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Work-to-family and Family-to-work Spillover: The Implications of Childcare Policy and
Maximum Work-hour Legislation

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ABSTRACT

This paper addresses the relationship between individual-level work-to-family and family-to-work spillover and two country-level policy measures: childcare policy and maximum work hour legislation. Coupling Gornick and Meyers' (2003) policy measures with individual-level data ($n = 7895$) from the 2002 International Social Survey Programme (ISSP), the authors analyze whether men and women in countries with stronger childcare policies and maximum work-hour legislation exhibit work-to-family and family-to-work spillover. The authors find that neither childcare policy nor maximum work-hour legislation is significantly associated with work-to-family spillover. Stronger childcare policy is associated with lower family-to-work spillover for women, especially for women with young children. Maximum-hour legislation is associated with greater family-to-work spillover for women, with a significantly larger effect for mothers of young children.

Keywords: cross-national, negative work-family spillover, welfare policy

Work-family policies are instituted for a variety of reasons including to reduce gender inequality by encouraging mothers' employment (Esping-Anderson 2002) and to increase women's power (Siim 1993). Indeed, women's labor force participation, especially that of mothers, has increased over the past few decades (Borchorst 1994) in part due to more developed childcare policies (access to early childhood education, publically funded childcare, etc.) that have reduced competing home demands (Leira 1993; Orloff 1993; Sainsbury 1994). At the same time, fathers have increased their childcare responsibilities (Sayer, Bianchi and Robinson 2004) and do more childcare in countries with high levels of female employment (Hook 2006). As a result, family-policy support has become reconceptualized as a social right of employed parents to help alleviate work-family conflict (Leira 2002; Morgan and Zippel 2003). At the organizational level, family-friendly policy is associated with better work-to-family spillover outcomes for mothers (Pedersen, Minnotte, Kiger and Mannon 2009). At the state level, family-responsive welfare state policies encourage women's employment, but it is less clear whether these policies ameliorate the spillover of negative mood and stress between family and work. Family-to-work and work-to-family spillover are the extent to which experiences in the work or family domain affect one's role performance and experiences in the other domain (Bolger, DeLongis, Kessler, and Wethington 1989), and have been shown to be separate concepts that should be measured separately (Ferrarini 2006; Frone 2003; Grzywacz, Almeida and McDonald 2002; Hill 2005; Jacobs and Gerson 2004). Although there is a body of literature on welfare state policy at the country-level and on spillover at an individual level, the cross-level associations between these two domains have not been explicitly tested. This study is one step in this direction.

Previous comparative work has focused on the role of childcare policies in reducing family demands that can interfere with work (Gornick, Meyers and Ross 1997; Leira 1993; Orloff 1993; Sainsbury 1994). However, policies that limit the interference of work demands on the family are equally important and largely understudied. For example, inasmuch as family-responsive policies make it easier to balance work and family demands simultaneously, they should reduce negative work-to-family spillover as well as family-to-work spillover. Likewise, legislation that mandates fewer weekly work hours may reduce spillover between work and family domains as workers have more free time to spend at home. At the individual-level, work hours are positively associated with spillover (Dilworth 2004; Dilworth and Kingsbury 2005). At the country-level, longer legislated weekly work hours may be associated with greater work-to-family and family-to-work spillover, because workers are required to work for longer periods of time and thus have less time, and less flexibility, for managing family demands. That childcare policies and maximum work-hour legislation are instituted to facilitate work-family balance demonstrates the need to understand these cross-level relationships.

This study tests for significant relationships between work-to-family and family-to-work spillover and two country-level policy measures: childcare policy and maximum work-hour legislation. Specifically, we addressed the following questions: at the individual level, who is most likely to experience work-to-family and family-to-work spillover? Second, after accounting for individual effects, are childcare policies and maximum work-hour legislation at the country level effective in reducing individuals' reported work-to-family and family-to-work spillover? To address these questions, we applied a unique multi-level data set, drawing individual-level data from the 2002 International Social Survey Programme (ISSP) for ten

nations and pairing it with Gornick and Meyers' (2003) country-level childcare policy index and maximum work-hour legislation measure.

To assess effects at both the micro and macro levels, we used hierarchical linear modeling. Initially, we tested for significant individual-level effects in work-to-family and family-to-work spillover for the entire sample. Then we tested for significant relationships between spillover and two policy variables at the country level: childcare policy index and maximum work-hour legislation. We hypothesized that childcare policy would be most effective in reducing family-to-work spillover and that maximum work-hour legislation would be most effective in reducing work-to-family spillover, but we tested for significant relationships between work-to-family and family-to-work spillover for both of these measures. Finally, we tested for significant country-level interaction effects for a population we expect to be especially sensitive to both types of spillover: mothers with a child under the age of six.

DEFINITIONS OF WORK--FAMILY SPILLOVER

Work and family life are often characterized by porous boundaries and spillover is the extent to which experiences in one domain spill into the other domain (Bolger et al. 1989). Although it is possible to have positive spillover between home and work domains inasmuch as one's family roles are associated with more positive attitudes, emotions, and involvement in work (Frone 2003; Grzywacz 2000; Hill 2005), we concentrated here on negative spillover. Spillover is measured in multiple ways, including: the extent to which home demands make one too tired to fulfill work demands and vice versa (Crompton and Lyonette 2006); the effect of work demands on marital relationships, parent-child relationships, leisure time, and household chores (Small and Riley 1990); the number of work days missed for family reasons (Jacobs and Gerson 2004); and the extent to which stress and dissatisfaction from one domain spill into the other (Jacobs and Gerson 2001). Many spillover studies have used an overall measure that

includes spillover originating from both domains (Crompton and Lyonette 2006; Stevens, Kiger and Riley 2006). However, scholars have made a strong argument that spillover from family to work and spillover from work to family are interrelated but distinct concepts and should be measured separately (Ferrarini 2006; Frone 2003; Grzywacz et al. 2002; Hill 2005; Jacobs and Gerson 2004). In this study, we use separate measures of work-to-family and family-to-work spillover.

INDIVIDUAL-LEVEL SOURCES OF WORK-FAMILY SPILLOVER

Work Characteristics

Researchers have identified several workplace characteristics that affect work-to-family and family-to-work spillover. Work hours are correlated with greater negative spillover for both men and women, as longer work hours translate to greater work demands and less flexibility for handling family responsibilities (Bowen 1998; Dilworth 2004; Dilworth and Kingsbury 2005). Greater job autonomy reduces negative spillover for both men and women (Maume and Houston 2001). Previous research has also found that being a supervisor was positively associated with spillover between work and family (Maume and Houston 2001; Schieman, Milkie and Glavin 2009).

Employment sector has also been found to affect work-to-family and family-to-work spillover. Government positions usually involve structured, full-time weekday hours while industry jobs more often have longer work hours, including evening and weekend hours (Golden 2001). Although self-employed workers have high autonomy, they are also likely to work long hours (Shields 1999) and their jobs have fuzzy boundaries between work and home (Presser 2000), two factors which are likely to increase negative work-to-family and family-to-work spillover.

Job stress and job dissatisfaction are types of strain that can transfer to the home role and have been associated with increased negative work-to-family and family-to-work spillover (Greenhaus and Buetell 1985). Previous research has shown job dissatisfaction (Eagle, Icenogle, Maes and Miles 1998) and stress (Williams and Alliger 1994) to be positively associated with spillover between work and family.

Family Characteristics

Women's disproportionate responsibility for childcare and other housework tasks has been well-documented in multiple country contexts (Baxter 1997; Bianchi, Milkie, Sayer and Robinson 2000; Bird 1999), including in countries with otherwise fairly egalitarian gender relations such as Sweden (Nordenmark and Nyman 2003) and the Netherlands (Van der Lippe 1994). Even after accounting for differences in work hours, women consistently performed more housework than men (see Lachance-Grzela and Bouchard 2010 for review), which adds to role demands and increases work and family stress (Coltrane 2000). Previous research has found no significant association between housework and work-family conflict (Hill 2005). Still, given its theoretical importance, we included housework hours in our models. As with job stress and dissatisfaction, home stress and home dissatisfaction are types of strain that can transfer from the family to the work role (Greenhaus and Buetell 1985), increasing spillover between family and work (Williams and Alliger 1994), and are thus expected to be associated with greater work-to-family and family-to-work spillover.

Children increase time demands at home, both in terms of time spent with them and increased housework. The presence of children has been shown to increase negative spillover from family to work (Delgado and Canabal 2006; Grzywacz et al. 2002) and conflict between work and family roles more generally for both fathers and mothers (Barnett and Marshall 1992). However, the effect of children on spillover between work and family varies significantly by the

type of employment an individual performs and the age of the child in the home (Hundley 2001). In this respect, the literature on the effect of children in the home and spillover is mixed (see Dilworth 2004 for discussion). We explore the relationship between the presence of children in the home and work-to-family and family-to-work spillover for a cross-national sample.

Other factors

Holding a less traditional gender role ideology has been associated with greater equality in the division of housework among partners (Coltrane 2000), which may be associated with less family-to-work spillover. On the other hand, less traditional women may have higher standards for a fair division of housework and be less satisfied with their partners' participation (Himsel and Goldberg 2003), thus reporting more spillover. Net of family demands, such as number of children, divorced and single individuals are expected to report more spillover than their married or cohabiting counterparts, as they have less assistance managing home responsibilities and less social support. Finally, net of these other factors, age is expected to be negatively correlated with spillover, as most workers in later middle age are past the stressful period of establishing their families and their careers.

Individuals with more education and higher incomes are likely to have more prestigious jobs with greater demands, net of the measures included here, such as supervisor status and work hours. Previous research in the United States has found that more-educated male workers report more spillover than their less-educated counterparts (Maume and Houston 2001). On the other hand, education and earnings may reduce spillover by providing the respondent with more resources to relieve sources of work-family conflicts. For example, even after controlling for work and home characteristics, income was shown to be associated with decreased work-to-family spillover (Roehling, Jarvis and Swope 2005). These relationships are further investigated.

WELFARE STATE POLICY AND SPILLOVER

In response to parents' work and family demands, many countries have adopted childcare policies aimed at reconciling these competing responsibilities. Gornick and Meyers (2003) identified four core childcare policy areas that are instituted to provide work-life balance especially for parents. These include: family leave, work hour scheduling, school scheduling, and early childhood education and care (ECEC). We expect that parents in countries with more expansive childcare policies will report less family-to-work spillover than parents in countries with limited childcare policies. For example, parents of young children in countries with expansive family leave policies should have more resources and flexibility to make their childcare decisions, which should reduce family-to-work spillover. By contrast, parents of young children in countries with limited family leave may either return to work 12 weeks after childbirth, reduce their work hours to care for their children, or quit their jobs (Gornick and Meyers 2004). Family leave policies also include paid sick-child leave which is especially important for parents as caring for sick children has been shown to be an important predictor of parents' spillover (Dilworth 2004). For those who do remain in the labor force, balancing work and family demands is an individual responsibility, which may lead to greater family-to-work and work-to-family spillover.

More expansive school schedules that have children enter school at younger ages and attend school for more days and for longer hours should be also negatively correlated with family-to-work spillover, as the school system frees up parents' time for employment (Gornick and Heron 2006). Similarly, work scheduling, or shorter average work hours and providing more vacation time, should also reduce family-to-work spillover as parents had greater flexibility in managing competing work and family demands (Gornick and Heron 2006). Legislating

shorter work schedules allowed fathers to reduce their labor force participation to levels more equal to mothers', thus permitting a more equal division of unpaid work (Fabnani and Letablier 2004), which should reduce family-to-work spillover. In this respect, limiting weekly work hours should provide individuals with more time to accommodate family demands. The presence of ECEC that provides longer hours of care for children of younger ages should be associated with less family-to-work spillover as the burden of securing quality childcare is alleviated. The presence of more expansive ECEC may be especially beneficial to mothers who were disproportionately responsible for childcare (Coltrane 2000) as the state assumes partial responsibility for the childcare. By contrast, parents in countries with limited ECEC are more likely to have to find their own childcare that may be both expensive and unreliable, two factors which are likely to increase family-to-work spillover. From these policies, we expect respondents in countries with more generous childcare policies to report less family-to-work spillover.

Childcare policies are aimed at reducing family demands and are thus expected to primarily reduce family-to-work spillover. By the same token, maximum work-hour legislation, or legislation aimed at limiting work demands, should affect work-to-family spillover. The role of maximum work-hour legislation has been largely neglected in comparative research, especially on spillover. However, the expected relationship is clear: respondents living in countries that legislate higher maximum employment hours work longer hours on average and thus should report more work-to-family spillover. In addition, parents with young children should report the most work-to-family spillover as they experience the highest total work and family demands. Given women's greater responsibility for childcare, this effect should be greater for mothers than fathers. Indeed, greater job flexibility at the individual level was

associated with less family-to-work conflict (Keene and Reynolds 2005) and positively associated with mothers' reports of work-life balance (Fagan and Press 2008), a relationship which may extend to maximum work-hour legislation as well. Maximum work-hour legislation may also benefit fathers, whose work hours tend to be higher than those of mothers. Specifically, the benefits of legislating shorter work days may be particularly important to fathers, who are more likely than other men and mothers to work full-time and longer hours. This may have an indirect effect of also reducing mothers' spillover as fathers have more time to meet family demands. In this respect, maximum work-hour legislation may have distinct gender effects given the variation in work patterns by gender and parental status. Ultimately, limiting paid work hours through maximum work-hour legislation provides parents with more time for childcare and should reduce the spillover of work into family life.

While more expansive childcare and maximum work-hour legislation policies are assumed to be beneficial, it is important to note that these policies can have broader negative impacts and important limitations. For example, Berger and Waldfogel (2004) found that more expansive family leave erodes women's market skills and ultimately contributes to gender inequality in labor force participation. Similarly, Morgan and Zippel (2003) found that longer paid childcare leaves reinforce traditional divisions of care in the home and have negative consequences on women's long-term earnings and employment patterns. Limiting work hours may also be coupled with the new practice of "annualized hours" which allows employers to set nonstandard work schedules based on production needs that actually increase parents' work and family conflict (Fagnani and Letablier 2004). Also, workers who are salaried or work on commission may work longer hours than are legislated and enforcement of this policy is likely

challenging. In this respect, these policies are not necessarily family-friendly as they can lead to greater instability in work and family.

DATA

This study used the International Social Survey Programme (ISSP), an annual cross-national collaboration of survey organizations in selected developed countries. The 2002 ISSP focused on family and changing gender roles, and included questions on work-to-family and family-to-work spillover. The countries included in the 2002 ISSP were matched to those analyzed in Gornick and Meyers' (2003) study of childcare and work hour policies. The ten countries present in both data sets were included in this study: Belgium, Denmark, Germany, Finland, France, Great Britain, the Netherlands, Norway, Sweden, and the United States. These countries represent fairly broad variation in childcare policy and maximum-hour legislation. Respondents were included if they are at least 18 years old, currently working and reported a work-to-family and family-to-work spillover score. For the entire ISSP sample, 41% of the respondents failed to report work-to-family and family-to-work spillover. Among these respondents, 97.5% reported "doesn't apply - no job" or "not applicable" and thus only 2.5% is missing on this measure. These individuals were largely housewives and househusbands who were sampled to capture family data but were not employed in the labor market. We deleted all of the cases where the respondent did not report a spillover score. Respondents missing on other study variables were closely analyzed and for some, the series mean was imputed (3% of total sample). For measures where respondents answered "don't know" (ex: housework hours), we deleted these cases (0.1%). Thus, the effective sample size for all models is 7,895 respondents who had valid data for all of the study measures.

Measures

Negative Work-to-family and Family-to-work Spillover

This study used separate measures for work-to-family and family-to-work spillover. Work-to-family spillover was measured as the mean of responses to the following statements: (1) I have come home from work too tired to do the chores which need to be done; (2) It has been difficult for me to fulfill my family responsibilities because of the amount of time I spent on my job ($\alpha=0.69$). Family-to-work spillover was measured as the mean of responses to the following questions: (1) I have arrived at work too tired to function well because of the household work I had done; and (2) I have found it difficult to concentrate at work because of my family responsibilities ($\alpha=0.66$). Responses measured how often the respondent experienced these situations in the past three months (never, once or twice, several times a month, or several times a week) and higher scores represent greater frequency of negative spillover. Respondents missing data on any of the spillover measures were excluded from the sample.

Policy Environments: Childcare Policy and Maximum Work-Hour Legislation

The childcare policy measure was from Gornick and Meyers' (2003) index of policies that affect families with children of all ages. The index included policies in four categories: early childhood education and care, school scheduling, family leave, and working time. Early childhood education and care included measures of enrollment in public childcare for children aged five and under, and the cost to parents of this care. School scheduling included measures of the starting age, hours per day, days per year, and after-school care in the public schools. Family leave included measures of length of parental leave for mothers and fathers, incentives for parental leave, expenditures on parental leave, and paid sick leave, including sick leave used to care for a child. Working time included the typical weekly work hours and typical vacation time. To calculate this scale, Gornick and Meyers (2003) converted the qualitative scores to

quantitative values, rescaled the indicators from 0 to 1, and applied weighted equations to create a childcare policy index values.ⁱ

The maximum work-hour legislation measure was the number of work hours set by law as the maximum beyond which employers cannot compel workers to work. This is usually higher than the number of hours legally or by custom considered a "full-time" work week; for example, Gornick and Meyers (2003) report that in France, the standard for full-time work is 35 hours, whereas the maximum hours workers can work, including over-time, is 48 hours. The United States does not have a legal limit on over-time hours, as many workers are exempt from overtime laws; as such, the U.S. was classified as unlimited in its weekly work hours (Gornick and Meyers 2003), and coded at 70.

We expected the two policy measures to be related, in part because they each reflected the extent to which a given country's overall approach to work is family-responsive, and in part because the childcare policy index included measures of typical work time. Indeed, the two measures are highly correlated ($r = -0.75$; $p < 0.01$) and thus will be analyzed separately.

[Table 1 here]

Work Characteristics

Respondents reported how many hours they work in a normal week; those reporting zero work hours were excluded from the sample. Supervisor status was measured with the question, "In your main job, do you supervise anyone or are you directly responsible for the work of other people?" This measure was dichotomously coded (1=supervisor, 0=not supervisor). Job stress was measured with the item, "My job is rarely stressful," using a five-point scale from strongly agree to strongly disagree, with higher values representing greater job stress. Respondents

reported their dissatisfaction with their main job on a seven-point scale from completely satisfied to completely dissatisfied, with higher values representing greater dissatisfaction.

Family Characteristics

Respondents reported their average number of housework hours per week, excluding childcare hours. Respondents reported the number of children in the household under the age of 6 years old and aged 6 to 17 years old. These measures were dichotomously coded into two variables: child under 6, and child 6 to 17. Home stress was measured with the following item: “My life at home is rarely stressful,” using a five-point scale from strongly agree to strongly disagree, with higher values representing greater home stress. Respondents were also asked how satisfied they were with their “family life” on a seven-point scale from completely satisfied to completely dissatisfied, with higher values representing greater dissatisfaction. Note that the scales for home stress and home (family) dissatisfaction are comparable to those for job stress and job dissatisfaction.

Individual Characteristics

The gender traditionalism index was based on six items: (1) A preschool child is likely to suffer if his or her mother works; (2) All in all, family life suffers when the woman has a full-time job; (3) A job is alright, but what most women really want is a home and children; (4) Being a housewife is just as fulfilling as working for pay; (5) Having a job is the best way for a woman to be an independent person (reverse coded); (6) A man’s job is to earn money; a woman’s job is to look after the home and family. The items used a five-point scale from strongly agree to strongly disagree. Responses were averaged into an index; respondents missing data on two or more questions were excluded. The Cronbach’s alpha was 0.74 and higher values represent less traditional attitudes.

Age, gender, and income were also included in the analyses. Education was divided into having a college degree or not, based on respondents' reports of the highest degree they completed. Respondents reported their earnings for the past year. Since earnings are recorded in each country's currency, earnings were transformed into z-scores, relative to each country's distribution, for both sexes combined.

Analytical Strategy

To disentangle any effects of childcare policy and maximum work-hour legislation on negative work-to-family and family-to-work spillover, we used hierarchical linear models (Bryk and Raudenbush 1992). We first assessed the relationship between the individual-level measures and work-to-family and family-to-work spillover in the HLM model. Controlling for individual predictors, we then tested for significant variation in the intercepts and slopes across countries and for the extent to which our policy measures can account for this variation.

The equation for work-to-family spillover at the individual level was:

$$(1) Y_{ij} = \beta_0 + \beta_{1j} + \sum \beta_{kj} X_{ij} + r_{ij}$$

Where Y_{ij} equaled the reported work-to-family spillover for respondent i in country j and β_0 was the individual-level intercept and β_{1j} is the individual-level slope. X_{ij} reflected the respondent's individual-level attributes, and β_{kj} measured the effects of these attributes; r_{ij} was the level-1 error term, which was assumed to be normally distributed with a mean of zero.

The complete country-level equation was:

$$\beta_{0j} = \gamma_{00} + \gamma_{01}(C_j) + \gamma_{02}(M_j) + u_{0j}$$

$$(2) \beta_{1j} = \gamma_{10} + \gamma_{11}(C_j) + \gamma_{12}(M_j) + u_{1j}$$

$$\beta_{kj} = \gamma_k$$

Where γ_{00} was the intercept for the country-level model of work-to-family spillover, C_j was a variable representing childcare policy in country j and γ_{01} was the effect of this policy environment on β_{0j} , M_j was a variable representing maximum work-hour legislation in country j and γ_{02} was the effect of this policy environment on β_{0j} . Similarly, γ_{10} was the slope for the country-level model of work-to-family spillover, C_j was a variable representing childcare policy in country j and γ_{11} was the effect of this policy environment on β_{1j} , M_j was a variable representing maximum work-hour legislation in country j and γ_{12} was the effect of this policy environment on β_{1j} . The error terms at the policy level were represented by u_{0j} and u_{1j} .

An equivalent model was used to test for country-level effects of childcare policy and maximum work-hour legislation on family-to-work spillover. In all of the models, the individual-level variables were centered at their grand means with the exception of the dichotomous individual-level variables. Thus, for Models 1 and 2, the intercept was interpreted as the mean spillover for a married/cohabiting man with no child, without a college degree, who was not a supervisor, and who otherwise had average individual-level characteristics.

RESULTS

Table 1 presents the descriptive statistics for the individual-and country-level measures, averaged across all ten countries. The mean for work-to-family spillover was almost one point higher than that for family-to-work spillover (2.2 and 1.3 respectively). The majority of the sample was married/cohabiting, with a mean age of 41 years. About a quarter of the sample had a college degree, and 52% were female. About one in five respondents had a child under 6 in the home and 34% have a child 6 to 17 in the home. Respondents reported working an average of 38.2 hours per week and most reported working in the private sector. Respondents reported higher mean job stress than job dissatisfaction. Similarly, respondents reported higher mean

home stress than home dissatisfaction. The average housework hours per week were about 9.5. In terms of country-level measures, the mean childcare policy value was 0.69 and the maximum work-hours legislated was 49.7.

[Table 2 here]

The policy and spillover measures are shown for each country in Table 2. Compared to the European countries studied here, the United States provided a substantially lower level of childcare provisions and had the highest maximum work hour legislation. Respondents in the United States also reported the highest levels of both work-to-family and family-to-work spillover. The Netherlands had the lowest level of work-to-family spillover, while Denmark had the lowest level of family-to-work spillover. Denmark also provided the most generous childcare provisions, while Belgium had the lowest maximum work hour legislation.

Table 3 presents the individual- and country-level HLM results for work-to-family spillover. Since childcare policy ranged from 0 to 1 and maximum work hour legislation ranged from 39 to 70, the difference in scale should be considered when interpreting the level-2 results. Model 1 introduced the individual-level measures. In terms of work characteristics, four variables were associated with greater work-to-family spillover: weekly work hours, being a supervisor, job stress, and job dissatisfaction. Two of the home characteristics were associated with greater work-to-family spillover: home stress and home dissatisfaction. The presence of a child was not significant in Model 1. Net of other factors, more work-to-family spillover was reported by respondents who were female, had a college degree, expressed more traditional gender role attitudes, or were younger. With the exception of parental status, these individual-

level effects were consistent with our expectations, and remained significant and in the same direction in subsequent work-to-family nested models.

Model 2 introduced individual-level interaction terms to test the hypothesis that mothers of a young child reported the most work-to-family spillover. Initially, we tested interaction terms for female and child under 6 and for female and child 6 to 17. However, the interaction term for female and child 6 to 17 was not significant in any of the work-to-family spillover models (level 1 or 2). Thus, the results presented here only used the interaction terms for female and child under 6. With the inclusion of this interaction term, being female remained positive and significant and having a child under 6 became positive and significant. Contrary to expectations, the interaction for being a mother of a young child was significant and negative; this is discussed in more detail after presenting the final model.

[Table 3 here]

Model 3 tested for significant associations between childcare policy and work-to-family spillover for the sample overall as well as interaction terms between childcare policy and child under 6, female, and female with child under 6. The results indicated that childcare policy was not significantly associated with work-to-family spillover overall, nor for women or for workers with a young child in the home. The individual-level effects remained consistent with and in the same direction as the previous models.

Model 4 introduced the country-level measure for maximum work-hour legislation, as well as adding the equivalent interaction terms used in Model 3. Counter to our expectations, maximum work-hour legislation was not significantly related to work-to-family spillover, either overall or for women or parents in particular. In fact, even when maximum work-hour

legislation was included alone in the model, this measure was not significant. The individual-level effects remained consistent with and in the same direction as the previous models.

Table 4 presents the individual- and country-level HLM results for family-to-work spillover. Model 1 included only the individual-level measures. As expected, weekly hours, jobs stress, and job dissatisfaction were associated with greater family-to-work spillover. Also as expected, home stress, home dissatisfaction, and housework hours were positively correlated with family-to-work spillover. Family-to-work spillover is higher for those who were divorced (compared to being married/cohabiting), had a young or school-aged child, expressed more traditional gender role attitudes, were younger, had a college degree, or were female.

In sum, most factors were similarly related to both work-to-family spillover and family-to-work spillover. The exceptions were supervisor status, which was only related to work-to-family spillover, and housework hours and marital status, which were only related to family-to-work spillover. The effects of having a small child in the home also differed somewhat, as shown more clearly in the next model.

[Table 4 here]

Model 2 introduced the level-1 interaction effects to test the hypothesis that mothers reported more spillover, net of other factors. At the individual level, this hypothesis was not supported. Consistent with the work-to-family spillover models, we initially tested interaction terms for both age groups of children, but none of the interaction terms for a child 6 to 17 were significant, so they were omitted from the models used here. The interaction term that specifies effects for mothers of a child under 6 was not significant in Model 2. The other level-1 effects remained significant and in the same direction.

Model 3 introduced the country-level measure for childcare policy, along with interaction terms between childcare policy, gender, and child under 6. Net of individual-level effects, family-to-work spillover did not significantly vary by childcare policy for all workers. However, living in a country with more supportive childcare policies reduced family-to-work spillover for women, and especially for women with a young child. Other individual-level associations remained consistent and significant across models.

[Figure 1 here]

Figure 1 depicts the relationship between family-to-work spillover and childcare policy for women and men with no children and those with a child under 6. The lines represent respondents with average characteristics and zeros on the dichotomous variables. For women, the relationship between childcare policy and family-to-work spillover was slightly negative. Women with a young child reported the most family-to-work spillover in countries with the least generous childcare policies, but reported the least family-to-work spillover in countries with the highest childcare values. For men, the relationship between family-to-work spillover and childcare policy was not significant. As this figure shows, mothers of a young child experienced the greatest reduction in family-to-work spillover from a country's childcare policy environment.

Model 4 included the country-level measure for maximum work-hour legislation and interaction terms with parenting status and gender. At the intercept, maximum work-hour legislation was not significant. The significant interaction of female and child under 6 showed that the effect of maximum work-hour legislation on family-to-work spillover was especially pronounced for women with a young child in the home. Figure 2 depicts how the predicted effects of maximum work-hour legislation on family-to-work spillover differed for men and women with no children and with a child under 6. For all of these groups, higher maximum

work hours were associated with more family-to-work spillover. However, this effect was significantly larger for women with a child under 6 in the home, suggesting that they are especially disadvantaged in countries with higher standard work hours.

[Figure 2 here]

DISCUSSION

This study tests the relationship between work-to-family and family-to-work spillover, individual work and family characteristics, and two country-level measures: childcare policy and maximum work-hour legislation. Previous research suggested that childcare policies reduce sources of work-family conflict (Gornick et al. 1997; Leira 1993; Orloff 1993; Sainsbury 1994). This study extends this work by differentiating between work-to-family and family-to-work spillover and also by examining maximum work hour legislation, a policy that should impact the work side of the work-family equation more strongly. First, we tested the effects of individual work, home, and personal characteristics on spillover. Second, we tested whether, net of individual characteristics, better childcare policy would reduce family-to-work spillover and lower maximum work-hour legislation would reduce work-to-family spillover.

Many work-family scholars assume that characteristics of the work and family domains affect spillover only, or primarily, in one direction (Frone, Russel and Cooper 2000; Frone 2003; Major, Kline and Ehrhart 2002). That is, we should expect individuals' work characteristics to most strongly predict work-to-family spillover, while home characteristics should most strongly predict family-to-work spillover. However, many of the home and work characteristics are associated with both work-to-family and family-to-work spillover in the same way. This suggests either that respondents find it difficult to distinguish between work-to-family and family-to-work spillover or that certain characteristics increase overall stress which is associated

with greater role strain across both dimensions, which would be consistent with previous research (Crompton and Lyonette 2006; Dilworth 2004; Schieman et al. 2009; Stevens et al. 2006).

There are four individual characteristics that are associated with only one type of spillover, each of which affects spillover in the expect direction, from its own domain into the other. Among work characteristics, being a supervisor is associated only with greater work-to-family spillover. This is consistent with the idea that supervisors have greater responsibility than non-supervisors, and may be more likely to let the strain of those responsibilities spill over into their home lives. For example, recent research indicates that men who are supervisors take fewer of their allotted vacation days per year than non-supervisors (Maume 2006). At the same time, supervisors may use their greater autonomy and control over their schedules to reduce the impact of family demands on their work, explaining the absence of higher family-to-work spillover. Among family characteristics, housework hours and being divorced (rather than married/cohabiting) are both related only to higher levels of family-to-work spillover. Both of these factors suggest higher demands at home, and it is easy to see how these demands could interfere with individuals' work lives. The same is true for having a school-aged child in the home, which is also related to more family-to-work spillover, but unrelated to work-to-family spillover.

By contrast, most work and home characteristics have similar relationships to work-to-family and family-to-work spillover. Longer work hours, job stress, job dissatisfaction, having a college degree, home stress, and home dissatisfaction are all associated with higher levels of both types of spillover. Similarly, having a young child in the home increases both types of spillover, which we discuss in greater detail below. Even the effect sizes for these factors are very similar

across spillover types, although work hours and job stress have a somewhat stronger effect on work-to-family spillover than on family-to-work spillover.

These results are consistent with role strain theory (Greenhaus and Beutell 1985), which holds that anything that increases the total level of time demands, responsibilities, and emotional stress could increase negative spillover to either domain. Working more hours per week increases time demands at work and decreases time available for household tasks and family interactions, two factors that could simultaneously increase both work-to-family and family-to-work spillover. Similarly, stress and dissatisfaction are likely to increase overall emotional distress and make one more sensitive to the interference of work and family roles. In theory, education and income could be either related to more spillover (due to being related to higher-status and more emotionally involving and demanding jobs) or related to less spillover (due to providing greater resources for reducing work-family conflicts). We find that college education is positively related to both types of spillover, while income is not related to either. It is possible that both effects suggested here are operating, but while the opposing effects for income cancel each other out, the ameliorating resource effect for education is not especially strong compared to its association with higher-status jobs. As expected, the analyses indicate that net of these other factors, women experience greater work-to-family and family-to-work spillover, a result consistent with previous research (Delgado and Canabal 2006). Women are particularly sensitive to competing work and family demands, as they remain largely responsible for managing household tasks (Baxter 1997; Bianchi et al. 2000; Bird 1999) and may also be perceived as being less serious about their career if they seem to let family interfere with it (Rosenfield 1992). Consistent with recent research (Dilworth 2004), we find that the presence of a young child in the home is also positively associated with both types of spillover.

Interestingly, housework is associated only with family-to-work but not work-to-family spillover. This suggests that the presence of a young child in the home contributes to stress in home and work domains net of the additional housework young children produce. This may be a consequence of other unmeasured variables including lack of sleep and the increased time demands that balancing the care of a young child and a career demand. Ultimately this suggests that mothers in particular may be particularly vulnerable to spillover between work and family.

The second main finding is that neither of the country-level policy measures is significantly associated with work-to-family spillover. We hypothesized lower maximum work hours to be an indicator of a more family-friendly work culture, and thus associated with lower work-to-family spillover, even net of individuals' own work hours. We also posited that stronger childcare policy could reduce work-to-family spillover, in part by offering parents better day care options and more time off work to deal with family emergencies. However, although a number of individual-level characteristics appear to influence how work negatively affects family life, neither of the country-level policy measures studied here are significantly associated with work-to-family spillover. This is especially troubling given that respondents report substantially higher work-to-family spillover than family-to-work spillover in every country studied here.

Past research has largely focused on how state policy can ameliorate the type of family-to-work conflicts that make it more difficult for women, particularly mothers, to work (Gornick et al. 1997; Leira 1993; Orloff 1993; Sainsbury 1994). Our research suggests that greater efforts should also be made to reduce spillover in the other direction. Women and parents of both sexes experience high levels of work-to-family spillover, yet two policies that were likely to reduce these problems appear to have no effect at all. One possible explanation for the non-significant relationship between maximum work hour legislation and work-to-family spillover is that the

culture of work has changed beyond the scope of the law. For example, given the expansive use of cell-phones and internet in these sampled countries, employers may expect their workers to be available outside the physical boundaries of work. Specifically, employers may expect their employees to be constantly available thus blurring the work-family boundaries. This may be especially evident for parents, who may spend more time working from home to accommodate family demands. Thus, individuals in all countries may report higher work-to-family spillover regardless of their policy environment, explaining both the high levels of work-to-family and the non-significant effect of public policy on that spillover. A more detailed analysis of these relationships is warranted in future research.

We do find significant associations between the policy measures and family-to-work spillover. Consistent with our hypothesis, better childcare policy is associated with lower reports of family-to-work spillover for mothers with a young child in the home. In addition, men and women living in countries with longer legislated work-hours report greater family-to-work spillover, with an especially strong effect among women with a child under 6. When we display the effects for childcare policy and maximum work-hour legislation graphically for men and women by parental status, the relationship between these policy measures and family-to-work spillover for women with a child under 6 is quite striking (see Figures 1 and 2). They suggest that childcare policy is associated with less family-to-work spillover for the targeted population: mothers with young children. The implications of these findings for a country like the United States that has both limited childcare policy and unrestricted weekly work hours are tremendous. This spillover disadvantage may be compounded by a cultural rhetoric of “intensive mothering” in which motherhood is ideally child-centered and labor-intensive (Hays 1996). Indeed, this view of motherhood may in part explain why childcare and maximum work-hour policies are yet to be

legislated in the United States. Thus, the cultural expectations for motherhood as well as the lack of family-responsive public policies may seriously disadvantage American families in terms of family-to-work spillover.

However, the results of this study are clear: more expansive childcare and maximum work-hour legislation are associated with less family-to-work spillover. Thus, public policy should limit family and work demands through childcare and maximum work-hour legislation. As the results of this study suggest, legislating these policies should alleviate mothers' family-to-work spillover but they may also have far-reaching effects on society as a whole. For mothers, providing public childcare may reduce the chance that unreliable childcare or children's needs (i.e., a sick child) will interrupt mothers' work which may in turn increase worker productivity. For parents, living in a more family-responsive country may reduce psychological distress and in turn increase health and well-being. In this respect, policies that limit the interference between family and work may result in broader economic and health benefits for working parents.

Finally, the fourth main finding is that the individual predictors that significantly predict family-to-work spillover in the individual model remain stable in direction, effect size, and significance when the two country-level policies are added to the hierarchical models. The only exceptions are for gender and parental status, which can be explained by the addition of interaction terms. In other words, the effects of home, work, and personal factors on family-to-work spillover do not appear to be proxying for country-level differences, or at least, not any that are related to these two major welfare state policies. At the same time, the effects of the policy variables do not seem to be an artifact of country-level differences in individual factors.

One of the limitations of this study, as with most cross-national work, is the issue of equivalence across countries. Although we treat countries with the same childcare policy or

maximum work-hour legislation as being equivalent, social welfare policies can be developed for different reasons in each country, and vary in their details. Similarly, even if the policies are themselves equivalent, the enforcement and outcomes of the policies in each country may be very different. It is certainly possible that a more detailed examination of differences across policy regimes will reveal a relationship between these policies and work-to-family spillover. However, if our measures are masking between-country variation, the significant association between family-to-work spillover and childcare policy and maximum work-hour legislation that we find here would be expected to be even stronger. A second limitation is that we assess the effects of only two policy measures, which does not provide a comprehensive view of the relationship between a country's full complement of public policies and work-family spillover. However, we selected two macro-level policy measures that we expect would be highly likely to be associated with work-family spillover. Indeed, a more limited but focused analysis on two policies may be more useful for assessing individual policy effects than a broader analysis grouping together a wide range of policies. Future research would benefit from expanding upon this research to include a wider variety of policy measures. A third limitation relates to the datasets applied to the intersection of work and family. For this study, we apply the 2002 ISSP on family and gender roles. This data includes work-to-family and family-to-work spillover measures and comprehensive data on family life but the work measures are limited. Given the abundance of research on the work-family nexus, future data collection would benefit from more complete measures across both domains.

In summary, this study demonstrates the need to understand individual-level work-to-family and family-to-work spillover in a cross-national and multi-level scope. Our results show that childcare policy and maximum work-hour legislation are associated with one type of

negative spillover, from family to work. Specifically, individuals in countries with more progressive childcare policy and maximum work-hour legislation reported less family-to-work spillover, an effect especially important for mothers with a child under 6. The results demonstrate the need to explore these relationships to make effective policy recommendations.

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Table 1. Descriptive Statistics for Level-1 and Level-2 Variables

	Mean or %	SD
LEVEL-1 MEASURES		
Work-Family Spillover	2.240	0.84
Family-Work Spillover	1.360	0.53
Work Characteristics		
Weekly Work Hours	38.25	12.00
Supervisor	34%	
Employed Government	29%	
Employed Industry	59%	
Self-Employed	10%	
Job Stress	3.35	1.17
Job Dissatisfaction	2.82	1.09
Home / Family Characteristics		
Housework Hours	9.43	6.92
Home Stress	2.53	1.07
Home Dissatisfaction	2.46	1.04
Married	60%	
Divorced	11%	
Single	29%	
Child under 6	17%	
Child 6 to 17	34%	
Individual Characteristics		
Gender Traditionalism	3.52	0.75
Age	40.81	11.47
College Degree	24%	
Female	52%	
Earnings	0.014	
LEVEL-2 MEASURES		
Childcare Policy	0.69	0.20
Maximum Work-Hour Legislation	49.73	17.16

N=7,895

Table 2: Descriptive Statistics for Dependent Variables and Level-2 Measures by Country (2002 ISSP)
N=7,895

Country	N	Work-Family Spillover	Family-Work Spillover	Childcare Policy Index	Maximum Work-Hour Legislation
Denmark	858	2.16	1.19	0.96	39
Sweden	700	2.24	1.36	0.92	48
Norway	953	2.20	1.26	0.83	40
Finland	681	2.11	1.33	0.79	48
Belgium	684	2.30	1.33	0.75	48
France	1062	2.32	1.45	0.69	48
Netherlands	683	2.10	1.33	0.69	48
Germany	611	2.23	1.27	0.63	40
Great Britain	959	2.30	1.46	0.45	40
United States	704	2.33	1.53	0.29	unlimited (coded 70)

Table 3. HLM Results for Work-to-Family Spillover for Men and Women (2002 ISSP) N=7,895

	WORK-FAMILY SPILLOVER			
	Model 1 Level 1	Model 2 Level 1	Model 3 Level 1 & 2	Model 4 Level 1 & 2
Intercept	2.136 ***	2.111 ***	2.111 ***	2.062 ***
Childcare Policy	---	---	0.041	---
Maximum Work-Hour Legislation	---	---	---	0.004
Work Characteristics				
Weekly Work Hours	0.013 ***	0.012 ***	0.012 ***	0.013 ***
Supervisor	0.118 ***	0.120 ***	0.119 ***	0.140 ***
<i>(Comparative Group: Self-Employed)</i>				
Employment Government	-0.040	-0.043	-0.041	-0.011
Employed Industry	-0.048	-0.053	-0.052	-0.041
Job Stress	0.181 ***	0.186 ***	0.186 ***	0.111 ***
Job Dissatisfaction	0.082 ***	0.083 ***	0.083 ***	0.074 ***
Home/ Family Characteristics				
Housework Hours	0.001	0.000	0.000	0.000
Home Stress	0.068 ***	0.066 ***	0.066 ***	0.042 ***
Home Dissatisfaction	0.094 ***	0.097 ***	0.097 ***	0.065 ***
Divorced	0.053	0.043	0.042	0.055
Single	-0.028	-0.037	-0.038	-0.015
Child under 6	0.044	0.112 ***	0.111 ***	0.108 ***
Childcare Policy	---	---	0.053	---
Maximum Work-Hour Legislation	---	---	---	-0.003
Child 6 to 17	0.018	0.023	0.022	0.038
Individual Characteristics				
Gender Traditionalism	-0.097 ***	-0.096 ***	-0.096 ***	-0.090 ***
Age	-0.005 ***	-0.005 ***	-0.005 ***	-0.005 ***
College Degree	0.100 ***	0.109 ***	0.110 ***	0.132 ***
Female	0.120 **	0.148 ***	0.138 ***	0.149 ***
Childcare Policy	---	---	-0.090	---
Maximum Work-Hour Legislation	---	---	---	0.003
Earnings	0.000	0.000	0.000	0.000
Interactions				
Female x Child under 6	---	-0.136 ***	-0.132 ***	-0.160 ***
Childcare Policy	---	---	-0.199	---
Maximum Work-Hour Legislation	---	---	---	0.000
Variance Component (remaining between-country variance)				
Level-1 variance	0.559	0.559	0.559	0.579
Intercept	0.007	0.007	0.008	0.008

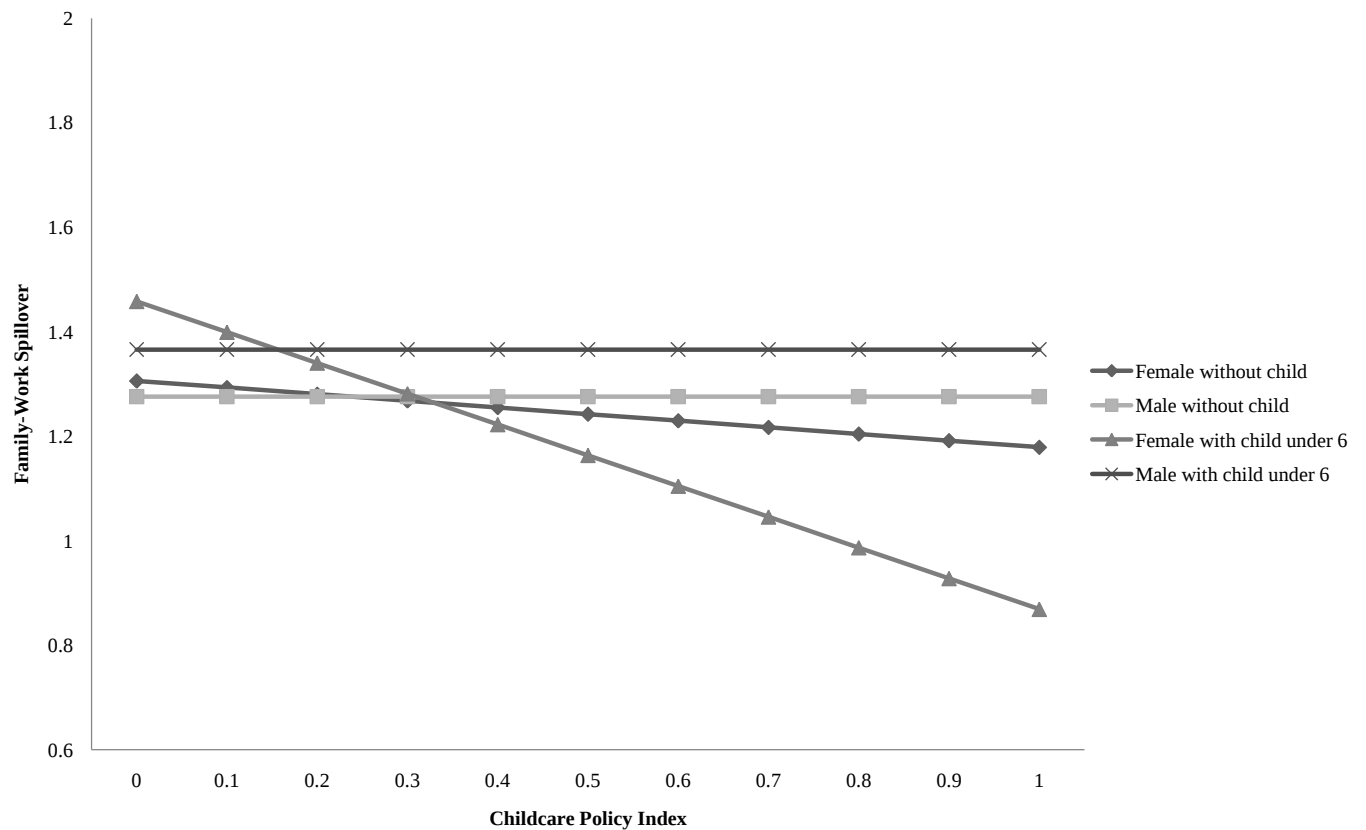
*p < 0.05. **p < 0.01. ***p < 0.001

Table 4. HLM Results for Family-to-Work Spillover for Men and Women (2002 ISSP) N=7,895

	FAMILY-WORK SPILLOVER			
	Model 1 Level 1	Model 2 Level 1	Model 3 Level 1 & 2	Model 4 Level 1 & 2
Intercept	1.272 ***	1.276 ***	1.276 ***	1.264 ***
<i>Childcare Policy</i>	---	---	-0.190	---
<i>Maximum Work-Hour Legislation</i>	---	---	---	0.006
Work Characteristics				
Weekly Work Hours	0.002 ***	0.002 ***	0.002 ***	0.002 ***
Supervisor	0.023	0.024	0.021	0.024
<i>(Comparative Group: Self-Employed)</i>				
Employment Government	0.018	0.018	0.022	0.023
Employed Industry	0.000	0.000	0.002	0.007
Job Stress	0.036 ***	0.036 ***	0.036 ***	0.036 ***
Job Dissatisfaction	0.062 ***	0.062 ***	0.062 ***	0.062 ***
Home/ Family Characteristics				
Housework Hours	0.005 ***	0.005 ***	0.005 ***	0.006 ***
Home Stress	0.075 ***	0.075 ***	0.075 ***	0.074 ***
Home Dissatisfaction	0.073 ***	0.073 ***	0.073 ***	0.073 ***
Divorced	0.089 ***	0.088 ***	0.086 ***	0.083 ***
Single	-0.025	-0.026	-0.026	-0.016
Child under 6	0.121 ***	0.095 ***	0.090 ***	0.082 ***
<i>Childcare Policy</i>	---	---	0.105	---
<i>Maximum Work-Hour Legislation</i>	---	---	---	-0.004
Child 6 to 17	0.034 **	0.034 **	0.034 **	0.024 **
Individual Characteristics				
Gender Traditionalism	-0.087 ***	-0.087 ***	-0.088 ***	-0.083 ***
Age	-0.002 ***	-0.002 ***	-0.002 ***	-0.002 ***
College Degree	0.045 ***	0.045 ***	0.047 ***	0.057 ***
Respondent Female	0.037 **	0.029 *	0.030 *	0.026
<i>Childcare Policy</i>	---	---	-0.127 *	---
<i>Maximum Work-Hour Legislation</i>	---	---	---	0.001
Earnings	0.000	0.000	0.000	-0.004
Interactions				
Female x Child under 6	---	0.049	0.062 *	0.071 *
<i>Childcare Policy</i>	---	---	-0.462 **	---
<i>Maximum Work-Hour Legislation</i>	---	---	---	0.011 **
Variance Component (remaining between-country variance)				
Level-1 variance	0.233	0.233	0.234	0.239
Intercept	0.004	0.004	0.004	0.005

*p < 0.05. **p < 0.01. ***p < 0.001

Figure 1: Family-Work Spillover and Childcare Policy (ISSP 2002)



ⁱ The childcare policy index is a composite measure of the following measures. Early childhood education and care (ECEC): (1) guaranteed slot for children 0-1-2; (2) percent enrolled in public care who are one or younger; (3) percent enrolled in public care who are 1-2; (4) cost to parents of children enrolled in public care aged 1-2; (5) percent enrolled in public care who are 3-4-5; (6) cost to parents of children enrolled in public care aged 3-4-5; (7) typical hours for care of children 3-4-5; (8) percent enrolled in care for age 6; (9) quality of care; (10) tax relief for ECEC. School Scheduling: (11) starting age of school; (12) hours per day; (13) days per week; (14) continuity of school day. Family leave: (15) weeks of full-paid leave available to mothers; (16) presence of paid paternity leave; (17) gender equality scale/incentives of fathers; (18) presence of paid leave after 3rd birthday; (19) paid sick-child leave; (20) expenditures on leave (US dollars). Working time: (21) normal weekly work hours; (22) normal vacation time. The raw data are calculated in subindices and then into a single index. For a more detailed discussion of the equations reference Gornick and Meyers (2003) Appendix C