universal	1.338234	0.96	1.060461	0.21	.7178769	-1.45
GYED + GYES universal	.7825456	-0.69	.7536978	-0.88	.5826429	-1.98

Source: own calculations using Labour Force Survey data.
Sample: Inactive CCB recipients with a high probability of GYED receipt
*) At least 4 urban centers available using public transport between 5 am and 8 am. Data: Köllő (1997)

Table 9. Exit from CCB – Multinomial logit

	Exit to employment		Exit to non-employment		Started to work while on CCB	
Age	1.152859	1.27	.9653161	-0.42	1.102856	1.17
Age squared	.997607	-1.25	1.000331	0.23	.9986637	-0.95
Educational attainment						
Primary	.216868	-6.85	1.559485	1.68	.3377914	-6.27
Vocational	.3334811	-4.11	2.081221	2.60	.5318887	-3.24
Secondary	.5898634	-2.21	1.667653	1.75	.5304142	-3.08
Age of the youngest child						
0-12 months	.0798134	-6.56	.1600054	-9.09	.0882646	-8.72
12-24 months	.1538664	-8.38	.09472	-10.56	.2221188	-9.42
36-48 months	1.21283	0.90	2.975005	8.72	1.741425	3.79
49- months	.2603928	-3.38	1.416955	1.66	.5329967	-2.69
Number of children aged 0-7	.6504728	-3.08	.7788588	-2.88	.6042944	-4.94
More than 1 household in the flat	1.400696	1.31	1.131825	0.75	1.144127	0.64
Day care/1000 inhabitants	6.373259	1.83	1.759369	0.66	1.73102	0.66
Settlement unemployment rate	.0034232	-3.52	1.640894	0.60	.0143448	-4.40
Good transport connections	2.02167	2.08	.7891934	-0.77	.8546444	-0.50
Budapest	14.6205	0.89	.0101358	-1.77	.6620302	-0.18
Population (000)	.9979716	-1.08	1.002801	1.78	1.000115	0.08
Type of support: GYES	3.476035	3.54	5.251697	8.10	2.127434	3.66
Type of support: GYED	2.030051	1.76	3.218452	4.30	1.94814	2.70
1994	.5145114	-1.30	1.267658	0.82	1.16104	0.68
1995	1.811027	1.66	1.378653	1.18	.6013937	-2.10
1996	1.592714	1.24	1.311705	0.95	.5956381	-2.05
1997	.6489141	-0.97	.8130164	-0.67	.4992389	-2.63
1998	1.359813	0.69	2.151236	2.74	.5882626	-1.78
1999	1.177427	0.34	1.046405	0.14	.4076681	-2.60
2000	.3709609	-1.53	.650449	-1.12	.6916291	-1.07
2001	.4097163	-1.28	.4933674	-1.75	.6240339	-1.23
2002	1.40318	0.45	1.623341	1.20	.5196413	-1.33
2003	1.999323	0.87	1.594696	1.07	.7480138	-0.58
2004	2.374263	1.07	1.255928	0.50	.6676459	-0.76
2005	3.069985	1.39	1.551508	0.94	.3810987	-1.68
Regime when the child was born						
No GYED, GYES means-tested	.584757	-1.51	.8967462	-0.48	.7776717	-0.94
No GYED, GYES universal	.5108846	-0.94	.6973482	-1.08	.5338839	-1.56
GYED + GYES universal	.3378726	-1.48	.9246591	-0.21	.4883542	-1.50

Source: own calculations using Labour Force Survey data.
Sample: Inactive CCB recipients with a low probability of GYED receipt
*) At least 4 urban centers available using public transport between 5 am and 8 am. Data: Köllő (1997)

Since most variables in the equations are dummies the tables present the results in terms of easy-to-interpret *relative risk ratios*. In case of the few continuous variables, where the interpretation of the risk ratios is not straightforward we add supplementary information on the magnitudes.

Starting with equation 1 of Table 7 we observe that *exit to employment by leaving CCB* was highest at age 30 and the probability of job finding varied widely with educational attainment. Exit was most likely between age 3 and 4 of the child and fell steeply with the number of small children. The availability of day care at home or in the community had marked impact on the probability of exit as shown by the coefficients on the dummy for several households sharing the flat, on the one hand, and availability of day care at the place of living, on the other. The exit rate at the 10th decile of the day care density variable was 26 per cent higher than at the median. Local unemployment had extremely strong effect on the probability of exit to employment, with the predicted exit rate being 2.78 times higher in the first decile of the settlements than in the 10th decile. The availability of public transport connections to at least four neighboring urban centers also had significant positive impact on the exit to employment. Mothers on GYED had lower probability of leaving for a job holding other variables constant than had the GYES recipients.

Exit to non-employment was more frequent with unskilled women, between age 3 and 4 of the child, and in case of several children, but other variables depicting employment opportunities or day-care costs had no significant impact. This suggests that mothers facing poor employment prospects and/or high costs were likely to stay in the base group rather than leaving CCB for non-employment.

The probability of *starting work while receiving CCB* varied widely with age and education in a similar fashion as in the case of exit to employment. The number of children and age of the youngest child also had similar impact. Local unemployment decreased and the availability of day care increased the probability of working but not as strongly as they did in the case of exit to employment. Consistent with the expectations the presence of further adults in the household and the quality of transport connections exerted no influence on the risk of working while on benefit as this type of employment frequently means working at home and/or on a casual basis. Likewise, the type (and therefore the amount) of the benefit had smaller impact on this outcome compared to the quitting of CCB for a job.

The effects of the variables discussed above were qualitatively similar in the case of high-status and low-status mothers (Tables 8 and 9) albeit some differences in the magnitudes could be observed. Most importantly, the availability of day-care and good public transport connections seem to matter more for low-skilled mothers, who may find it difficult to pay for private day-care and are less likely to use a car for travel to work.[15]

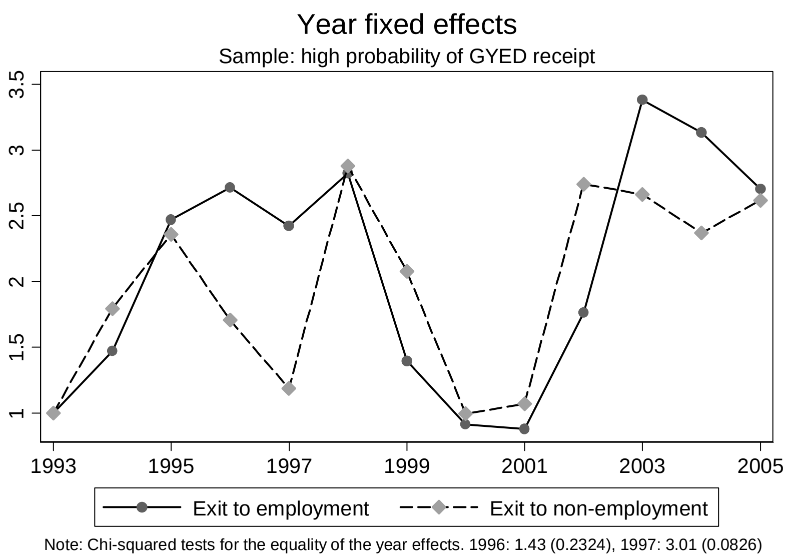
We expect to observe the possible effects of the 1995-98 reform in Table 8, relating to high-status mothers, the group that was more likely to be affected by the changes. The coefficients on the regime dummies are all insignificant in this table as well as in Tables 7 and 9 suggesting that the tightening of eligibility did not result in faster outflows to employment. The only regime coefficient close to what could be called significant (z=-1.51) is found in Table 9 (low-status mothers) for the regime in 1996-98. This is consistent with the relaxing of the rules for GYES, which resulted in the entering of women with no previous work experience. Furthermore, the coefficients for the 1999 and 2000-2005 regimes are significantly negative in

[15] This is consistent with the observations of Kertesi (1999) and Bartus (2003) suggesting that travel costs mostly limit the employment opportunities of unskilled rural women.

equation 3 (working while receiving CCB). The gradual fall in the share of working recipients, we believe, is explained by the disappearing of simple forms of private businesses operated in the house or the garage like rummage sale, shops selling bottled drinks (a wide-spread form of micro-business in the early 1990s) and farming around the house.

One might argue that the systemic changes are captured by the year dummies rather than the regime dummies. The year effects indeed suggest rising exit rates in 1995-98 (and another increase in 2002-2005 following a temporary fall in 1999-2001.). In order to check whether these movements are related to the reform or hint at compositional changes and macro effects Figure 2 compares the year effects in equation 1 (exit to employment) and 2 (exit to non-employment). The two curves are close to each other except for 1996-97. A chi-squared test of the equality of the year effects in equations 1 and 2 suggests that the coefficients for 1996 are statistically equal (1.43 significant at the 0.23 level) while the coefficients for 1997 are different from each other at 0.08 level of significance (Table 10).

Figure 2. Year fixed effects from equations 1 and 2 of Table 8



Source: own calculations using Labour Force Survey data.

Table 10: Chi-squared tests of the equality of year effects in the exit to job (1) and exit to non-employment (2) equations, by predicted status

	High-status mothers (probably affected)		Low-status mothers (probably unaffected)	
	Chi-2	Significance	Chi-2	Significance
1994	0.23	0.6312	2.42	0.1195
1995	0.02	0.9025	0.38	0.5387
1996	1.43	0.2324	0.17	0.6784
1997	3.01	0.0826	0.18	0.6755
1998	0.00	0.9613	0.77	0.3788
1999	0.80	0.3711	0.04	0.8369
2000	0.03	0.8560	0.56	0.4538
2001	0.15	0.6981	0.05	0.8165
2002	0.66	0.4153	0.03	0.8630
2003	0.17	0.6773	0.06	0.8022
2004	0.22	0.6416	0.48	0.4898
2005	0.00	0.9547	0.55	0.4597

Source: own calculations using Labour Force Survey data.

A similar comparison is made in Figure 3, where the year effects on the exit to employment rates of high-status and low-status women are compared. In this case, too, the hazard curves diverge in 1997 (and less so in 1996 and 1998). In other years the two curves move in tandem and very close to each other.

Figure 3. Year effects on exit to employment for women with high and low probability of GYED receipt

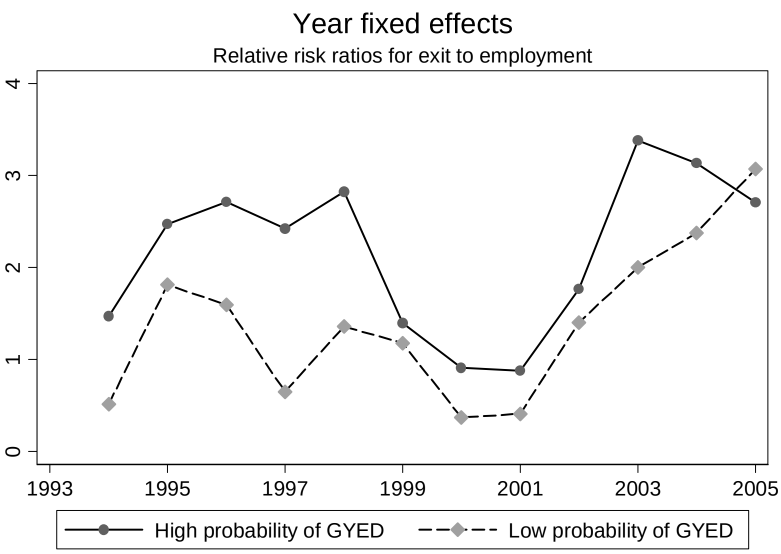
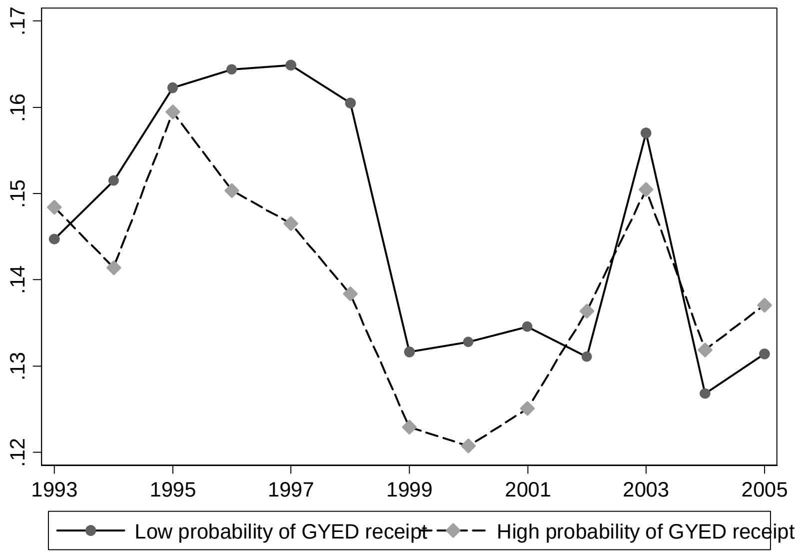


Figure 4. 15-40 year old women having 0-12 months old children (per cent)



Source: own calculations using Labour Force Survey data.

We conclude from the estimations that the 1995-98 changes had no strong impact on the take-up of benefits and the exit to job rate of women, who were strongly affected by the tightening of eligibility for CCB. At best, we find weak evidence for a temporary effect in 1997.

In the models presented in Tables 7-9 we could not address the question of selection to childbirth. Data on the proportion of mothers with small children (aged 0-12 months) within the high-status and low-status groups suggest a significant temporary drop in childbirth within the high-status population (Figure 4). While in 1993-95 the proportions of mothers with small babies were practically equal in the two groups, a gap was opened in 1996-98 that was gradually closed until 2002. We can reasonably assume that those not giving birth to a child during the tight regime of 1996-98 were selected from those preferring a lengthy, supported stay at home, while those preferring fast return to work were over-represented in the 1996-98 stock of mothers. Therefore a part of the tiny rise in the exit-to-job probability suggested by the year effects was most probably explained by a selection effect (growing share of mothers with high prior probability of exit).

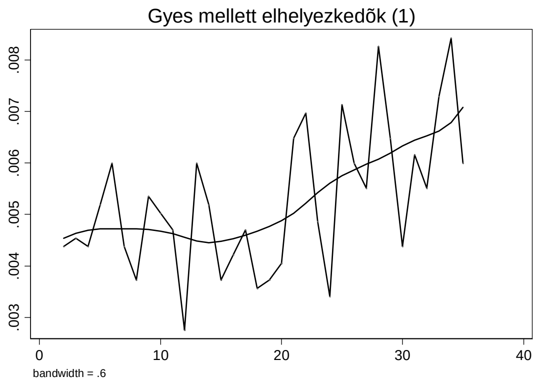
Alternative specifications of the model yield qualitatively similar results. Using only year dummies or regime dummies do not modify the conclusions. The results are similar if the equations are estimated for skilled versus unskilled mothers rather than the high-status and low-status groups defined in Table 6. A binary logit treating exits to non-employment as censored yield similar results.

Summarizing briefly, the Bokros package seemed to have an adverse impact on fertility, minor effect on the take-up of benefits and hardly any effect (except perhaps in 1997) on the duration of maternal leave. This may seem to be a striking result in view of the radical change in the replacement ratio and the shortening of eligibility for wealthier mothers but not at all counter-intuitive as was discussed in Section 2.

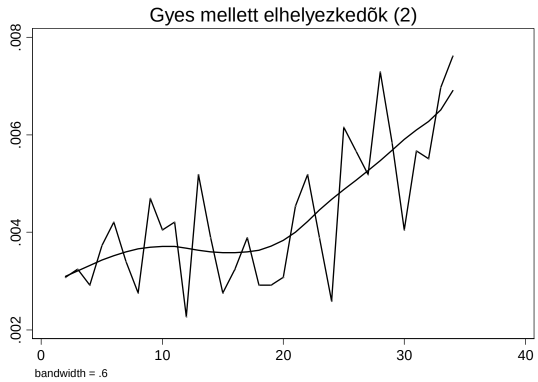
5.3. The 2006 reform

We now turn to the study of the 'critical events' defined in Section 3 and the possible effects of the 2006 reform. Figure 5 shows the time series for job start-ups while receiving GYES (definitions 1-3) and exit from GYES to unsupported employment. Given the relatively small number of observations the series are subject to random fluctuations. The main trends are clearly visible even so and reading is further assisted by the adding of lowess-smoothed curves.

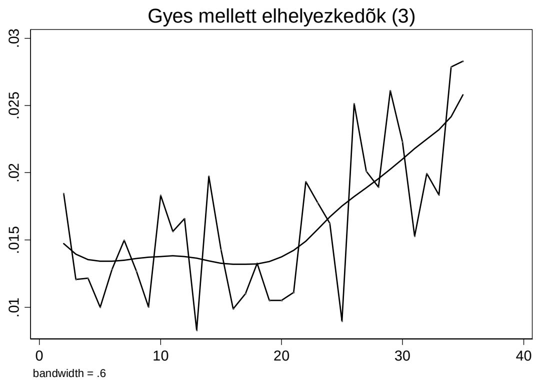
Figure 5. Exit from GYES to employment from January 2004 to October 2007



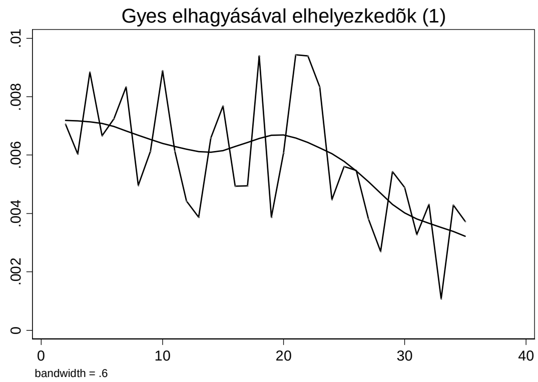
Job start-ups while receiving GYES (1)



Job start-ups while receiving GYES (2)



Job start-ups while receiving GYES (3)

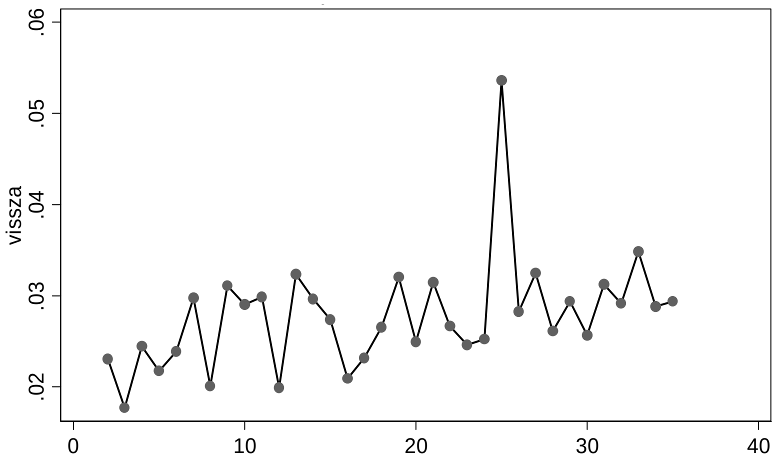


Job start-ups by leaving GYES

Source: own calculations based on data provided by the Health Insurance Fund (HIF) and the Hungarian Treasury (HT).
(1) the person received GYES in month t and t+1 and started an employment spell in t or t+1. (2) the person received GYES in t and t+1 and started an employment spell in t.
(3) The person received GYES in t-1, t and t+1 and started an employment spell in t.
(4) The person received GYES in *t*, did not receive GYES in *t+1*, and started an employment spell in *t* or *t+1*.

The three indicators of job start-ups unequivocally suggest growing outflows to jobs while receiving GYES. The change in the trend seems to be located at around month 20, that is, in August 2005, at the date of the announcement. From the very same month onwards exits to unsupported employment by leaving GYES started to fall.

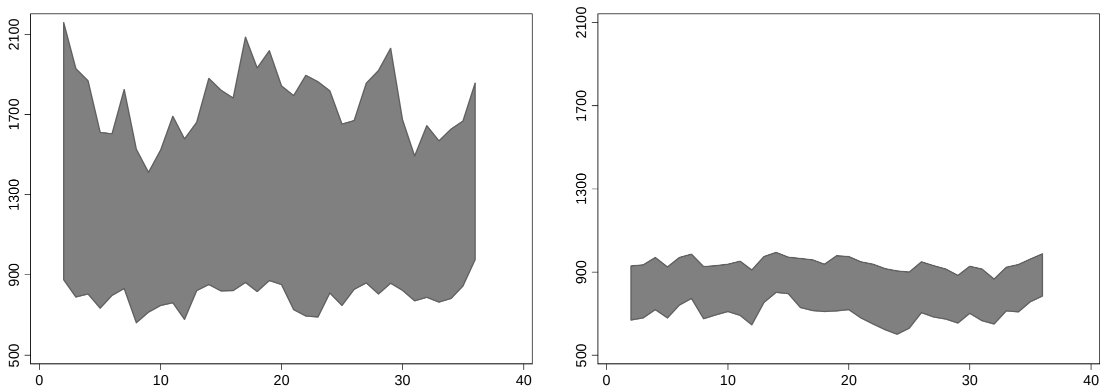
Figure 6. Re-entry to GYES from work in January 2004 - October 2007



Source: own calculations based on data provided by the Health Insurance Fund (HIF) and the Hungarian Treasury (HT).

Figure 6 looks at the event of re-entry, that is, the take-up of GYES in month *t* by mothers who had an open employment spell in month t-1 without receiving GYES. The curve follows a monotonously growing trend with random-looking fluctuations. The growing trend may be explained by an increasing margin of error due to the erroneously open employment spells. While the slightly growing trend is most probably a statistical artifact the huge hike in January 2006 (month 25) indisputably indicates massive flows back to the GYES register. Entry to the register in this particular month amounted to about 4-5 per cent of the stock. These backward flows represent cases of mothers with children aged 0-3 who had entered unsupported employment prior to 2006 and applied for GYES again as soon as this possibility was opened.

Figure 7. Age of the child at entry to work in January 2004-October 2007 (one standard deviation bands, days)



All children

Children ages 0-3

Source: own calculations based on data provided by the Health Insurance Fund (HIF) and the Hungarian Treasury (HT).

We measure changes in the duration of maternal leave by looking at the age of children at the starting date of their mother's job start-ups with or without GYES receipt. Average age strongly depends on whether we consider "méltányossági gyes" (equity-based GYES) or restrict the attention to children younger than 3 (standard GYES). Whichever indicator is considered, however, we do *not* observe any decrease in the age of children at their mothers' entry to work in 2006-2007 (months 25-36 in Figure 7).

The administrative data thus suggest that the 2006 reform implied shifts back from unsupported employment to GYES (representing a dead-weight loss to the society) but did not result in a net shift from inactivity to employment. Mothers, who entered employment after January 2006 increasingly did so by staying on benefit but we find no evidence of increased total flows to employment.

6. POLICY ISSUES

The two reforms analyzed in this paper may seem fundamental: the first one cut the income replacement ratio by about 40 per cent for high-status mothers and also shortened their eligibility while the second has eliminated the need to choose between benefits and work. Still, we found no evidence of increased flows to employment or shorter duration of CCB in response to the reforms. Such an outcome is likely if entry to work would imply high costs and losses substantially reducing the net gains from employment and/or mothers attach a high value to home-based versus institutional day-care. The results presented in this paper are clearly insufficient to assess which of these factors play key role in the Hungarian case but we take the risk of drawing some tentative conclusions.

For the majority of mothers institutional day-care is simply not available in Hungary. In the LFS sample analyzed in the paper 60 per cent of the mothers of children aged 0-2 lived in a settlement with no day-care institution at all. The existing nurseries are over-crowded: the number of children enrolled to 100 places grew from 82 in 1987 to 128 in 2006 (CSO 2007) The costs of private day-care are prohibitive for the majority of mothers. These figures, together with the finding that the availability of public nurseries exerts strong influence on exit to employment, yield support to the conclusion that the lack of day care is one of the explanations for the seemingly paradoxical outcomes of the reforms. High travel costs can provide further explanations. The local governments of villages are typically unable to run nurseries, which implies that mothers should carry their children to urban centers. The quality of the public transport network and the high costs of private transport (measured in wage units) make this option unavailable for many low-wage, low-skilled mothers.

Further constraints arise from the scarcity of part-time job opportunities. In 2005 only 5.3 per cent of the 15-40 year old mothers, who did not receive CCB had part-time jobs according to the LFS. By contrast, 44 per cent of the working CCB recipients did part-time work. Research to the hourly wages of CCB recipients (and people receiving early retirement pension) suggested that they accept significantly lower wages than do their observationally similar counterparts not receiving benefits (Köllő and Nacsa 2005). It seems that those workers, who have to bear the fixed costs of working and are not compensated for these costs by benefits can accept part-time employment only at wages high above the going rate, which prices them out of the labor market. Mothers deprived of the option of part-time employment in this way are likely to find the implications for their children and families devastating and may choose to stay inactive.

Last but not least, traditions and popular beliefs matter. The Hungarian population has been accustomed to the parental leave programs providing several years of staying at home and has reacted with negative emotions to the pro-employment reforms. The suggestions of international organizations (OECD 2007, World Bank 2007) of transforming the system and reducing the duration of the leave were firmly rejected by the Hungarian government in office meeting the approval of the opposition, the pro-natalist groups and parents associations.

However, we have several reasons to believe that the policy of trading off institutional day care and pro-employment support for generous cash payments leads to a dead-end. Since 1967 Hungary has been operating one of the world's most generous parental leave systems and had one of the worst fertility records in the OECD. Gábos et al. (2005) estimate using macro time series that cash family allowances had positive fertility effect in the last four decades. Their data suggest that by doubling the budget of cash support childbirth could be raised from an average of 1.3 to 1.6. This is a remarkable increase but doubling the budget for paid parental leave would imply an expenditure level 6 times the OECD average and 4 times the Austrian level – amounts hardly affordable in the long run. The returns in terms of congnitive development and emotional stability to rearing a child at home after age 2, and especially after age 3, are at least questionable. Finally, the results in this paper raise doubts over the success of the system in reconciling family and work. The fact that mothers accepted huge cuts in their benefits and delayed or gave up childbirth (rather than working while having a baby) suggested that by manipulating the level of the benefit and the eligibility criteria the governments could not efficiently promote maternal employment. The widening gap between the employment rates of mothers and non-mothers further strengthens the conjecture that the current system yields the options of having children versus working rather than the possibility of working and having children. The way out of the dead-end would require the expansion and development of institutional day care, support to part-time employment and travel to work, worktime allowances with compensation for the employer and services providing information and training for job-seeking mothers.

References

Baker, M., J. Gruber and K. Milligan (2005): Universal Childcare, Maternal Labor Supply, and Family Well-being. *NBER Working Paper* No. 11832.

Baker, M., J. Gruber and K. Milligan (2006): What Can We Learn from Quebec's Universal Childcare Program? Howe Institute E-brief, February 1, 2006

Berger, L. M., J. Hill, J and J. Waldfogel (2005): Maternity leave, early maternal employment and child health and development in the US. *The Economic Journal* Vol. 115(1), F29–F47.

CSO (2007): Women and Men in Hungary (in Hungarian). Budapest: Central Statistical Office.

Dex, S. and K. Ward (2007): Parental care and employment in early childhood. Analysis of the Millennium Cohort Study (MCS) Sweeps 1 and 2. *EOC Working Paper* No. 57

Fazekas, K. and E. Ozsvald (2008): The provision of childcare services in Hungary. External report commissioned by and presented to the EU Directorate-General Employment and Social Affairs, Unit G1 'Equality between women and men'.

Frey M. (2001): The situation of women on the labour market (in Hungarian), Budapest: Central Statistical Office.

Frey M. (2002): A gyermeknevelési támogatásokat igénybe vevő és a családi okból inaktív személyek foglalkoztatásának lehetőségei és akadályai, Összefoglaló a HU9918-13 Phare program keretében végzett statisztikai kutatás zárótanulmányából, Budapest, 2002. szeptember

Gábos A., R. I. Gál and G. Kézdi (2005): Fertility effects of the pension system and other intergenerational transfers. Paper prepared for the 5th International Workshop of the Project on Intergenerational Equity (PIE). Tokyo, March 10-12, 2005.

Gregg, P. and J. Waldfogel (2005): Symposium on Parental Leave, Early Maternal Employment, and Child Outcomes: Introduction. *The Economic Journal* Vol. 115(1), F1-F6.

Gregg, P., E. Washbrook, C. Propper and S. Burgess (2005): The Effects of a Mother's Return to Work Decision on Child Development in the UK. *The Economic Journal* Vol. 115(1), F48–F80

Ignits, Gy. and B. Kapitány (2006): The devlopment of family policy: goals and instruments (in Hungarian), *Demográfia*, vol. 49(4): 383–401.

Kamerman, S. B. (2000): Parental leave policies: An essential ingredient in early childhood education and care policies, *Journal of Social Issues*, 47, 179-96

Lakatos J. (1996): Returning to the labour market after parental leave, *Statisztikai Szemle*, Vol. 74(7).

Melhuish, E. C. (2004): A literature review of the impact of early years provision upon young children, with emphasis given to children from disadvantaged backgrounds: *Report to the Comptroller and Auditor General.* London: National Audit Office. Downloadable at http://www.nao.org.uk/publications/nao_reports/03-04/268_literaturereview.pdf

OECD (2007): Economic Survey of Hungary 2007: Improving reconciliation between work and family. http://oecd.org/document/29/.

Pylkkanen, E. and N. Smith (2003): Career interruptions due to parental leave: A compartive analysis of Denmark and Sweden, *OECD Social, Employment and Migration Working Papers*, DELSA/ELSA/WD/SEM 2003/1, OECD, Paris

Ruhm, C. (1998), Parental leave and child health. *NBER Working Paper* No. 6554

Tanaka, S. (2005), Parental Leave and Child Health Across OECD Countries. *The Economic Journal* Vol. 115(1): F7-F28

World Bank (2007): Social assistance in Central Europe and the Baltic States, Discussion Draft for Consultation and Comment, Washington DC: The World Bank.

Waldfogel, J., W. Han, and J. Brooks-Gunn (2002), The effects of early maternal employment on child cognitive development. *Demography* 39(2): 369–92.

PART 3

THE ROLE OF TIME-FLEXIBILITY IN MANAGING WORK-FAMILY CONFLICTS

ANDRÁS GÁBOS

1. INTRODUCTION

Women's labour market participation, fertility and proper cognitive and emotional development of the child in the first stage of life are negatively correlated with each other.[16] At the same time, there is a simultaneous demand for increased female participation (present labour force) and more and better educated children (future labour force) in European countries, which would involve more effective public policies that help to reduce the negative consequences of these trade-offs, contributing also to an improved quality of life in general[17]. Academic research and the prevalent opinion suggest that reconciliating work and family life in a broad sense, could be the most effective tools in this respect.[18] Furthermore, an intense debate on the problem of work-life balance has been ongoing within the European Union in the last decades, issuing for example in the debates on work flexibility and most recently on flexicurity, and in a set of directives on working time, parental leave and part-time workers' rights. The promotion of flexible employment and reconciliation of work and family life are also incorporated in the European employment strategy. Observed number of children, child outcomes and female participation are best "hard" indicators (behavioural responses) of these conflicts. However, work-life conflicts are often tried to be captured directly, by subjective indicators (e.g. perceived work-life balance, life/work satisfaction) using either representative social surveys or small-sample, occupation-specific psychological tests.

Being conceptualised as interdependency between the work and home domains, the conflicts related to the work-life balance are basically determined by factors related to each of them. Scherer and Steiber (2007) for example, distinguish between work and family demands. Among the work demands, long working hours, work stress and low level of autonomy over the work schedule are the most important factors in this respect. In other words, flexibility of the workplace (in terms of time, income, place and contract) could strongly influence work-life balance. Flexible arrangements help people spending more time with family, friends, etc. and therefore could contribute to increased satisfaction in both areas of life. On the other hand, one might worry about the quality of these workplaces, about the reduced carrier prospects they involve (affecting mainly women) and about the adequacy of income they assure for employees. The most researched dimension in this respect is time flexibility, while major policy responses also aim to focus on working hours.

---

[16] András Gábos is a senior researcher at TÁRKI, Budapest. The author gratefully acknowledge the contribution of Tamás Keller (TÁRKI) to the previous version of the paper, presented at the poster session of the conference on *Social exclusion and the changing demographic context of Europe*, held in Budapest, 6-8 September 2007. http://demografia.hu/SDT2007/Poster_PDF/Poster_Keller_Gabos.pdf

[17] For detailed overviews of historical and recent demographic developments, including fertility see SSO 2007; RAND Europe; EC 2007. A current debate on the relationship between fertility and female employment is marked by the papers of Ahn and Mira (2002) and Engelhardt, Kögel and Prskawetz (2004) among others.

[18] Del Boca et al. (2003) gives a detailed overview of related policy issues.

Perceived work-life balance is a regular topic of cross-country comparative social surveys (ESS, ISSP, GSS, HWF). We use ISSP Family and Gender Role III. Survey in this paper to carry out an empirical analysis. This dataset have been already used for similar purposes. For example, Scherer and Steiber (2007) examined the role of several factors in explaining the level of work-family conflict, including the policy environment. Crompton and Lyonette (2006) also carried out a comparative analysis to assess for the cross-country differences in reported level of work-family and family-work conflicts for a restricted number of EU countries, based on the similar dataset. Our analyses goes further by including a wider set of countries (including several New Members States) and by focusing on both work-family and family-work dimensions, albeit is more restricted in its scope. This paper aims to analyse the effects of working hours and therefore that of time-flexibility on the work-life balance, looking at and comparing 20 European countries. Our task is purely empirical, and therefore we do not have the ambition to contribute to the theoretical debate. The paper is organised as follows. First we summarise the main theoretical considerations of the research field as well as some empirical results of the relevant literature (Part 2). After a short description of the data and methodology that are at the base of our empirical analysis (Part 3), we provide a descriptive analysis of the correlation between work-life balance and time-flexibility, focusing on cross-country differences (Part 4). The effect of time-flexibility on perception of work-family and family-work conflict is estimated using multivariate techniques (Part 5), while Part 6 summarizes and concludes.

2. WORK-LIFE BALANCE AND FLEXIBLE WORKING ARRANGEMENTS

The notion of work-life-balance, also very often called work-life or work-family conflict as well, is widely used among scholars, its definition being not always the same.[19] Overviewing the literature and trying to synthetize different approaches, Greenhaus and Beutell (1985) accept the definition used by Kahn et al. (1964) and conceive work-family conflict as an interrole conflict, the pressures from the work and family domain being mutually incompatible with each other. They also conclude that work-family conflicts can take three major forms: (a) time-based, (b) strain-based and (c) behaviour-based conflicts. In the view of Nazio and MacInnes (2006) balance implies “some sense of equilibrum in the distribution of time resources and satisfaction across both paid work and other aspects of people’s lives”, the shortage of time that could arise when this balance is not achieved being called by them time stress (Nazio and MacInnes 2006: 162).

Blyton et al. (2006) see it denoting that an individual can manage both work and other aspects of their life, without a conflict or without an opposition of one domain to the other. They conceptualise it as a time-scale: the more time one puts on one side, the less will be available on the other. This also implies that two types of conflicts can be distinguished that define this balance and the literature clearly makes this distinction: work-family conflict and family-work conflict (Cinamon 2006; Frone, Russell and Cooper 1992a; Greenhaus and Parasurman 1986; Balmforth and Gardner 2006). Work-family conflict can be seen as the negligence of family responsibilities in favour of work, while the family-work conflict occurs when work obligations are neglected because of family pressures (Blyton et al. 2006). Work-family and family-work conflicts are therefore strongly correlated by definition, but empirical evidences shown the former as more widespread. Frone, Russell and Cooper (1992b) suggest that the cause of this difference might be that work and family boundaries are asymmetrically permeable. The main determinants of WFC and FWC might also differ. Characteristics related to the work domain (e.g. work hours) are expected to have a stronger effect on WFC (Byron 2005), while family characteristics (e.g. household composition) on FWC.

Many determinants of work-life balanced can be listed (Blyton et al. 2006), but time being a scarce resource is unambiguously the underlying one (Nazio and MacInnes 2006). Beside the increased demand for female workforce in modern societies, the problem of work-life balance is strongly related to the erosion of standard working time model (Blyton et al. 2006). For this reason, flexible work arrangements, mainly those related to time-flexibility are always listed among policy tools that allow for the reconciliation between work and family life, however the literature assesses the negative effects as well (e.g. on working carrier of women). Emphasizing the time dimension of flexibility, not only part-time work, but working hours in general (including long hours) and time autonomy (controlling one’s own work schedule at the workplace) could be of interest as a determinant of work-life balance.

[19] A detailed literature review on work-life balance and flexible work arrangements can be found in one of the already prepared deliverables of the WORKCARE project (Workpackage 1).

When one focus on working hours as an indicator of time dimension of flexibility, two alternative and conflicting hypotheses can be formulated how being in a time-flexible work arrangement could influence work-life balance. On the one hand, some empirical evidence suggest that long hours of work are associated with better physical health, lower levels of psychological distress and less anxiety (Bird and Fremont 1991; Herold and Waldron 1985; Kohn and Schooler 1982). These negative effects of reduced work hours can be explained by the low-quality nature of many part-time jobs (Rijswijk et al. 2004: 286). The same approach is supported by other studies pointing out that being in a part-time work negatively affects work career and income prospects, especially in the case of women. Other non-standard forms of work, like temporary work, are also associated with worse mental and physical health status (e.g. Ferrie 2001). On the other hand, working part-time can be seen as a possible strategy of individuals or couples to reduce work-family interference. Several studies from the area of occupational psychology or using individual-level social surveys indicate that part-time work is associated with lower levels of role overload and work-to-family conflict (Crompton and Lyonette 2006; Gutek, Searle and Klepa 1991; Rijswijk et al. 2004; Scherer and Steiber 2007; Hosking and Western 2008).

While non-standard forms of work, including time-flexible work arrangements are heterogeneous and their effect on the work life balance might differ by main characteristics, our expectation coincides with these last results. Using the same datasource as Crompton and Lyonette (2006) and Scherer and Steiber (2007), but for larger sample of countries, we also expect to find a positive effect of work hours on work-life balance, that means longer work hours being associated with higher level of reported work-family conflict. Further, we foresee a stronger effect of working hours on work-family than on family-work conflict, taking into account that working hours belongs to the work domain. While our main focus is on the general effect of time-flexibility on the work-life balance, the gender aspect is also examined. We are interested in whether the gender gap in perceived work-family conflicts observed by many empirical studies (using different datasources) still persist on lower levels of working hours as well. We also deal with the presence of children. No other determinants of the work-life balance draw our special attention in this study, but we incorporate them when the multivariate models are specified.

3. DATA AND METHODS

When analysing the effect of flexible work arrangements on work-life balance, we limit our research to the time dimension of flexibility and we use working hours as a proxy for time flexibility. We used the ISSP 2002 Family and Changing Gender Roles III. data to test our hypotheses. We included all European country in our analysis, including Norway and Switzerland as two non-EU countries and excluding Russia. Finally, the working dataset consists of 28,525 cases (unweighted) from 20 countries. The number of respondents giving answer for all variables on work-life balance is 14,668 (unweighted). The survey did not collect data from Italy, Greece, Luxembourg, Malta, Estonia, Lithuania, Bulgaria and Romania as present EU members. In Belgium only respondents Flanders were included in the sample. For Ireland and Bulgaria there were no data on children's age and therefore we decided to leave out these countries from our analysis.

When turning to the multivariate analysis, we regress the indices of WFC and FWC respectively on respondents' working hours and on a set of control variables. As for the dependent variable, the dataset includes a set of paired variables measuring work-life balance[20], each of them on a four-category (Likert-type) scale (1 – several times a week, 4 – never in the questionnaire, we reversed the scales for analytical purposes). Scherer and Steiber (2007) distinguished between work-family and family-work conflict, but dealt only with the former one, while Crompton and Lyonette (2006) constructed a single dependent variable of 'work-life conflict', including both work-family and family-work conflict indicators. We analyse both WFC and FWC and use two items to construct the dependent variable for each dimension.

Work-family conflict

I1. I have to come home from work too tired to do the chores which need to be done.

I2. It has been difficult for me to fulfil my family responsibilities because of the amount of time I spent on my job.

Family-work conflict

I3. I have arrived to work too tired to function well because of the household work I had done.

I4. I have found to concentrate at work because of my family responsibilities.

The Cronbach's α scale reliability coefficient is 0.71 for *I1* and *I2* and 0.74 for *I3* and *I4*. These values indicate an acceptable correlation between items to construct an index based on them.[21] Therefore we construct two indices, adding up the four-category scale values and standardising them: one for WFC and the other for FWC. These indices are in all following statistics and are introduced as continuous variables in our models. The distributions within the pooled sample of the questionnaire variables are presented in

[20] For a detailed discussion of measurement problems of work and other than work-related aspects of the work-life balance see Pichler (2008).

[21] Nunnaly (1978) indicated 0.7 as an acceptable value of reliability.

Table A1 of the Annex. Figures A1 and A2 show the distribution of computed indices.

Labour market participation differs across countries, especially for women. Consequently, the likelihood of the selection of working respondents not being random across countries is very high. The differently selected sub-populations may differ across countries not only in characteristics that determine their labour market supply, but also in their perception about work-family and family-work conflict. To deal with this selectivity problem we applied a two-step Heckman procedure (Heckman 1979). Two equations were estimated simultaneously, having (1) labour market participation and (2) reported work-family (and family-work) conflict as dependent variable. The selection equation was set following Scherer and Steiber (2007), including age, age square, education and the presence of children of different ages. We did not consider those responses on *I1-I4* for which the respondent was not working at the time of the interview.

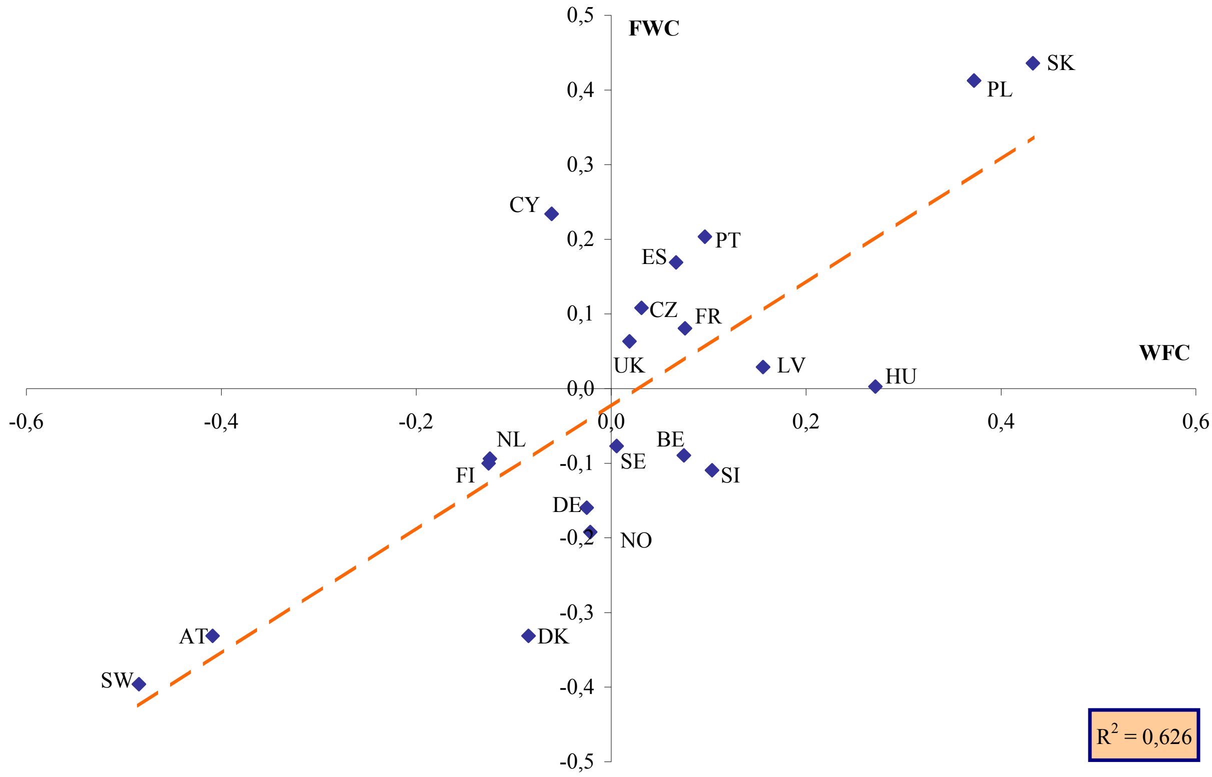
4. WORKING HOURS AND THE WORK-FAMILY CONFLICT – DESCRIPTIVE STATISTICS

This section gives a descriptive overview of reported work-family and family-work conflict and of time flexibility in the European countries before assessing the effects of the latest on the former in the next part. All results are drawn from the ISSP 2002 pooled dataset. Work-family conflicts are characterised by two indices (WFC and FWC, respectively) constructed in the way described in the previous part. In this section, country averages are reported.

4.1. Work-life balance across 20 European countries

Figure 1 presents country averages of WFC and FWC on the same graph, with WFC on the horizontal and FWC on the vertical axe. Negative values indicate low levels of reported conflicts, while positive values high levels. WFC-values are spread within a wider range compared to FWC. One also might observed that there is a positive correlation (of value 0.79) between the two variables at country level. The majority of countries are placed close to the origin, showing that both indices are close to cross-sample average. In both dimensions, the lowest conflict is reported in Switzerland an Austria, while the highest in Slovakia and Poland. A low value of FWC is associated with average WFC in Denmark and a relatively high WFC with average FWC in Hungary. Nordic and some Continental European countries are placed in the negative quarter of the coordinate system, while New member States and Southern countries in the positive quarter.

Figure 1. Joint distribution of country-level WFC and FWC indices



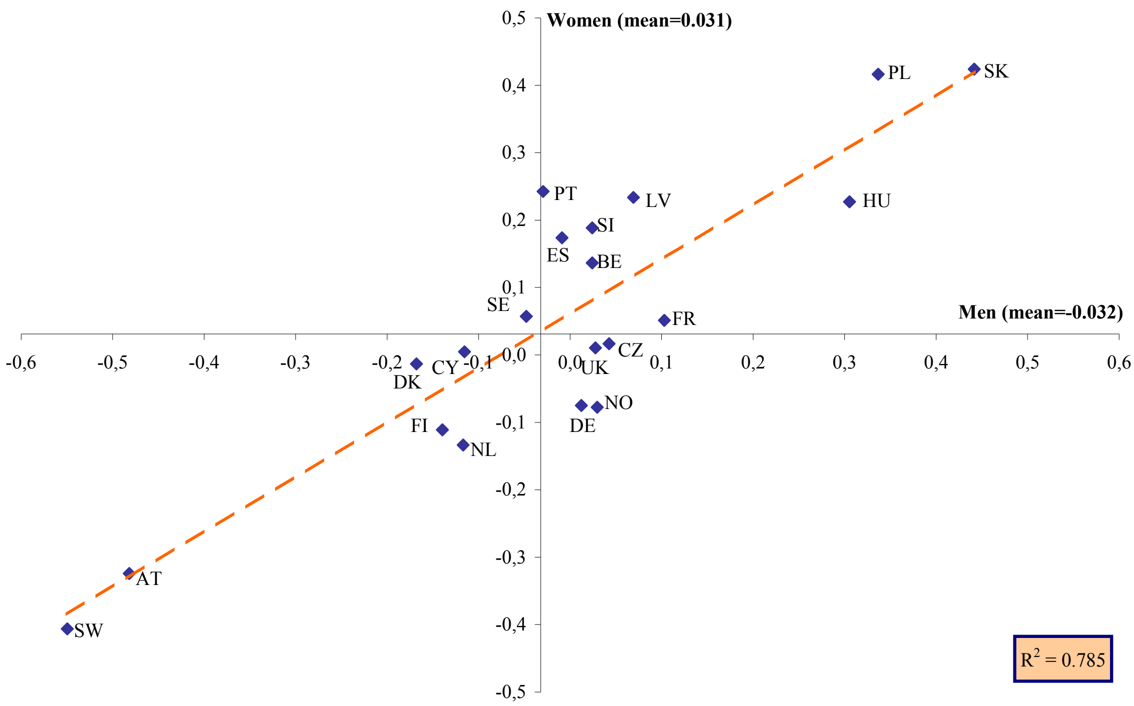
Note. Standardised values of computed scales using Cronbach's α test described in Part 3.

Further, we examine the incidence of WFC and FWC by countries separately. Two other dimensions are introduced: gender and whether the respondent has children or not (Figures 2-5.). Our data presented on Figures 2 and 3 show a gender gap in reported work-family and family work-conflicts. Looking at the pooled sample, women tell about oftener conflicts between their work and family duties than do men, but this evidence does not hold for all countries. In eight countries from twenty, women experience lower-level WFC (the Netherlands, Germany, United Kingdom, Norway, Czech Republic, France, Hungary and Slovakia.), but in only two countries FWC reported by men is higher than for women (Norway and Germany). The right bottom quarter of both graphs (higher than average values for men and lower than average values for women) is almost (WFC) or exclusively empty (FWC) (see Figurse 2-3.).

Values of country-level WFC-index by gender are more concentrated around the origin than those of FWC. Switzerland and Austria in the negative quarter, while Slovakia, Poland and Hungary in the positive quarter clearly separate from the others (Figure 2.). Country averages of FWC by gender show somewhat larger variations, the concentration around the origin being far smaller (Figure 3.). This time Denmark joins Switzerland and Austria in the left bottom corner of the figure. Their values are similar for both men and women and the same holds for Norway and Germany, but at lower levels of the index. Average values for men are associated with lower than average values for women in Slovenia, Belgium and the Netherlands. Men in the Southern countries (Spain, Portugal and Cyprus) report close to average-level conflicts, while women experience high-level imbalance compared to other women in

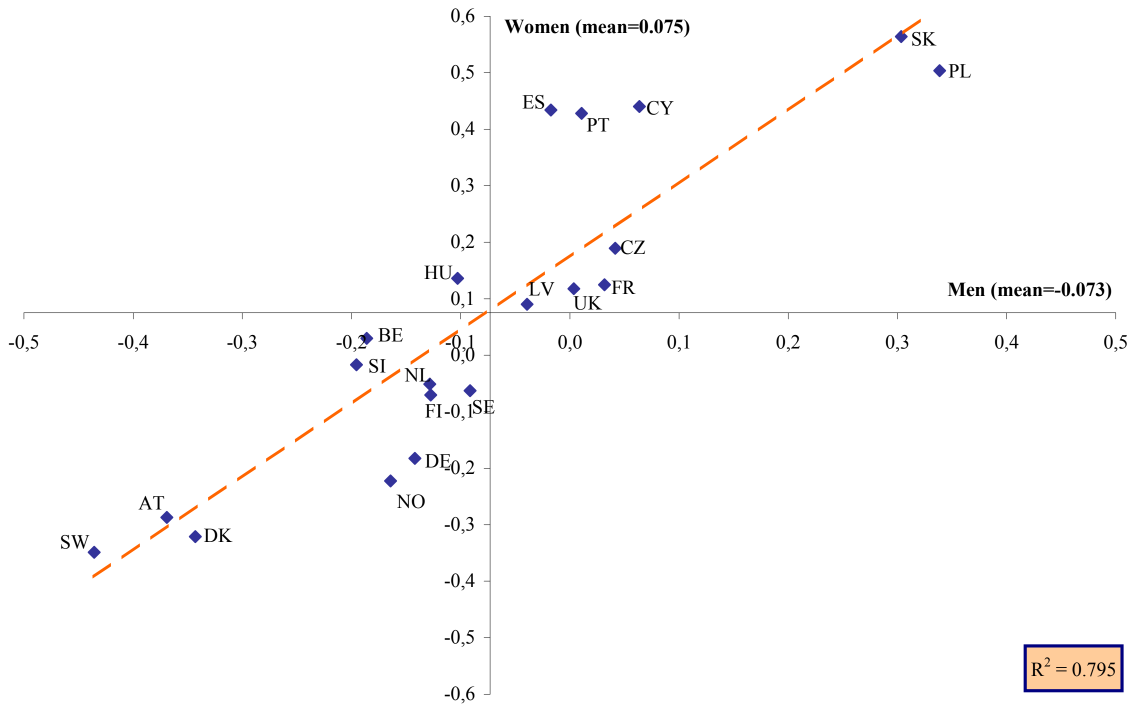
Europe. Slovakia and Poland show high- level FWC for both men and women.

Figure 2. Values of country-level WFC-index by gender



Note. Standardised values of computed scales using Cronbach's α test described in Part 3.

Figure 3. Values of country-level FWC-index by gender



Note. Standardised values of computed scales using Cronbach's α test described in Part 3.

The presence of children is expected to raise the level of both work-family and family-work conflict, their care and bringing up needs extra resources (including time and money). The country-level comparison of related ISSP data confirms this hypothesis, the average value of both indices being higher among respondents with children. Results are presented in Annex (Figures A2-3.). The patterns of distributions are similar to what we have observed when analysing the role of gender in this respect. However, country values fit better the regression line and correlation coefficients are also higher. In the case of WFC, Switzerland and Austria clearly separate again from the others in the negative quarter of the grid, while Slovakia, Poland and Hungary at the other end of the regression line. Looking at FWC, one might observed that countries are almost continuously dispersed around and are placed very close to the regression line, however the relative position of countries are similar to what we have seen earlier.

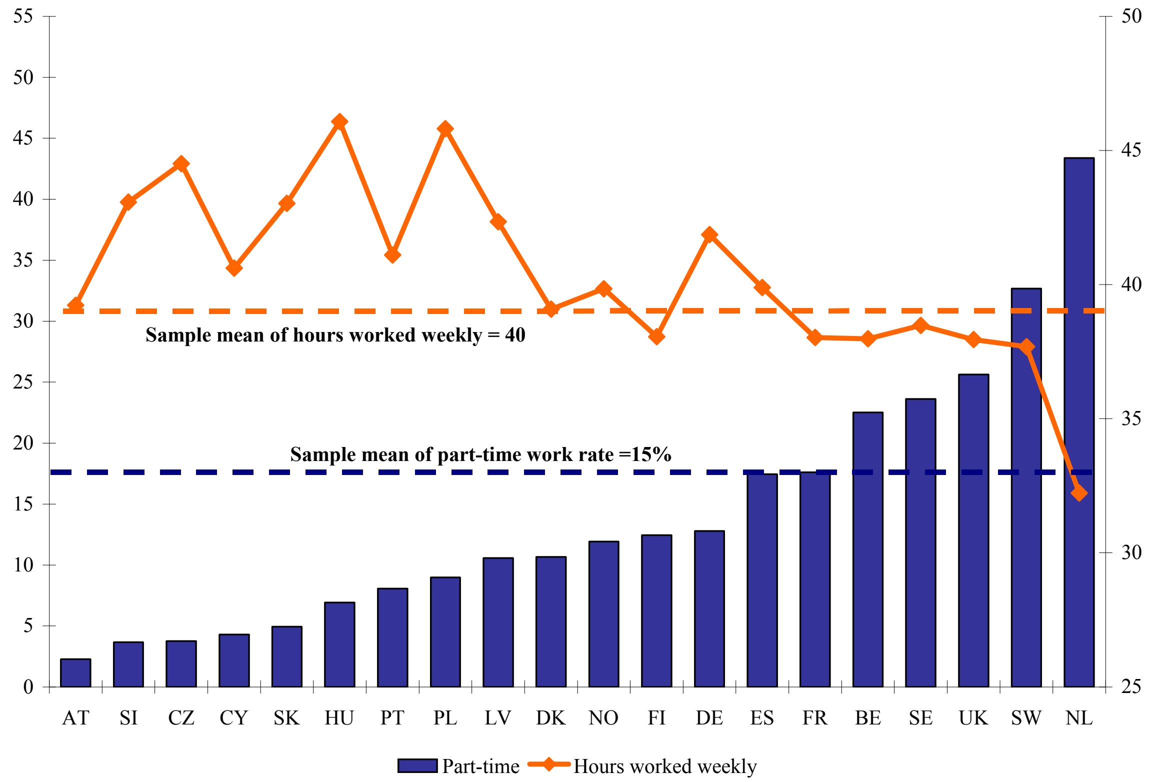
4.2. Time-flexibility in 20 European countries

We measure time-flexibility by number of hours spent in paid work on the last week before the interview. While even the concept of time-flexibility is broader than the number of hours worked a week, the questionnaire of ISSP Family and Gender Roles III from 2002 does not allow for the use of other proxy. We could not take into account *time autonomy* for example, which is a key dimension of time-flexibility. Figure 4 shows country averages of worked hours and participation rates in part-time employment, all figures being drawn from the sample. We used the question on employment status for the latter one, which is also part of the ISSP questionnaire, respondents self-reporting whether they are full-employed, part-time employed or not employed. Partly for data validation reasons, we present figures published by Eurostat on these indicators in Annex for year 2002 (Table A2.).

The average part-time employment rate is 15 per cent across the 20 countries. Highest rates are reported in the Netherlands (45% vs. 44% based on Eurostat figures) and Switzerland (40% vs 32%). United Kingdom, Sweden and Belgium (Flandres) also have higher than average part-time rates (23-26%). Eurostat figures show somewhat lower rates for these countries (19-25%), and place other countries in the same range (Norway, Germany and Denmark). Both ISSP and Eurostat data indicate low part-time employment rates for the New Member States (3-11%). The greatest difference between the ISSP and Eurostat figures are observed for Norway (14.5 percentage points), Spain (9.5), Denmark (9), and especially for Austria (17).

The average of worked hours throughout the pooled sample is 40 (Figure 4). A higher number of worked hours are associated with low part-time rates. The highest values are estimated for Poland, Hungary and the Czech Republic (45-46 hours), but all other Eastern European countries scores above average in this respect. From EU-15 only Germany, Norway and Spain have higher than average worked hours based on the ISSP data. Eurostat figures show less variation and somewhat other pattern, however Easter countries still dominate the higher ranks (see Table A2 in the Annex).

Figure 4. Worked hours and part-time employment in Europe



Source. Part time work rates are drawn from the Eurostat database.

4.3. Country-level associations between work-life balance and time-flexibility

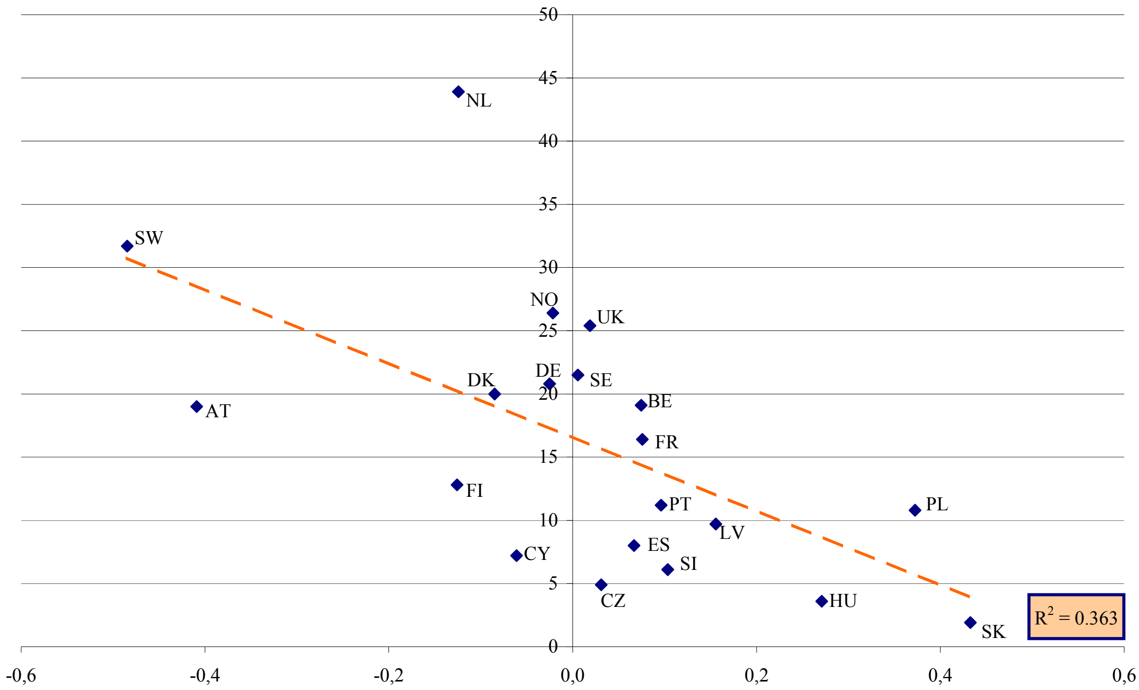
After looking separately at indicators of work-life balance and of time flexibility across Europe, a two-way analysis of association between them is discussed in this section. Country averages of WFC and FWC indices are presented in relation with part-time employment rates and average worked hours, both indicators being drawn from the Eurostat database for year 2002. Figures 5. and 6. show WFC-index, while the equivalent figures for FWC-index can be found in the Annex (Figures A5. and A6.).

Country-level work-family conflicts show a negative correlation with part-time employment rates (Pearson correlation coefficient: -0.60). Most of the countries where the share of workforce being in a part-time job is high can be found in the negative range of WFC: Switzerland, the Netherlands, Norway, Denmark, Austria, Germany. Others, mostly from Eastern Europe, with very low part-time employment rates scores high on WFC-index: Slovenia, Latvia, Hungary, Poland, Slovakia.

The number of worked hours shows a positive, but weaker correlation with WFC at country level compared to part-time participation rates (corr=0.35). All countries, where the mean of worked hours exceeds 42 are placed in the positive domain in respect with WFC-index. A series of Eastern European countries (Slovakia, Poland, Latvia, Slovenia) and the UK excels in this respect. On the other hand, one might observe that very different numbers of worked hours are associated with average or near-average values of WFC-index, implying the relatively weak correlation between the two variables.

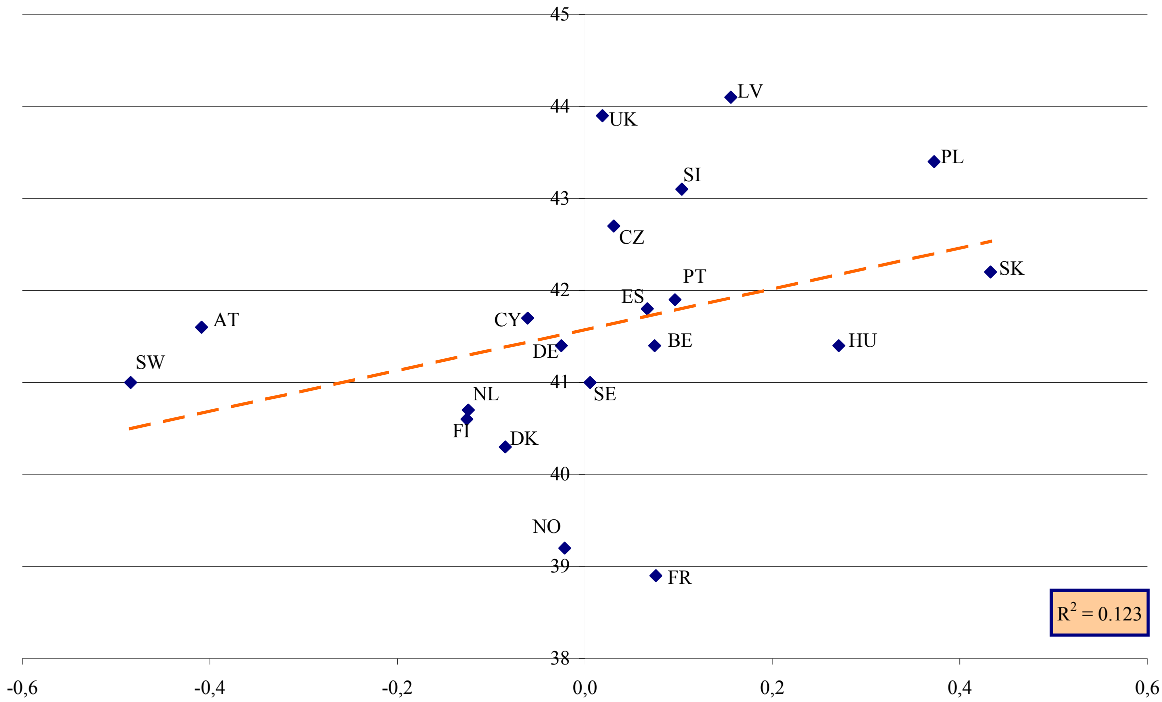
Magnitude and direction of the correlation between FWC-index and part-time employment rate and number of worked hours respectively are the same at country level as was observed for WFC (Figure A5. and A6.).

Figure 5. Country-level associations between WFC-index and part-time employment rate in Europe



Source. Data on part-time employment rate are drawn from the Eurostat database.
Note. Pearson correlation coefficient: -0.60.

Figure 6. Country-level associations between WFC-index and worked hours in Europe



Source. Data on worked hours are drawn from the Eurostat database.
Note. Pearson correlation coefficient: 0.35.

5. TIME-FLEXIBILITY AND THE WORK-LIFE BALANCE – MULTIVARIATE ANALYSIS

5.1. Model specification

Our aim is to assess the effect of time-flexible work arrangements on the conflicts that are related to the work-family interface. We have already looked at the correlation between reported work-life balance and working hours (and part-time rates respectively) at country level. In this part we carry out a micro-level analysis to count for the individual effect of time flexibility on WFC.

The main explanatory variable of these models is a six-category variable computed from the reported worked hours, defined and included in the models as dummies. We followed Scherer and Steiber (2007) when forming these categories that allows for some restricted comparative conclusions. The reference category is 35-39 hours worked weekly by the respondent.

Beside the main explanatory variable, a set of control variables was introduced in each of our models, belonging to four specific domains: individual characteristics (gender, age, education), work characteristics (supervisory role) and family characteristics (presence of partner, partner's worked hours, presence of children, settlement) and contextual variables (expenditure on family policy, part-time employment rate and country average of hours worked in part-time employment). An alternative specification was applied for our main explanatory variable, when worked hours of respondent and his/her partner were merged in a single variable, following Scherer and Steiber (2007) again (see models in Table A3. and A4.). The variable was set to combine worked hours of man and women, not respondent and partner. Singles were used as a reference category in this case. Separate regressions were run for men and women. We also focused on the interaction effect of worked hours and gender on work-life balance (see models in Table A5.).

In all cases two models were run. Only the explanatory variable and country dummies were introduced on the right side of the equation in the first model, while other controls were used in the second. Among other controls age, education, supervisory role, cohabiting status, the presence of children in the household and settlement were used. Work-life balance is affected not only by individual or household level factors, but by the institutional and policy context as well. We used three country-specific indicators related to our question in order to control for the contextual effects: expenditure on family policy as a percentage of GDP, part-time employment rate and average number of hours worked.

In line with our review of the related literature, we expect that higher numbers of worked hours at individual level are associated with higher levels of both WFC and FWC, but we also expect that the main explanatory variable has stronger effect on the former. As an implication, we expect that part-time jobs play a positive role in easing conflicts between work and family life. The same relationship is supposed to be found for the partner and for the joint specification of worked hours as well. We also expect that the effect of worked hours on work-life balance is more accentuated for women than men, but we expect a smaller gap in part-time jobs.

All multivariate statistical models, serving as a base for our results presented in this section are linear regression models with two-step Heckman selection method, as argued in Part 3. Albeit (as noted in Part 2) WFC and FWC might be determined by different factors, the same model was specified in both cases. Basic statistics for all variables included in analysis are in Table A6.

5.2. Results

All models explored by our analysis confirm the hypothesis described above. Models 1-4. in Table 1. show that higher than 40 hours spent in work positively affect work-family conflict for both men and women. A man working more than 45 hours a week experiences a WFC that is 0.5 standard deviation higher than that reported by a man working 35-39 hours only, holding all other variables constant. The same coefficient for women is 0.36. At the same time lower than 30 worked hours have a significant effect only for women. Being in a part-time job with less than 20 hours results in 0.4 standard deviation less WFC than working 35-39 hours a week. We found no significant differences in the experienced work-family conflict of respondents working 30-34 and 35-39 hours respectively. These results are fairly robust; there are no major differences in estimated coefficients between models without and with other controls. Our findings for all European countries are in line with those published in papers that used the same dataset (Scherer and Steiber 2007, Crompton and Lyonette 2006) in this respect.

We have seen that time spent at workplace is an important determinant of WFC. The variance of the explanatory variable together with country effects can explain a considerable part of the variance in the dependent variable (R-squares around 0.1 for the restricted models, Models 1-4 in Table 1). However, there are other factors affecting work-family conflict, especially in the case of men, without improving considerably the explanatory power of the models. Having children, especially small children, strongly increases the probability of experiencing WFC for men (Model 2 in Table 1). Another important factor is supervisory role for men: supervising people *ceteris paribus* increases WFC by 0.1 standard deviation among them, while age also matters increasing the level of perceived WFC among men. Somewhat surprisingly, education has only a limited effect. Influencing factors observed among women differ from that of men. Education plays an important role, while nor supervisory role neither having children does. Looking at the institutional and policy variables, increased family policy expenditure significantly reduces work-family conflict among both men and women.

Our assumptions on the role of worked-hours in determining family-work conflict received empirical support as well (Table 2.). While similar effects were found, both the magnitude and the significance level of estimated coefficients are smaller for FWC than for WFC. The most eye-catching result is that the models run for women have a much stronger explanatory power due to the higher number of estimated effects being statistically significant. Living in a partnership compared to being single, decreases the level of FWC for both genders. The same is true for having children in the household, but the sign of relationship is positive, while the magnitude of estimated coefficients are greater for women. The role of family policies is found to be strong again for both men and women. Looking for differing determinants, education has a strong effect for women, while no significant coefficient was estimated for men. Having a tertiary education results in lower level of FWC among women. Settlement seems to have an impact on FWC for men, but not for women.

Table 1. The role of time-flexibility in determining WFC, regression models with sample selection (selection equation not reported)

	Men		Women	
	Model 1	Model 2	Model 3	Model 4
Nr. of hours worked weekly by resp. (ref: 35-39)				
<20	-0,019	0,088	-0,411 ***	-0,413 ***
20-29	0,058	0,066	-0,214 ***	-0,221 ***
30-34	0,051	0,039	-0,057	-0,077
40-44	0,173 ***	0,179 ***	0,106 ***	0,086 ***
45+	0,505 ***	0,484 ***	0,398 ***	0,363 ***
Age		0,056 ***		0,030
Age2		-0,0007 ***		-0,0004
Education of resp. (ref: less than tertiary education)		0,076 *		1,134 ***
Supervise		0,102 ***		0,044
Couple		0,068		-0,076 *
Nr. of hours worked weekly by partner (ref: 35-39)				
<20		-0,129 ***		0,045
20-29		-0,032		0,199 **
30-34		-0,053		0,177
40-44		-0,064 **		0,039
45+		-0,025		0,019
Does not work		-0,067		0,075
Children by age (ref: no child)				
Small children		0,156 ***		0,080
Older children only		0,085 ***		0,047
Settlement (ref: big city)				
Town		0,001		-0,053
Village		-0,055 *		-0,019
Contextual variables				
Exp. on family policy/GDP (%)		-0,045 ***		-0,056 ***
Part-time employment rate		0,002 *		-0,002 ***
Nr. of hours worked in part-time employment		0,006		0,005 **
Country dummies (ref: Germany)	included	included	included	included
Constant	-0,205 ***	-1,418	-0,041	-0,342
N (all)	11086	9891	13995	13154
N (uncensored)	6687	5510	6546	5705
R-square of regression without selection	0,109	0,124	0,108	0,112
/atrho	-0,234	-0,235	-0,212	0,099
rho	-0,230	-0,231	-0,209	0,099

test	dep ***	dep***	dep***	indep

Note. Estimated coefficients are significant at *** 0.01, ** 0.05, * 0.1 level.

Table 2. The role of time-flexibility in determining FWC, regression models with sample selection (selection equation not reported)

	Men		Women	
	Model 1	Model 2	Model 3	Model 4
Nr. of hours worked weekly by resp. (ref: 35-39)				
<20	-0,029	-0,015	-0,170 ***	-0,213 ***
20-29	0,092	-0,004	-0,036	-0,095 ***
30-34	0,076	0,051	0,032	-0,038
40-44	0,057 **	0,055 *	0,041	0,037
45+	0,131 ***	0.114 ***	0,135 ***	0,119 ***
Age		0.025		0,064
Age2		-0,0003		-0,0008
Education of resp. (ref: less than tertiary education)		0,036		0,022 ***
Supervise		0,018		0,010
Couple		-0,091 **		-0,097 **
Nr. of hours worked weekly by partner (ref: 35-39)				
<20		-0,041		0,026
20-29		-0,020		0,097
30-34		-0,074		0,173 *
40-44		-0,051		0,051
45+		0,081		0,053
Does not work		-0,015		0,062
Children by age (ref: no child)				
Small children		0,204 ***		0,249 ***
Older children only		0,070 ***		0,145 ***
Settlement (ref: big city)				
Town		-0,094 ***		-0,006
Village		-0,076 ***		-0,036
Contextual variables				
Exp. on family policy/GDP (%)		-0,093 ***		-0,192 ***
Part-time employment rate		-0,001		-0,004 ***
Nr. of hours worked in part-time employment		0,001		-0,034 ***
Country dummies (ref: Germany)	included	included	included	included
Constant	-0,175 ***	-0,471	-0,227 ***	-0,249 ***
N (all)	11068	9891	14351	13154
N (uncensored)	6687	5510	6902	5705
R-square of regression without selection	0,053	0,062	0,093	0,110

/atrho	-0,151		0,039	-0,375
rho	-0,150	0,039	0,034	-0,334
lambda		0,030		
test	dep ***	indep	indep	dep***

Note. Estimated coefficients are significant at *** 0.01, ** 0.05, * 0.1 level.

Using the joint working hours of partners as an explanatory variable instead of separate indicators somewhat reduces the explanatory power of models (Table A3.). However, the estimated effects are strong and robust. Choosing singles as reference category, we might observe that the male partner working more than 40 hours a week increases significantly the experienced level of WFC: This effect is practically independent from the number of hours worked by the woman, however a slight decrease in the magnitude of estimated coefficients with women's worked hours can be observed. The effect is negative for all other categories where man works less than 40 hours. Turning to women, in all categories but that where both man and woman work more than 40 hours negative effects were estimated compared to singles. The strongest effect was found for those households, where the male partner works more than 30 hours, but the female partner has a part-time job (<30 hours). Low work involvement of both partners also reduces WFC for women. We should mention one major difference compared to models with alternatively specified explanatory variables when other controls are examined. Supervising people has a positive effect on WFC not only for men but for women as well this time.

We have seen earlier that the level of reported family-work conflict is more strongly influenced by other factors than work hours compared to WFC. The same is true when joint worked hours of partners are used as explanatory variable, however strong effects were estimated for it as well (Table A4.). Men regardless of household type report lower level of FWC than singles do, especially those where the work involvement of both partners is low. The picture is similar for women, but the greatest effects are found for those living in households where woman works part-time (<30 hours). One also might observe that the level of FWC reported by women in households where both partners work more than 40 hours is higher than for singles. As for the role of other controls, we can report very similar findings to earlier models with separate explanatory variables for partners.

We aim to analyse how time-flexibility and gender interact. In other words we are interested whether the observed gender gap vary at different length of time spent at the workplace or not. We expect that reduced worked hours are associated with smaller gender gap in work-family and family-work conflicts. Table A5 includes the results of models where the interaction term between worked hours and gender was introduced. These models were run for the whole sample and gender was used as a control variable. Our results suggest that *ceteris paribus* while reported WFC increases with worked hours and women experiences more intense conflicts, differences by gender are significantly and considerably smaller at lower numbers of hours spent working. When those working 35-39 hours a week are the reference category, we might observe that working less than 20 hours decreases the gender gap by 0.43 standard deviation (Model 2 in Table A5.). The estimated coefficient for those spending 20-29 hours at workplace is 0.22. Interestingly, the gap starts to diminish again when worked hours are higher than 40. Albeit at lower levels of significance, but negative coefficients are estimated for categories “40-44 hours” and “45+” hours. No similar effects were found for family-work conflict. Neither of coefficients for interaction terms were estimated as significantly different from zero.

5.3. Country differences

Analysing country differences in reported work-family and family-work conflicts are natural by-products of studies using cross-country comparative databases (e.g. Crompton and Lyonette 2006, Scherer and Steiber 2007, Steiber 2007). While our paper focuses on the role of time-flexibility in determining work-life balance, the use of ISSP database and the inclusion of all European countries in the analysis, gives the opportunity the examine such country differences as well. All models used in our analysis include dummy variables controlling for country effects. At the same time, a set of country-level contextual variables was also introduced, in order to catch the effect of national institutional and policy environment. Table A8 groups countries based on the magnitude, sign and significance level of regression coefficients estimated for these country dummies. Results in the table are reported for both WFC and FWC and are drawn from Models 2 (men) and 4 (women) of Tables 1 and 2, respectively. Two types of results are shown for each model: one with and the other without contextual variables. The former shows how living in a given country affects WFC or FWC holding individual and household level characteristics constant, while the latter how other than institutional and policy parameters differing across countries influence the level of reported conflicts. In all models, Germany was chosen as reference country.

Controlling for individual and household level characteristics, reported WFC among men is significantly higher in Hungary, Slovakia, France and Belgium than in Germany. When controlling for institutional and policy variables, Norway and Sweden join the previously mentioned four countries. This means that family policies and labour-market characteristics significantly reduce reported WFC in these two countries among men. At the same time statistically significant, but negative effects were estimated for Austria, Czech republic, Cyprus, Switzerland, Finland and Denmark. Introducing contextual variables, the coefficients estimated for Finland and Denmark loose its significance.

Living in Austria and Switzerland protect women in respect of work-family conflict compared to Germany, while women in all other countries excepting Finland experience higher level conflicts than German women do. Controlling for contextual variables, Czech Republic, Cyprus and Finland are placed next to Switzerland and Austria, suggesting that institutional and policy characteristics considered in our models do not favour achieving the work-life balance for women in these countries. The same holds for the United Kingdom and Norway, of which positive coefficients loose their significance when controlling for contextual variables.

Living in Slovakia significantly increases reported family-work conflict among both men and women compared to Germany. However, the groups of countries for which negative coefficients were estimated, differ considerably by gender. While Austria, Slovenia, Denmark and Switzerland are common, Hungary, The Netherlands, Norway, Sweden, Latvia, France and Finland join them when women are analysed. However, controlling for family policy and labour market characteristics leave only Switzerland and Slovenia (for women only) with significantly negative estimated effects, suggesting that the effect of these contextual variables is considerable.

6. SUMMARY AND POLICY CONCLUSIONS

This paper aimed to analyse the effects of working hours as a proxy of time-flexibility on the work-life balance, looking at and comparing 20 European countries. Beside comparative and descriptive statistics, multivariate regression models were run o asses the individual effect of time-flexibility on work-life balance. In general, our results are in line with the findings of the empirical literature using the same or similar empirical resources like our study.

- *Problems faced at workplace affect more strongly family life than the way around.* Europeans report more work-family than family work conflicts and this relationship between the two components of work-life balance holds for the majority of European countries. Respondents in Nordic and some Continental European countries experience lower, while in New member States and Southern countries higher than European average conflicts in both dimensions.

- *Women tell about oftener imbalance between their work and family duties than do men.* However, this evidence does not hold for all countries in analysis. Exceptions are the Netherlands, Germany, United Kingdom, Norway, Czech Republic, France, Hungary and Slovakia in the case of WFC, but only Norway and Germany in the case of FWC. The presence of children raises the level of both work-family and family-work conflict. While the patterns of distributions are similar to that seen in the case of gender, country values fit better the regression line and correlation coefficients are also higher.

- *More worked hours are associated with more intense work-family conflicts, while reduced work hours have effect only for women.* In general, number of worked hours strongly influence reported work-family conflicts in Europe, but also has an effect on family-work conflict. Higher than 40 hours spent in work positively affect work-family conflict for both men and women. At the same time lower than 30 worked hours have a significant effect only for women. While similar effects were found, both the magnitude and the significance level of estimated coefficients are smaller for FWC than for WFC.

- *Being in part-time work, helps women to deal with their work-life imbalance.* Our results suggest that *ceteris paribus* while reported WFC increases with worked hours and women experiences more intense conflicts, differences by gender are significantly and considerably smaller at lower numbers of hours spent at the workplace. No similar effects were found for family-work conflict.

Our results suggest that part-time jobs are able to reduce the work-life imbalance experienced by European women and therefore they might be seen as effective policy tools in reconciling work and family duties. Considering, that no similar effect was observed for men, moving in this direction would prefer the 'one-and-half earner' household model. Further, we can expect increased fertility and/or better 'child quality' as social consequences. On the other hand, reduced Therefore, promoting a reduced labour supply in terms of worked hours among women would preferably be an important but not the only element of a work-family reconciliation policy package, to give as much room as possible for the individual (household-level) decisions about work and care. One direction of future researches should aim to give a wider picture on what social effects can be attributed to reduced work hours and to flexible work arrangements in general.

References

Ahn, N. and P. Mira (2002): A note on the changing relationship between fertility and female employment rates in developed countries. *Journal of Population Economics*. Vol. 15(4): 667-682.

Bird, Ch. E. and A. M. Fremont (1991): Gender, Time Use and Health. *Journal of Health and Social Behavior* 32(June): 114-129.

Blamforth, K. and D. Gardner (2006): Conflict and Facilitation between Work and Family: Realizing the Outcomes for Organizations. *New Zealand Journal of Psychology*, Vol. 35(2): 69-76.

Blyton, P., B. Blundson, K. Reed, and A. Dastmalchian (eds.) (2006): *Work-Life Integration International Perspectives on the Balancing of Multiple Roles*. Palgrave Macmillan.

Byron, K. (2005): A meta-analytic review of work-family conflict and its antecedents. *Journal of Vocational Behavior*, vol 67(2): 169-198.

Cinamon, R. G. (2006): Anticipated Work—Family Conflict: Effects of Gender, Self-Efficacy, and Family Background. *The Career Development Quarterly*. Vol. 54(3): 202-215.

Cousins, Ch. R. and N. Tang (2004): Working time and work and family conflict in the Netherlands, Sweden and the UK. *Work, Employment and Society*, Vol. 18(3): 531-549.

Crompton, R. and C. Lyonette (2006): Work-life 'balance' in Europe. *Acta Sociologica*. Vol. 49, 379-393.

Del Boca, D., R. Aaberge, U. Colombino, J. Ermisch, M. Francesconi, S. Pasqua and S. Strom (2003): Labour market participation of women and fertility: the effect of social policies. Paper presented at the FRDB CHILD conference. Alghero, June 2003.

European Commission (2007): *Europe's demographic future: facts and figures on challenges and opportunities*. Brussels: European Commission, Directorate-General for Employment, Social Affairs and Equal Opportunities, Brussels.

Engelhardt, H., T. Kögel and A. Prskawetz (2004): Fertility and women's employment reconsidered: A macro-level time-series analysis for developed countries, 1960-2000. *Population Studies*, 58(1): 109-120.

Ferrie, J. E. (2001): Is job insecurity harmful to health?, *Journal of the Royal Society of Medicine*, vol. 94: 71-76.

Frone, M. R. and R. W. Rice: Work-Family Conflict: The Effect of Job and Family Involvement, *Journal of Occupational Behaviour*, Vol. 8(1): 45-53.

Frone, M. R., M. Russell and M. L. Cooper (1992a). Antecedents and outcomes of work-family conflict: Testing a model of the work-family interface. *Journal of Applied Psychology*, 77, 65-78.

Frone, M. R., M. Russell and M. L. Cooper (1992b): Prevalence of Work-Family conflict: Are work and family boundaries asymetrically permeable? *Journal of Organizational Behavior*, vol. 13(7)., 723-729.

Greenhaus, J. H. and N. J. Beutell (1985): Sources of Conflict between Work and Family Roles, *The Academy of Management Review*, Vol. 10(1): 76-88.

Greenhaus, J. H. and S. Parasurman (1986): A Work-Non-work Interactive Perspective of Stress and its Consequences. *Journal of Organizational Behavior Management*, Vol. 8., 37–60.

Gutek, B. A., Searle and L. Klepa (1991): Rational versus gender role expectations for work family conflict. *Journal of Applied Psychology,* Vol. 76., 566-568.

Haas, B. And C. Wallace (2004): Comparing the relationship between flexibility and control of work in eight European countries. *Cross-National Research Papers* 7 (3), May. European Research Centre.

Heckman, J. J. (1979): Sample selection as a specification error. *Econometrica*, vol. 47(1): 153-161.

Herold, J., & Waldron, I. (1985). Part time employment and women's health. *Journal of Occupational Medicine, 27*, 405-412.

Hosking, A. and M. Western (2008): The effects of non-standard employment on work-family conflict. *Journal of Sociology*, Vol. 44(1): 5-27.

Kahn, R . L., D. M. Wolfe, R. Quinn, J. D. Snoek and R. A. Rosenthal (1964): *Organizational stress*. New York: Wiley.

Kohn, M. and C. Schooler (1982): Job Conditions and Personality: A Longitudinal Assessment of their Reciprocal Effects. *American Journal of Sociology* 87(May): 1257-1286.

Nazio, T. and J. MacInnes (2006): Time stress, well-being and the double burden. In: G. Esping-Andersen (ed.): Family formation and family dilemmas in contemporary Europe. Bilbao: Fundación BBVA, 155-183.

Nunnaly, J. (1978): *Psychometric theory*. New York: McGraw-Hill.

Pichler, F. (2008): Determinants of work-life balance: shortcomings in the contemporary measurement of WLB in large-scale surveys. Paper presented at the CINEFOGO workshop ‘Work-life balance in Europe: possibilities and constraints’, Plovdiv, Bulgaria, 4-5 February 2008.

RAND Europe (2004): *Low fertility and population ageing. Causes, Consequences and policy options.*. Report prepared for the European Commission. RAND Corporation, Santa Monica, CA.

Rijswijk, K van, M. H. J. Bekker, Ch. G. Rutte and M. A. Croon (2004): (2004): The relationships among part-time work, work-family interference, and well-being. *Journal of Occupational Health Psychology*. Vol. 9(4): 286-295.

Scherer, S. and N. Steiber (2007): Work and family in conflict? The impact of work demands on family life. In: Gallie, D. (ed.): *Employment regimes and the quality of work*. Oxford: Oxford University Press, 137-178.

SSO (2005): Social Situation Observatory. Demography Monitor 2005. The Hague, Netherlands, December.

Steiber, N. (2007): Reported levels of time-based and strain-based conflict between work and family roles in Europe. A multilevel approach. Paper produced in the frame of the *EqualSoc* Project.

Tijdens, K. G. (2002): Gender Role and Labour Use Strategies: Women’s Part-Time Work in the European Union. *Feminist Economics*. Vol. 8(1): 77-99.

Voyandoff, P. (2004): The effects of work demands and resources on work-to-family conflict and facilitation. *Journal of Marriage and Family*, vol 66., 398-412.

Voyandoff, P. (2005): Toward a conceptualization of percieved work-family fit and balance: a demands and resources approach. *Journal of Marriage and Family*, vol 67., 822-836.

Annex

Table A1. Distribution of questionnaire variables on work-life balance across the pooled sample

		Several times a week	Several times a month	Once or twice a year	Never	Total
I have to come home from work too tired to do the chores which need to be done	N=	2816	4609	5044	2842	15311
	%	18,4	30,1	32,9	18,6	100,0
It has been difficult for me to fulfil my family responsibilities because of the amount of time I spent on my job	N=	1279	3233	4573	5811	14896
	%	8,6	21,7	30,7	39,0	100,0
I have arrived to work too tired to function well because of the household work I had done	N=	285	849	2893	11084	15110
	%	1,9	5,6	19,1	73,4	100,0
I have found to concentrate at work because of my family responsibilities	N=	252	879	3896	9974	15001
	%	1,7	5,9	26,0	66,5	100,0

Figure A1. Distribution of WFC-index across the pooled sample (%)

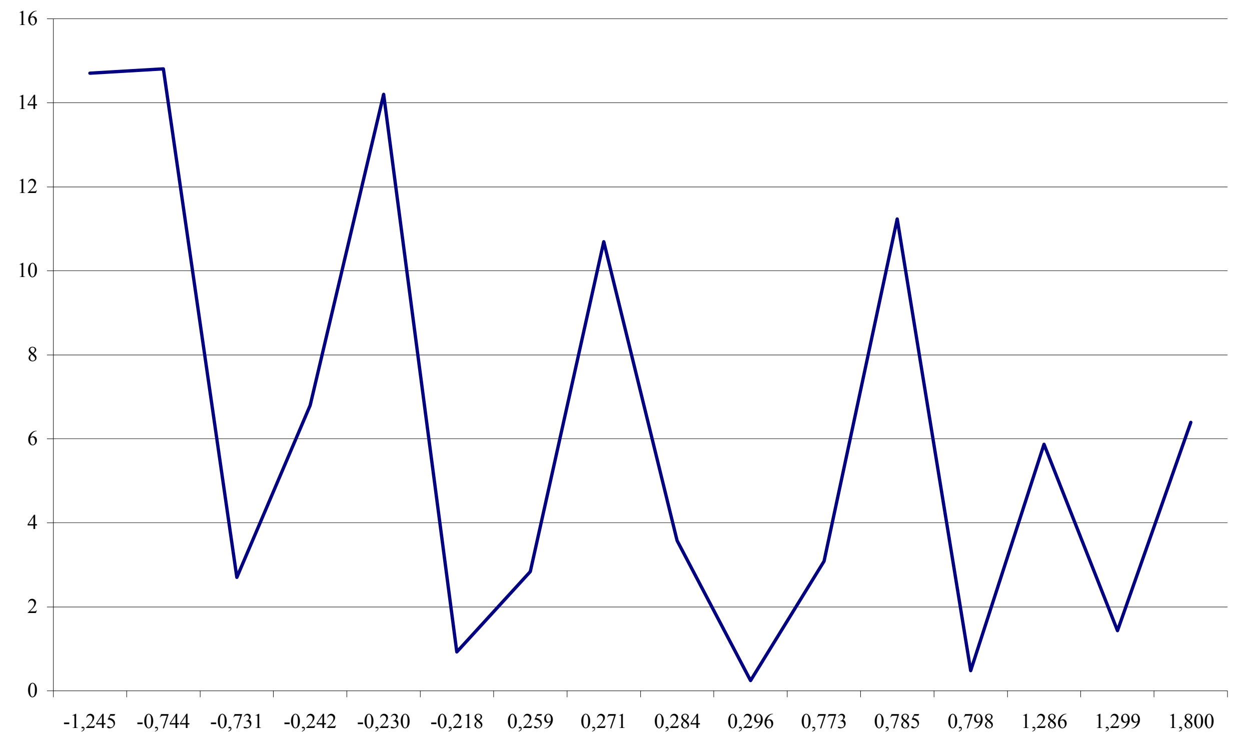


Figure A2. Distribution of FWC-index across the pooled sample (%)

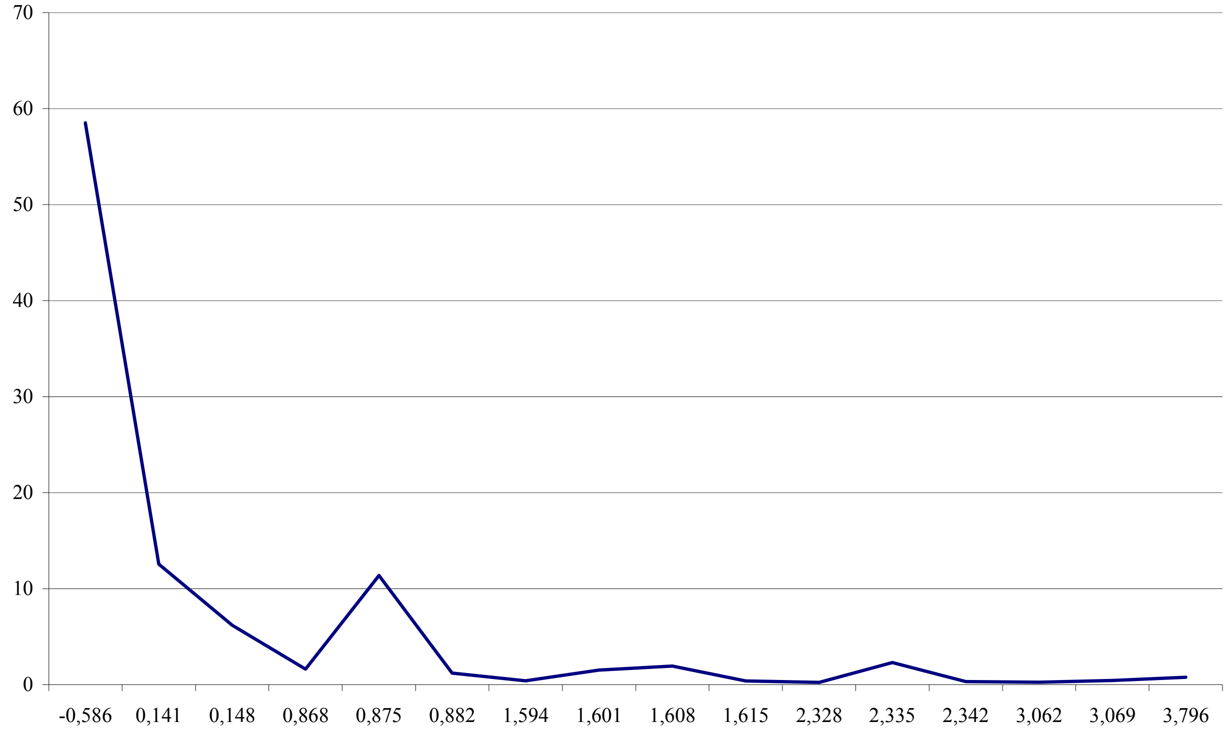
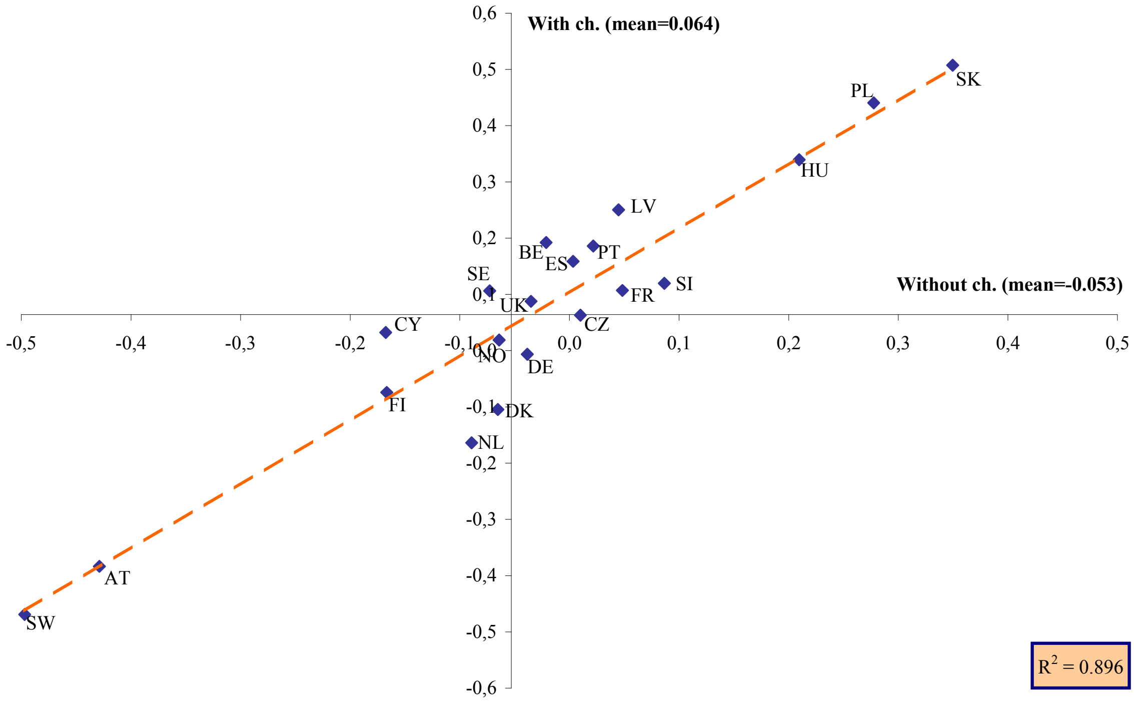
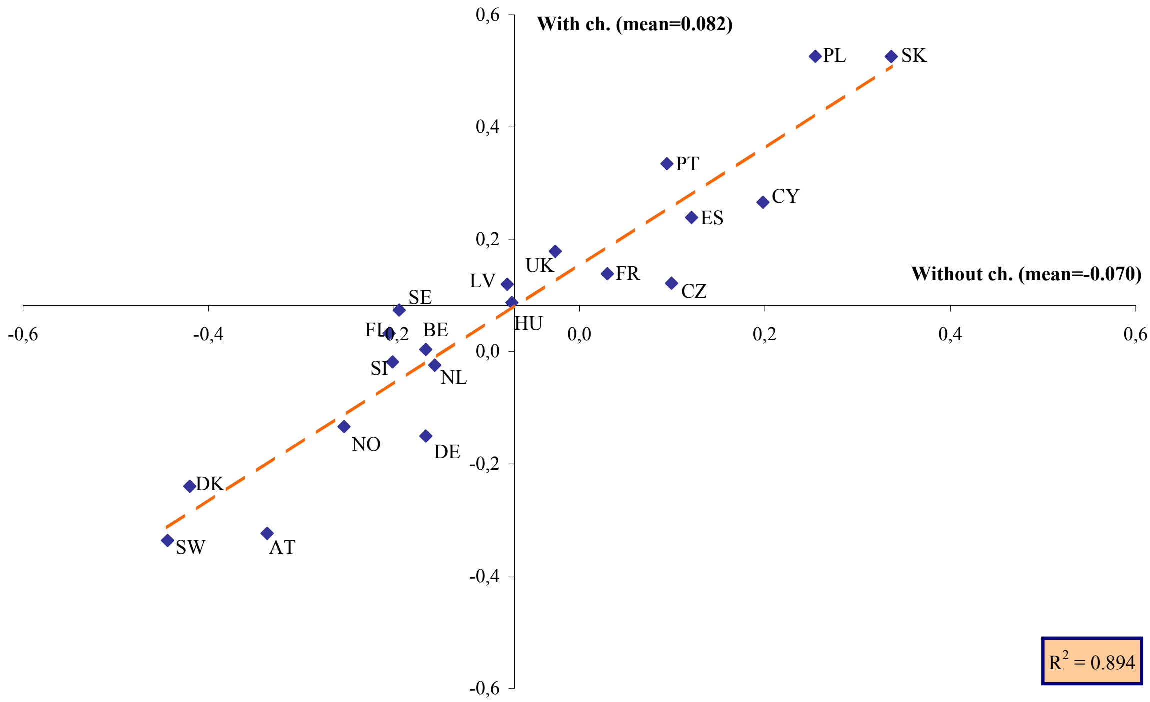


Figure A3. Values of country-level WFC by respondents with and without children



Note. Standardised values of computed scales using Cronbach's α test described in Part 3.

Figure A4. Values of country-level FWC by respondents with and without children



Note. Standardised values of computed scales using Cronbach's α test described in Part 3.

(i) Table A2. Aggregate figures on worked hours, part-time employment and family benefits expenditure in 20 European countries

	Hours worked per week of full-time employment (hours)	Hours worked per week of part-time employment (hours)	Persons employed part-time (%)	Men employed part-time (%)	Women employed part-time (%)	Family/children – ESSPROS (%)
Germany	41.4	17.6	20.8	5.8	39.5	3.1
United Kingdom	43.9	18.5	25.4	9.6	43.8	1.8
Austria	41.6	21.8	19.0	5.1	35.9	3.1
Hungary	41.4	23.9	3.6	2.3	5.1	2.7
The Netherlands	40.7	18.9	43.9	21.2	73.1	1.3
Norway	39.2	22.2	26.4	11.2	43.3	3.2
Sweden	41.0	22.0	21.5	11.1	33.1	3.1
Czech Republic	42.7	23.5	4.9	2.2	8.3	1.5
Slovenia	43.1	18.9	6.1	4.9	7.5	2.1
Poland	43.4	22.4	10.8	8.5	13.4	0.9
Spain	41.8	18.3	8.0	2.6	16.8	0.7
Latvia	44.1	24.7	9.7	7.6	12.0	1.4
Slovakia	42.2	23.5	1.9	1.1	2.7	1.5
France	38.9	23.1	16.4	5.2	29.8	2.5
Cyprus	41.7	21.1	7.2	4.0	11.3	2.0
Portugal	41.9	19.9	11.2	7.0	16.4	1.5
Denmark	40.3	18.5	20.0	11.1	30.3	3.9
Switzerland	41.0	19.0	31.7	10.9	57.0	1.3
Belgium	41.4	22.5	19.1	5.6	37.4	2.1
Finland	40.6	20.3	12.8	8.3	17.5	2.9

Source. Eurostat, ESSPROS.

Figure A5. Country-level associations between FWC-index and part-time employment rate in Europe

Source. Data on part-time employment rate are drawn for the Eurostat database.

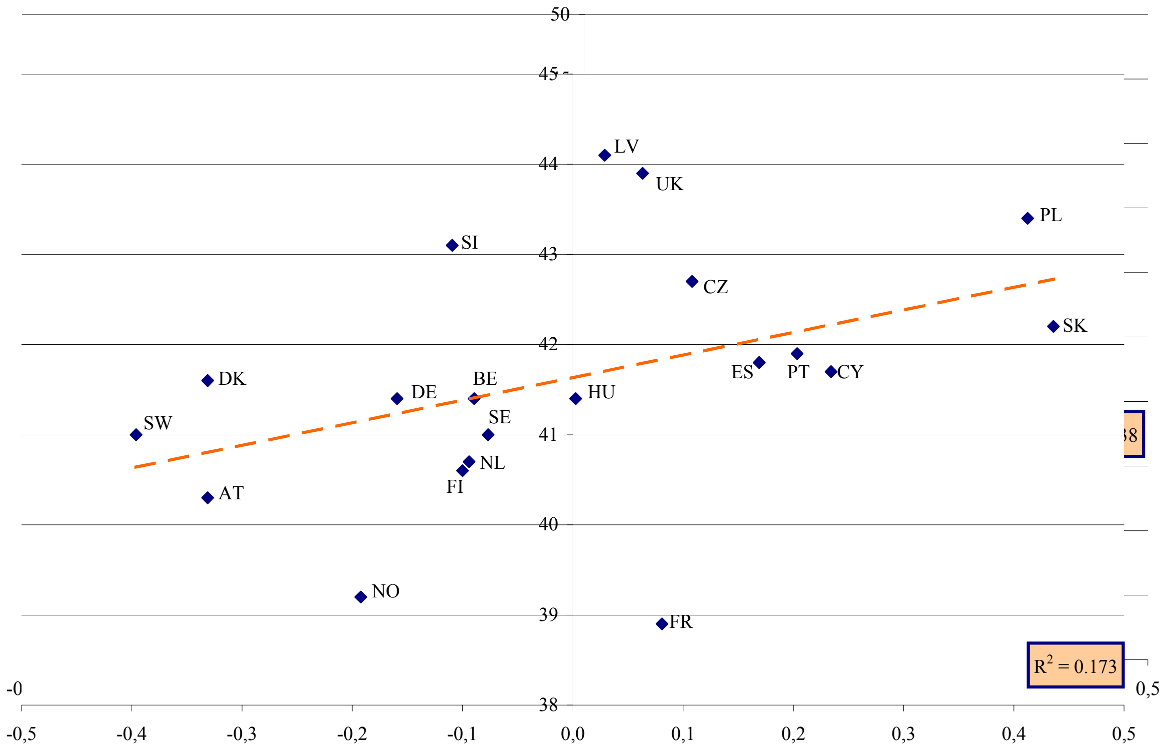


Figure A6. Country-level associations between FWC-index and worked hours in Europe

Source. Data on worked hours are drawn for the Eurostat database.

Table A3. The role of time-flexibility (measured as joint worked hours of partners) in determining WFC, regression models with sample selection (selection equation not reported)

	Men		Women	
	Model 1	Model 2	Model 3	Model 4
Hh. typology (hours worked by resp. and partner) (ref: single)				
M>40. W>40	0,314 ***	0,328 ***	0,215 ***	0,185 **
M>40. W30-40	0,294 ***	0,251 ***	-0,052	-0,084 *
M>40. W<30	0,267 ***	0,208 ***	-0,352 ***	-0,407 ***
M30-40. W30-40	-0,077	-0,110 ***	-0,060	-0,069 *
M30-40. W<30	-0,099 ***	-0,134 ***	-0,398 ***	-0,393 ***
Female breadwinner	-0,029	-0,061	0,156 ***	0,123 ***
Low involvement	-0,165 **	-0,177 *	-0,334 ***	-0,317 ***
Age		0,064 ***		0,028
Age2		-0,001 ***		-0,0003
Education of resp. (ref: less than tertiary education)		0,084 *		0,122 ***
Supervise		0129 ***		0,093 ***
Children by age (ref: no child)				
small children		0,173 ***		0,078
older children only		0,084 ***		0,038
Settlement (ref: big city)				
Town		0,003		-0,052
Village		-0,042		-0,024
Contextual variables				
Exp. on family policy/GDP (%)		-0,053 ***		-0,066 ***
Part-time employment rate		-0,0002		-0,003 ***
Nr. of hours worked in part-time employment		0,009		0,001
Country dummies	included	included	included	included
Constant	-0,012	-1,493	0,075 **	-0,312
N (all)	10953	10024	14351	13093
N (uncensored)	6572	5643	6902	5644
R-square of regression without selection	0,091	0,110	0,079	0,089
/atrho	-0,214	0,326	-0,212	-0,029
rho	-0,211	0,315	-0,209	-0,029
test	dep ***	dep *	dep ***	indep

Note. Estimated coefficients are significant at *** 0.01, ** 0.05, * 0.1 level.

Table A4. The role of time-flexibility (measured as joint worked hours of partners) in determining FWC, regression models with sample selection (selection equation not reported)

	Men		Women	
	Model 1	Model 2	Model 3	Model 4
Hh. typology (hours worked by resp. and partner) (ref: single)				
M>40. W>40	0,026	-0,002	0,211 ***	0,144 **
M>40. W30-40	-0,072 **	-0,113 ***	-0,012	-0,104 **
M>40. W<30	-0,015	-0,059	-0,050	-0,183 ***
M30-40. W30-40	-0,102 ***	-0,158 ***	0,024	-0,045
M30-40. W<30	-0,120 ***	-0,160 ***	-0,076 *	-0,196 ***
Female breadwinner	-0,079 *	-0,093 *	0,056	-0,002
Low involvement	-0,146 *	-0,273 ***	-0,088 *	-0,172 ***
Age		0,044 **		0,073 ***
Age2		-0,0005 **		-0,0009 ***
Education of resp. (ref: less than tertiary education)		0,053 **		0,037
Supervise		0,026		0,033
Children by age (ref: no child)				
small children		0,222 ***		0,214 ***
older children only		0,074 ***		0,136 ***
Settlement (ref: big city)				
Town		-0,092 ***		-0,014
Village		-0,072 ***		-0,038
Contextual variables				
Exp. on family policy/GDP (%)		-0,092 ***		-0,198 ***
Part-time employment rate		-0,002		-0,004 ***
Nr. of hours worked in part-time employment		0,004		-0,026 **
Country dummies	included	included	included	included
Constant	-0,020	-0,882 ***	-0,209 ***	-0,562
N (all)	10953	10024	13995	13093
N (uncensored)	6572	5643	6546	5644
R-square of regression without selection	0,051	0,059	0,087	0,106
/atrho	-0,178		0,025	0,411
rho	-0,141	0,206	0,021	0,371
lambda		0,160		
test	dep ***	indep	indep	indep

Note. Estimated coefficients are significant at *** 0.01. ** 0.05. * 0.1 level.

Table A5. The interaction between time-flexibility and gender in determining WLB, regression models with sample selection (selection equation not reported)

	WFC		FWC	
	Model 1	Model 2	Model 3	Model 4
Nr. of hours worked weekly by resp. (ref: 35-39)				
<20	-0,046	0,040	-0,060	-0,039
20-29	0,032	0,014	0,018	-0,015
30-34	0,041	0,009	0,085	0,042
40-44	0,165 ***	0,160 ***	0,019	0,024
45+	0,507 ***	0,470 ***	0,104 **	0,094 ***
Gender	0,265 ***	0,281 ***	0,166 ***	0,181 ***
Nr. of hours*gender - interaction terms (ref: 35-39)				
<20	-0,333 ***	-0,413 ***	-0,088	-0,140
20-29	-0,232 ***	-0,211 ***	-0,048	-0,053
30-34	-0,091	-0,074	-0,064	-0,073
40-44	-0,050 *	-0,056	0,044	0,040
45+	-0,106 **	-0,099	0,043	0,037
Age		0,081 ***		0,037 ***
Age2		-0,001 ***		-0,0005 ***
Education of resp. (ref: less than tertiary education)		0,148 ***		0,008
Supervise		0,084 ***		0,015
Couple		-0,011		-0,092 ***
Nr. of hours worked weekly by partner (ref: 35-39)				
<20		-0,063		-0,005
20-29		0,040		0,027
30-34		0,038		0,012
40-44		-0,003		0,016
45+		-0,011		0,056 *
Does not work		-0,009		-0,004
Children by age (ref: no child)				
small children		0,068 *		0,252 ***
older children only		0,051 ***		0,113 ***
Settlement (ref: big city)				
Town		-0,030		-0,051 **
Village		-0,044		-0,059 ***
Contextual variables				
Exp. on family policy/GDP (%)		-0,039 ***		-0,136 ***
Part-time employment rate		-0,001		-0,003 **
Nr. of hours worked in part-time employment		0,006		-0,012 *
Country dummies	included	included	included	included
Constant	-0,245 **	-2,008 **	-0,230 **	0,399

N (all)	25422		23048		25422		23048	
N (uncensored)	13589		11215		13589		11215	
R-square of regression without selection	0,107		0,114		0,076		0,086	
/atrho	-0,189		0,447					
rho	-0,187		0,420		-0,103		-0,164	
lambda					-0,085		-0,135	
test	dep	***	dep	**	dep	***	dep	*

Note. Estimated coefficients are significant at *** 0.01. ** 0.05. * 0.1 level.

Table A6. Basic statistics for all variables in analysis

	N=	Mean	St. dev.	Min	Max
Standardized index of WFC	15993	-8.93e-09	0.8789582	-1.245081	1.800256
Standardized index of FWC	15993	-9.65e-10	0.8773671	-0.586172	3.795996
Gender (0 - male, 1 - female)	28522	0.5601641	0.4963758	0	1
Number of hours worked: <20	16742	0.059073	0.2357683	0	1
Number of hours worked: 20-29	16742	0.0821288	0.274569	0	1
Number of hours worked: 30-34	16742	0.05752	0.2328405	0	1
Number of hours worked: 35-39	16742	0.2141919	0.4102728	0	1
Number of hours worked: 40-44	16742	0.335623	0.4722219	0	1
Number of hours worked: 45+	16742	0.2514634	0.4338673	0	1
Household type by number of hours worked by partners: M>40, W>40	20789	0.032421	0.1771197	0	1
Household type by number of hours worked by partners: M>40, W30-40	20789	0.0752802	0.2638493	0	1
Household type by number of hours worked by partners: M>40, W<30	20789	0.082255	0.2747595	0	1
Household type by number of hours worked by partners: M30-40, W30-40	20789	0.1349752	0.3417053	0	1
Household type by number of hours worked by partners: M30-40, W<30	20789	0.0791765	0.2700205	0	1
Household type by number of hours worked by partners: female breadwinner	20789	0.0981288	0.2974959	0	1
Household type by number of hours worked by partners: low involvement	20789	0.0200587	0.1402044	0	1
Number of hours worked by partner: <20	27349	0.0295806	0.1694304	0	1
Number of hours worked by partner: 20-29	27347	0.0189783	0.1364508	0	1
Number of hours worked by partner: 30-34	27309	0.0883591	0.2838217	0	1
Number of hours worked by partner: 35-39	27335	0.1382111	0.3451277	0	1
Number of hours worked by partner: 40-44	27327	0.1065613	0.3085603	0	1
Number of hours worked by partner: 45+	27247	0.2315025	0.4218005	0	1
Age	28459	46.01855	16.83582	15	80
Age2	28459	2401.142	1636.802	225	6400
Education level: (0 - below tertiary, 1 – tertiary)	28156	0.2621821	0.439829	0	1
Supervisory function (0 - does not supervise, 1 - supervise)	22053	0.292976	0.4551378	0	1
Couple (0 - single, 1 - couple)	28310	0.6492052	0.4772272	0	1
Children by age: no children	28123	0.6404722	0.4798706	0	1
Children by age: small children (<5,6)	28123	0.135014	0.3417446	0	1
Children by age: other children	28123	0.2245137	0.4172691	0	1
Settlement: big city	24807	0.4276615	0.4947494	0	1
Settlement: town	24807	0.2425928	0.4286595	0	1
Settlement: village	24807	0.3297456	0.4701302	0	1

Family benefit expenditure/GDP	28525	2.117381	0.8861262	0.7	3.9
Part-time employment rate - men	28525	7.179639	4.313072	1.1	21.2
Part-time employment rate - women	28525	28.20987	17.33185	2.7	73.1
Average number of hours worked in part-time employment	28525	20.78551	2.149143	17.6	24.7

(ii) Table A7. Sample composition by country

	Unweighted N= (total)	**Unweighted N= (working respondents)**
Germany	1367	690
United Kingdom	2947	1602
Austria	2047	1066
Hungary	1023	429
The Netherlands	1249	793
Norway	1475	913
Sweden	1080	733
Czech Republic	1289	819
Slovenia	1093	540
Poland	1252	544
Spain	2471	1221
Latvia	1000	632
Slovakia	1133	631
France	1903	1192
Cyprus	1004	698
Portugal	1092	568
Denmark	1379	846
Switzerland	1008	644
Belgium	1360	754
Finland	1353	734
Total	28525	16049

Table A8. WFC and FWC-related country differences, estimated regression coefficients of country dummies - models with sample selection

	WFC				FWC			
	Men		Women		Men		Women	
	Without	With	Without	With	Without	With	Without	With
	contextual variables		contextual variables		contextual variables		contextual variables	
Positive, significant	hu, sk, fr, be	hu, no, se, sk, fr, be	uk, hu, nl, no, se, si, es, lv, sk, fr, cy, pt, dk, be	hu, se, sk, fr, pt, be	sk	uk, se, sk, fr, cy	sk	hu, no, se, cz, sk, fr, cy, be
Negative, significant	at, cz, cy, sw, fi, dk	at, cz, cy, sw	at, sw	at, cz, cy, sw, fi	at, si, dk, sw	sw	at, hu, nl, no, se, si, lv, fr, dk, sw, fi	si, sw
Not significant	uk, no, se, si, nl, es, lv	uk, si, pt, fi	fi	uk, no, si	uk, hu, nl, no, se, cz, es, lv, fr, cy, be, fi	at, hu, no, cz, si, pt, be, fi	uk, es, cy, pt, be	uk, at, pt, fi
Dropped due to coll.	pl, pt	nl, es, lv, pl, dk	cz, pl	nl, es, lv, pl, dk	pl, pt	nl, es, lv, pl, dk	cz, pl	nl, es, lv, pl, dk

Note. Results with contextual variables are estimated from Models 2 and 4 of Tables 1 and 2, respectively. Results without contextual variables are based on the same models excluding country-level variables (family policy expenditures/GDP, part-ime employment rate and average number of worked hours in part-ime jobs). Countries for which significant regression coefficients were estimated are intorduced in the given cells of the table in a rank based on the magniude of estimated coefficients.