Short Work Hours Equals Work-Family Strain? Work-Time and Gender Regimes in 24 Countries

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Abstract

For many workers, the demands of work interfere with their family lives. In response to these demands, many welfare states have instituted polices to limit work hours and provide workers with paid leave. Whether shorter work weeks and longer leave structure work-family strain, however, requires investigation. To assess these relationships, we apply multi-level data pairing individual-level data from the 2005 International Social Survey Programme (ISSP) for 31 nations (N=20,399) with country-level measures of mean weekly work hours, annual leave and GINI. We find longer annual leave is associated with preferences for less time at work, and, for women, less family-work interference. In countries with shorter mean weekly work hours individuals report *more* work-family and family-work interference and stronger preferences for *more* time with family and *less* time at work, net of individual and country-level controls. Although we document gender differences at the individual-level, we find limited support for gendered effects of macro-level work-time and annual leave on individual work-family strain. Collectively, these results indicate that cultural approaches to work play a pivotal role in work and family strain.

For many, the demands of work interfere with their family lives. With the rise of the 24/7 global economy, workers are expected to be accessible outside the physical boundaries of work making them vulnerable to work-family interference. Indeed, interference between work and family has risen since the 1970s (Nomaguchi, 2009; Winslow, 2005) with serious detrimental consequences for workers including increased stress and decreased mental health (Glavin, Schieman, & Reid, 2011). In response to these negative consequences, many welfare states have instituted policies to reduce strain and promote work-life balance (Fagnani & Letablier, 2004; Gornick & Heron, 2006; Gornick & Meyers, 2003). These policies either restrict the number of hours employees can work, or provide mandated paid leave. Indeed, many European countries are at the forefront of this movement. Notably, the Netherlands and France are considered "part-time" countries as they have reduced full-time work weeks below the 40 hour norm (Wielers & Raven, 2013). Further, all European countries have some minimum annual leave scheme as a component of their welfare state policy (Hegewisch & Gornick, 2008). The goal of these policies is clear: reduce work time to reduce work-family strain. Yet, the effectiveness of these policies requires further investigation.

Shortening work weeks is assumed to provide workers' control over the organization of work, thus providing flexibility when family demands arise (Berg, Appelbaum, Bailey, & Kalleberg, 2003; Glass & Finley, 2002; Kelly & Moen, 2007). Yet, research on the effectiveness of these policies is mixed and often paradoxical. One stream of comparative research shows respondents in more gender empowered countries – most notably Sweden – report more, not less, interference between work and family than those in more limited policy contexts (Cousins & Tang, 2004; Ruppanner & Huffman, 2013; Strandh & Nordenmark, 2006). A second stream demonstrates that longer legislated work hours are positively associated with work-family interference (Ruppanner & Pixley, 2012).Yet, the 10-country

sample size applied in this study is methodologically limited and not generalizable to a broader non-European population. Finally, a third stream finds work hour policies have no impact on workers' control over daily work, work hour excess or deficit for a diverse 21-country sample (Lyness, Gornick, Stone, & Grotto, 2012). Yet, work structure, notably restricting work hours and expanding leave, are central welfare state strategies to reduce gender inequality and promote well-being. In light of the inconsistent results in previous research, the need for systematic evaluation of the work structure and work-family strain at multiple levels is warranted.

This study investigates this gap and adds to a growing body of comparative research that documents cross-national variation in work-family interference (Crompton & Lyonette, 2006; Edlund, 2007; Gallie, 2003; Hill, Yang, Hawkins, & Ferris, 2004; Lyness et al., 2012; van der Lippe, Jager, & Kops, 2006). First, we build a multidimensional understanding of work-family strain that includes work-family and family-work interference, work time and family time preferences to identify broader cultural patterns. This allows us to assess whether previous interference findings are consistent for broader patterns of work-family strain (Crompton & Lyonette, 2006; Ruppanner & Huffman, 2013). Second, we link two macro-level work structure measures– normative work time and annual leave – to individual work-family strain reports. This allows us to unpack the mechanisms – hours, leave or both – that structure individual-level work-family strain. This process is essential given the contradictory and paradoxical findings in previous research (Cousins & Tang, 2004; Crompton & Lyonette, 2006; Lyness et al., 2012). Finally, we assess whether shorter work hours and longer leaves explain the gender gap in work-family strain. This link is crucial given that women disproportionately report strain and welfare state policies are often enacted to help women bridge the economic gap and to reduce gender inequality.

To assess these relationships, we apply a unique data set that pairs individual-level data from the 2005 International Social Survey Programme for respondents in 31 nations with country-level measures of mean weekly work hours, annual leave and economic inequality (GINI). These models allow for investigating multiple weighty questions: (1) do shorter work weeks and more expansive annual leave alleviate work-family strain?; (2) do the benefits to reduced hours explain the gender gap in work-family strain?; (3) are these relationships an artifact of each other or does one of these measures – work hours or annual leave – structure these relationships? The results of this study further satisfy the call for multi-level research on work and family (Kelly et al. 2008).

THE WORK-FAMILY NEXUS: AN OVERVIEW

Defining Work-Family Interference

Work-family interference is the extent to which an individuals' work life interferes with his/her family life or vice versa. Greenhaus and Beutell (1985) identify work-family interference as a component of role theory. Scholars have investigated work-family interference as an aggregated experience of interference in both directions - from work to family and family to work (Crompton & Lyonette, 2006; Schieman, Milkie, & Glavin, 2009; Stevens, Kiger, & Riley, 2006). Others have argued that work-family and family-work interference are distinct experiences that must be measured separately (Ferrarini, 2006; Frone, 2003; Grzywacz, Almeida, & McDonald, 2002; Hill, 2005; Jacobs & Gerson, 2004). This study specifies interference directionally - work-family and family-work - as we expect macro-level work structure to influence interference directionally, with a more severe impact on work-family interference. Further, while many apply a work-family interference index that includes multiple measures (Bakker & Geurts, 2005; Edlund, 2007; Grönlund & Öun, 2010; Schieman et al., 2009), we follow others who investigate these as single-items (Ferrarini,

2006; Lyness et al., 2012). Specifically, we investigate four measures applied in previous research: work-family and family-work interference and family and work time preferences. We investigate whether these measures are structured differently by work-time and leave to establish broader work-family patterns.

The Role Strain Hypothesis

Work and family are considered greedy institutions that compete for individuals' time and contribute to inter-role strain (Coser, 1974; Greenhaus & Beutell, 1985). Indeed, these boundary spanning experiences are shown to heighten work-family interference, deteriorate health and increase stress (Glavin et al., 2011). The bulk of previous research focuses on individual determinants that contribute to or alleviate work-family interference. From this research, the demand-control model has received much support (Bakker & Geurts, 2005; Karasek Jr, 1979; Voydanoff, 2007). Demands are job or home characteristics that contribute to negative physical, psychosocial, and organizational costs; these include physically and emotionally demanding jobs as well as the presence of children in the home. By contrast, resources allow individuals to exert more control over these domains and bring positive physical, psychosocial, and organizational benefits; these include the presence of a spouse, job security, flexible scheduling and interpersonal employee support. Role strain is often measured through work-family inference but may also extend to work and family time preferences and job disatisfaction. Time pressure often reflects difficulties associated with combining work and family demands (Galinsky, Aumann, & Bond, 2009; van der Lippe et al., 2006). Indeed, the number of individuals stressed by competing work and family time demands has increased cross-nationally (Allan, 2001; Peters, 2000). It follows that role strain is reflected through work and family time preferences as well. Specifically, we expect more strained respondents to report preferences for more time with family and less at work.

Further, as allocations of work and family time are highly gendered (Bittman & Wajcman, 2000; Sayer, 2005), we also expect role strain to have differential effects by gender. Specifically, women's disproportionate responsibility for family demands makes them particularly vulnerable to role strain. Indeed, Hill (2005) identifies gender as a central mediator of work-to-family interference. As such, we expect working women to report greater role strain than working men.

In sum, support for the role strain hypothesis at the individual-level should be reflected through greater work-family and family-work interference, stronger preferences for less time at work and more time with family. We expect women to be more vulnerable to role strain than men.

MACRO-LEVEL APPROACHES TO ROLE STRAIN

Previous Findings and Remaining Questions

Role strain has been theoretically and empirically supported at the individual-level (Byron, 2005; Carlson & Grzywacz, 2008; Grönlund & Öun, 2010; Moen & Yu, 1999). However, work-family strain may be exacerbated by cultural expectations of work time. Indeed, shortening work weeks and providing more expansive leaves are central strategies to facilitating women's, most notably mothers' employment, by providing workers greater flexibility for family demands (Lyness et al., 2012). Yet, previous research provides mixed results. Comparing three countries, Cousins and Tang (2004) find Swedish parents report the most interference between work and family. This paradoxical relationship – expansive policy context and high interference – is supported in additional comparisons of small country samples (Crompton & Lyonette, 2006). Building on this comparative research, a growing body of cross-national multi-level research explores the relationship between individuals' work characteristics and cultural contexts. (Stier & Lewin-Epstein, 2003) find workers in

higher GNP and social transfer societies prefer less time at work as economic security at the country-level structures individual work time preferences. Ruppanner and Huffman (2013) find parents, especially fathers, are more likely to report family-work interference in more gender empowered countries. Finally, Lyness et al. (2012) find workers, especially female workers, report more schedule control, more hour excess and less hour deficit in countries with more generous paid leave; yet, they find no association between weekly work hours and worker control. As the authors explain, this unexpected non-significant effect likely reflects data limitations as their 21-countries reflect similar work hours (ranging from 37 to 40 hours). Collectively, the results of these studies are clear: cultural context structures work and family experiences. Yet, the results for macro-level work structure and individual-level work experiences is limited at best and paradoxical at worst. This warrants further investigation; this study bridges this gap.

Theorizing Macro-Level Work Structure and Role Strain

According to the scarcity argument, time in employment reduces the time available for care and leisure (Hiller, 1984; Van Der Lippe, Tijdens, & De Ruijter, 2004). To limit the interference of work on family life, many welfare states have instituted maximum work hour legislation to cap work-time, in part, to provide workers greater work-life balance (Bosch, Dawkins, Michon, 1994; Gornick & Meyers, 2003; Rubery, Smith, & Fagan, 1998). However, compliance with this policy varies significantly depending, in part, on the quality of the legislation (Campbell, 2002). For example, many countries (i.e., France, the Netherlands, Germany and Portugal) are legislating and enforcing shorter work weeks consistent with their maximum work hour legislation (Evans, Lippoldt, & Marianna, 2001). By contrast, others (i.e., Australia and United Kingdom) report longer weekly work hours than legislation mandates due to an increase in overtime reflecting loopholes in country-specific legislation (Campbell, 2002). Taken together, these studies indicate that work hours

are important in structuring individual outcomes and that maximum work-hour legislation may not accurately measure the average hours worked in a given country. In response to these limitations, we apply a mean weekly work hour measure to capture variation in normative work hours by country. However, limiting weekly work hours is only one piece to the work-family puzzle. Leave arrangements are also instituted to provide workers greater flexibility to accommodate competing demands. These policies can be aimed at specific populations during times of great strain. For example, parental leave policies are accessed upon the birth of a child, when family demands are high (Gornick & M. K. Meyers, 2003). Others, including mandated annual leave, are accessed by all employees regardless of parental status. Indeed, these policies are central to workers' rights as evidenced by their tendency towards expansion (TRAVAIL database, 2013). Given our interest in multiple dimensions of work-family strain – not just that experienced by parents – we investigate mandated annual leave which is accessible, utilized often and replenished annually for all workers.

The central assumption of these policies is that legislating shorter weekly work hours and expanding leave time should provide workers more discretionary time and thus greater work-life balance (Bosch, Dawkins, and Michon, 1994; Bosch, 2001; Gornick & Meyers, 2003; Rubery et al., 1998). It follows that respondents in countries with the longest work hours and shortest annual leaves should report the greatest role strain. Specifically, these respondents should report greater work-family and family-work interference, and preferences for more time with family and less time at work. Further, long work hours may be most detrimental to female employees for whom the combination of family demands and long work hours may be the most pernicious. By contrast, respondents in shorter work hour countries should report the least strain. What is more, the benefits to shorter work weeks should be greatest for female employees for whom greater discretionary time should allow

them to better accommodate family demands. As such, support for the scarcity argument would be reflected through reports of more work-family strain.

Yet, previous research demonstrates that respondents in these expansive policy contexts are actually more, and not less, likely to report work-family interference (Cousins & Tang, 2004; Crompton & Lyonette, 2006). To explain this paradox, we present the resources-expectations hypothesis. Resources, in this case shortened work weeks and longer leaves, may increase expectations of work-family balance. These heightened expectations may, in turn, result in greater disappointment when interference emerges. As such, workers in these countries may report greater work-family strain in part because they are primed to have higher expectations for balance. Thus, the paradox reflects inflated expectations that are not met in reality. Further, their volume of strain may be equivalent to those in lower resource countries but their sensitivity to, and thus reports of, may be greater in high resource countries. This paradox is supported in other research, most notably on happiness. Specifically, higher levels of income increase happiness to a point, at which higher material aspirations stunt happiness (Easterlin, 1973; Frey & Stutzer, 2002; Lane, 2000). It follows that welfare state provisions may create an equivalent pattern for work-family strain. As such, individuals in shorter work hour and longer leave countries may report greater strain, thus supporting the resources-expectations hypothesis. These experiences should cultural and thus gender neutral.

In sum, we present two competing hypotheses. Support for the scarcity argument includes respondents, especially women, in countries with *longer* work hours and *shorter* leave reporting greater role strain. Support for the resources-expectations hypothesis would include respondents in countries with *shorter* work hours and *longer* leave reporting more role strain

DATA, MEASURES, AND STATISTICAL MODELS

Data

To assess the effects of work-time and annual leave on work and family, we created a data set that pairs individual-level data with country-level measures for respondents in 31 nations. The individual-level data are from the 2005 International Social Survey Programme (ISSP), a cross-national collaboration of researchers from around the world. The ISSP annually surveys citizens on a rotating list of topics, and the 2005 wave asked respondents about their work orientations and schedules. Given the cross-national nature of the data, the ISSP has strict guidelines for sampling and measuring to ensure validity across measures and requires a response rate of 70% for each country. We matched our country-level measures with participating 2005 ISSP countries which produced a sample of respondents in 31 nations: Australia, Belgium, Bulgaria, Canada, Cyprus, Czech Republic, Denmark, Dominican Republic, Finland, France, Germany, Great Britain, Hungary, Ireland, Israel, Japan, Latvia, Mexico, New Zealand, Norway, Philippines, Portugal, Russia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, and the United States.

To create our multi-level data set, the individual ISSP data are matched with country-level measures of normative work-time (mean full-time weekly work hours), annual leave (weeks) and economic inequality (GINI coefficient). The work-time measure was calculated from the 2005 ISSP to capture the aggregated mean of the individuals' reported weekly work hours in all jobs including overtime by country. Annual leave is from the International Labor Organization's TRAVAIL Conditions of Work and Employment database. The ILO captures employment policies by country, and we apply one measure – the number of weeks of legislated annual leave – which was collected in 2004. To control for variation in economic inequality, we also include each country's 2005 GINI, sourced from the World Bank report (2005). The GINI coefficient ranges from zero (perfect equality) to 100 (perfect inequality) and captures economic inequality in the distribution of income with in a country. We apply

GINI as a country-level control consistent with previous research (Ruppanner and Huffman 2013; Stier & Lewin-Epstein, 2003).

We restricted our sample to respondents who are in their prime working years (aged 25 to 59), and report at least one hour of income producing work per week. The effective sample size is 20,397 individuals and includes data from all 31 nations.

Measures

Dependent variables

To capture variation in work and family, we apply four dependent variables. First, we investigate work-family interference through the following question: "How often do you feel that the demands of your job interfere with your family life?" Responses are on a five-point scale: (1) never, (2) hardly ever, (3) sometimes, (4) often, and (5) always. Higher values reflect greater reported work-to-family interference. Family-work interference is on an equivalent scale for the following question: "How often do you feel that the demands of your family life interfere with your job?" Our third and fourth measures reflect respondents' family and work time preferences. Respondents were asked: "Suppose you could change the way you spend your time, spending more time on some things and less time on others. Which of the following things on the list would you like to spend more time on, which would you like to spend less time on and which would you like to spend the same amount of time on as now (emphasis from original)?" Respondents were asked to report on their (a) Time in paid job; and (b) Time with your family. Responses are on the following five-point scale: (1) much more time; (2) a bit more time; (3) same time as now; (4) a bit less time; (5) much less time.

In preliminary analyses, we explored a dichotomized measure that collapsed the more time preference categories. The dichotomous measures produced results equivalent to the five-point scales on our key predictors. Therefore, for consistency with our other dependent

measures, we report results based on the five-point scale. Collectively, these measures capture role strain and thus could be aggregated. However, we are interested in how our macro-contexts impact each distinct experience, a strategy empirically supported by the relatively low inter-item correlations of these measures (work-family interference: *r* is -.16 at $p<0.01$ for more time at work and .14 at $p<0.01$ for more time with family; more time at work: *r* is -.12 at $p<0.01$ for more time with family). As such, for theoretical and empirical reasons we investigate these measures separately.

Main individual-level predictors

Gender

We are interested in gender differences in work and family strain. As such, gender serves as our main individual-level predictor. Gender is dummy coded for female (value = 1). This allows us to assess whether work-time and annual leave impact men and women differently for our four dependent variables.

Individual-level controls

Work-related resources

We measure work-related resources through a series of measures that capture the extent to which employees have access to resources to accommodate work and family demands. Respondents reported agreement on a five-point scale (strongly disagree to strongly agree) to five measures that capture job quality: (1) job autonomy; (2) job security; (3) job well-paid; (4) opportunities for advancement are high; (5) job gives me a chance to improve my skills. Higher values reflect better job quality. We also control for social support within the workplace through two measures of interpersonal relations: (1) between managers and employees and (2) among colleagues. The responses ranged from "very good" to "very bad" with higher values reflecting better relations. Schedule control measures the extent to which a respondent can control their work hours. We include a measure of full schedule control (1=I

am entirely free to decide my work hours) dichotomously coded. Control of daily work is based on the extent to which the respondent can organize their daily work. We include a dichotomous measure for full control of daily work (1=I am free to decide how my daily work is organized). Further, we compare the self-employed, who should have greater control over their work schedules, to those employed in a public private or government organization (1=self-employed).

Respondents were asked how difficult it would be for the firm to replace them in their current position. Responses are on a five-point scale from very easy to very difficult; higher values reflect the respondents' indispensability. Job satisfaction is measured on a seven-point scale ranging from completely dissatisfied to completely satisfied with higher values reflecting greater job satisfaction. Education is dichotomously coded for those who have completed a college degree (1=college degree or higher). We include controls for the respondents' current occupation. The occupational codes are based on the 1988 International Labor Organization's International Standard Classification of Occupations. We include those with the most resources – professionals (1=legislators, senior officials, managers, professionals, technicians or associate professionals) – in the models. Finally, respondents also reported their personal earnings in their country-specific currency which we standardized across countries (percentiles from 0 to 1 based on maximum country-specific reported earnings).

Work-related demands.

Work-related demands are measured through six variables. Physical demands include three measures, finding one's job exhausting, physical, or dangerous, whereas emotional demands reflect finding one's job boring and stressful. For all job demand measures, higher values reflect a greater frequency of experiencing a physically and/or emotionally demanding

job. Work hours are based on respondents' reports of the number of hours they work in a typical week in all of their jobs, including overtime.

Controls

We estimate a series of demographic controls. First, we include a series of dummy variables for various age categories: 25-34, 35-44, 45-54, and 55-59. We use the modal age category for our sample (35-44) as the comparative group. We also include a dummy measure for those reporting being married or living as married (1=married or living as married). Finally, we also include a dummy measure for child present in the home (1=child under 18 in the home). The 2005 ISSP collects household composition through a household registry of the people living at the home during the time of the interview. However, the household registry does not ask for the age of the children present in the home and thus the measure cannot be coded to reflect child's age. This imposes important limitations as young children contribute more to family demands than older children (E. Hill, 2005). Thus, our aggregated child present measure is crude and likely underestimates the impact of children on work and family strain.

Statistical Models

To assess the multi-level data (individuals nested within countries) we apply hierarchical linear models. Our sampling of 31 nations at the country-level and over 20,000 respondents at the individual-level meets the basic assumptions of multi-level models (Kreft, 1996). Hierarchical linear models simultaneously estimate micro-level (the individual-level model for work-family and family-work interference and work and family time preferences) and macro-level equations (the country-level effect of mean weekly work hours and annual leave) by estimating the clustering of standard errors at the macro-level (Guo & Zhao, 2000; Raudenbush & Bryk, 2002). Standard regression models assume the observations are independent but, for our data, individuals are nested within countries that vary by their work

structure, annual leave benefits and economic inequality. Thus, estimating the models using hierarchical linear modeling more accurately estimates the coefficients.

RESULTS

Descriptive Overview

Table 1 is a descriptive overview of our dependent and country-level measures. Across our dependent measures, we find countries cluster in their work and family reports. Specifically, we find the Anglo countries – the United States, Great Britain and Canada – report the greatest mean preferences for more time with family. By contrast, the Asian countries – Japan, Taiwan and South Korea – report the lowest mean family time preferences. An equivalent, yet weaker, pattern is evident for work-to-family interference. For work time, respondents in the Scandinavian countries – Sweden, Finland and Denmark – report the strongest preferences for less time. Collectively, these means highlight regional country-clusters suggesting work-family strain reflect broader cultural patterns. At the country-level, respondents in South Korea report the highest weekly work hours at 48.4 and those in France the lowest with 37.1 hours. Work hour regulation has been an important topic for the French welfare state (Evans et al. 2001) which is reflected in this measure. The French also offer the longest state mandated annual leave (6 weeks) as does Finland and Spain. By contrast, the United States has no legislated annual leave with rates quite similar to the Philippines and Taiwan. Although the U.S. government does not legislate mandatory annual leave, many corporations offer employees two weeks of leave, which is normative. As such, we ran the models with the United States coded at zero and two weeks but the results are equivalent. Thus, we present the mandated leave results with the United States coded at zero. Collectively, these results indicate substantial variation in our dependent and macro-level measures.

Work-to-family Strain: The Multi-Level Results

Tables 2 through 5 assess whether normative work hours and annual leave impact individual work-family experiences. Given our focal interest in the impact of macro-level work structure and annual leave, the individual (or level-1) coefficients, which are consistent with theoretical predictions, are presented in the appendix (Appendix A). We estimate cross-level gender effects to assess whether work-time and annual leave affect men and women differently. Model 1 includes gender alone to identify the unconditional gender gap in work-family experiences. Models 2, 3 and 4 investigate gender differences for each macro-level measure net of individual controls. The model fit statistic (χ^2 statistic) compares these models to the full individual-level model without macro-level controls. Thus, a significant χ^2 statistic indicates that including the macro-level context improves the model fit compared to the full individual-level model.

Table 2 provides the country-level results for work-family interference. Initially, in Model 1, we find that women report less work-family interference ($\beta = -.073$, $p<0.01$). This relationship, however, becomes non-significant net of individual controls (results not show) indicating that the allocation of job and personal characteristics explain the gender gap in work-family interference for this cross-national sample. At the country-level, we find that mean weekly work hours is negatively associated with work-family interference ($\beta = -.049$, $p<0.001$) but these effects do not vary by gender (model 2). By contrast, the duration of annual leave has no effect on work-family interference. The mean weekly work hour effect is robust in the full model (model 4). Collectively, these results indicate that all respondents, regardless of gender, report less interference in countries where longer work hours are normative. This suggests that short work hours exacerbate work's encroachment on family life. The model fit statistics provide some guidance to understand these relationships. Specifically, the inclusion of country-level mean weekly work hours significantly improves

the model fit; annual leave, by contrast, does not. Thus, work-family interference appears to be structured by normative work hour expectations.

Table 3 investigates these relationships for family-work interference. At the individual-level, we identify a gender gap – women report more family-work interference than do men – that emerges net of individual controls (results not shown) and is robust net of country-level measures. Consistent with work-family interference, we find respondents in countries with longer mean weekly work hours report less family-work interference (model 2: $\beta = -.033$, $p<0.05$). Women in countries with longer annual leave report less family-work interference (model 3: $\beta = -.027$, $p<0.05$) suggesting that working women utilize their annual leave days to accommodate family demands and mitigate family's interference on work. Net of mean weekly work hours, however, the annual leave effect becomes non-significant (model 4). At the intercept, however, the negative effect of mean weekly work hours on family-work interference is robust (model 4: $\beta = -.031$, $p<0.05$). These results, along with those from Table 2, indicate that workers in countries with shorter work weeks are more sensitive to bi-directional interference, from work to family and family to work. Yet, the model fit statistics demonstrate that unlike for work-family interference, the inclusion of the macro-level measures does not improve the models beyond the individual controls. Thus, mean weekly work hours significantly impacts family-work interference but the macro-context does not explain more that the distribution of individual-level job and family characteristics. In light of the interference results, the question remains, do these patterns reflect broader cultural approaches to work and family?

To assess this question, tables 4 and 5 investigate respondents' family and work time preferences. The results are quite striking and demonstrate a consistent pattern for macro-level mean weekly work hours. Specifically, table 4 (model 2) shows that respondents in longer weekly work hour countries report preferences for less time with family than those in

shorter work hour countries ($\beta = -0.025$, $p<0.05$), net of individual-level controls and the positive impact of GINI ($\beta = 0.010$, $p<0.05$). In other words, respondents in countries with shorter work weeks and greater economic inequality report stronger preferences for more time with family. That these relationships are significant net of each other indicates that income inequality is not driving the mean weekly work hour effect. Further, these relationships are robust net of annual leave (model 4). Finally, while women report stronger preferences for time with family, work-time and annual leave have no gendered effect. The model fit statistics, however, indicate that the macro-level model is not a significant improvement on the individual-level measures. Thus, while mean weekly work hours significantly impact family time preferences, the macro-context does not explain more of the variance than the individual-level model.

Table 5 presents the work time preference results. Consistent with the previous tables, mean weekly work hours structure work time preferences. Specifically, respondents in countries with longer work hours prefer more time at work (model 2), an effect that is robust net of variation in country-level annual leave and economic inequality (model 4). Further, GINI has a positive effect for working men (model 4: intercept: $\beta = 0.026$, $p<0.001$) and for women (model 4: $\beta = 0.026 – 0.005 = 0.021$, $p<0.05$) indicating that respondents in countries with greater income inequality prefer more time at work. Net of the positive impact of GINI, mean weekly work hours are robust, when entered alone and net of annual leave, indicating that work norms structure work time preferences beyond country-level variation in inequality. Further, while women prefer less time at work, normative work hours do not structure these preferences. Finally, annual leave is negatively associated with greater work time preferences (model 3: $\beta = -0.102$, $p<0.05$) an effect robust in the full model (model 4: $\beta = -0.065$, $p<0.05$). This indicates that longer annual leave and shorter work weeks structure preferences for less time at work. The χ^2 statistic demonstrates that, consistent with work-family

interference, the inclusion of macro-level work time improves the model fit. Collectively, our model fit statistics show that macro-level context does not significantly improve model fit for the family measures: family-work interference and family time preferences. But, for work experiences – macro-level work-family interference and work time preferences – work structure explains significantly more variation than the individual controls alone. This means macro-level work expectations significantly condition individual-level work experiences.

Given the counter-intuitive findings for macro-level weekly work hours, we assessed the robustness of these effects multiple ways. First, we were interested in whether country-to-country gender differences in mean weekly work hours were driving the effect. However, women's and men's weekly work hours are highly correlated with overall mean work hours ($r = 0.834$, $p < 0.010$ for women's mean work hours; $r = 0.764$, $p < 0.01$ for men's mean work hours). Thus, longer work weeks are not gender specific. We then explored whether, but found no support for, the gender gap in work hours (men's mean weekly hours – women's mean weekly hours) driving our weekly work hour effect. Net of the gender difference in work hours, mean weekly work hours remains significant for all four of our strain measures. We then explored whether maternity leave (weeks) structured work-family strain but found our mean weekly work hour effect to be robust net of this non-significant effect. Finally, we applied a measure of aggregated political and economic gender empowerment (United Nation's Development Report, 2005) shown to structure work-family and family-work interference (Ruppanner and Huffman 2013). These models allowed us to assess whether gender equality more generally is driving the mean weekly work hour effects and found all of our strain measures to be robust with one exception: family-work interference loses significance. This indicates that family-work interference is structured by gender empowerment, a finding consistent with previous research (Ruppanner and Huffman 2013).

Overall, these exploratory models indicate that mean weekly work hours, rather than alternative explanations, structure work-family strain.

CONCLUSION

Our models inform our individual and macro-level hypotheses and produced many striking and unexpected results. At the individual-level, we find support for the role strain hypotheses with differential effects by gender. Consistent with expectations, we find employed women are more likely to report strain as indicated by their greater family-work interference, preferences for more time with family and less at work. At the country-level, our results are quite provocative. First, the gender results for family-work interference suggest that women use annual leave to reduce family's encroachment on work thus supporting the scarcity hypothesis. In support of the resource-expectations hypothesis, we find workers', regardless of gender, preferences for less time at work. Second, counter to expectations, we find respondents in countries with short work hours are more likely to report role strain. Specifically, respondents in shorter work hour countries are *more* likely to report work-family interference and stronger preferences for *more* time with family and *less* time at work. These indicate that truncated work hours exacerbate rather than alleviate reports of work-family role strain. We discuss the implications of these results in more detail below.

DISCUSSION

In this study, we investigate the relationship between work-time and annual leave at the country-level and multi-dimensional work and family strain at the individual-level. We found role strain has distinct effects by macro-context. Further, we found limited support for gender differences in the impact of normative work-time and annual leave. Collectively, our results indicate that work-time reflects broader work and family schemas. The implications of these results are discussed in more detail below.

Initially, it is important to note that we find limited support for gender differences in the effect of work-time and annual leave on work and family strain. We do find gender differences at the individual-level – women are more likely to report work-family and family-work interference and preferences for more time with family and less time at work. We do not, however, find that weekly work hours at the country-level affect men and women differently. What is more, our one significant cross-level effect – annual leave on family-work interference – loses significance net of country-to-country variation in mean weekly work hours. Although our individual-level gender effects for this cross-national sample are consistent with previous research (Buchanan, 2005; Hill, 2005), we find our macro-contextual factors have largely equivalent effects for men and women. Thus, these results indicate that gender and work time regimes reflect cultural approaches to work and family rather than different gender experiences.

From this, we draw our main conclusions. Work-time structures cultural schemas of work and family beyond individual-level gender differences. Specifically, we find one main pattern: respondents in shorter work hour countries are most likely to report work-family strain. In response to work's encroachment on families, many welfare states have enacted policies that limit work hours (Gornick & Meyers, 2003). These policies are intended to provide employees with greater work-life balance (Bosch, Dawkins, and Michon, 1994; Bosch and Lehndroff, 2001; Gornick and Meyers, 2003; Rubery, Smith, and Fagan, 1999). Counter to these expectations, however, we find shorter work hours are associated with more, and not less, perceived interference and greater work and family time incompatibility. Although these respondents have the lowest work hours and thus the most discretionary time for family, they are the most likely to report preferences for less time at work and more time with family. Further, this is not a consequence of the gendered distribution of strain nor the allocation of workplace resources, including flexible scheduling, among workers. In fact, it is

net of these resources, identified as crucial to worker control (Lyness, Gornick et. al., 2012) in previous research. What is more, we find our macro-level work hour effects to be robust net of a range of country-level controls including the gender distribution of resources at the macro-level. This implies that the multi-level work-family strain effects we identify reflect broader cultural patterns of work and family.

This supports our resource-expectations hypothesis and helps inform the paradoxical relationships identified in previous research (Cousins & Tang, 2004; Lyness et al., 2012). Specifically, Lyness, Gornick et al. (2012) find respondents in countries with longer paid leave report more work hour excess and less work hour deficit. In other words, in more expansive leave countries, respondents prefer less time at work, not more, than their current arrangement. The authors contribute this relationship to a "social multiplier effect" whereby leisure time is less stigmatized and more common (Alesina, Glaeser, & Sacerdote, 2006), and thus workers report stronger preferences for reduced work time. Our research mirrors this pattern yet we find normative work time, not leave, drives these effects. Further, we find no gender differences in work hours' impact suggesting broader cultural consciousness of work-family issues rather than gender-specific strain. As such, respondents in short work hour countries are more sensitive to competing work and family demands and thus most likely to report contention. Enacting welfare state policies that limit work hours requires a strong public consciousness about work-family incompatibility. Our results suggest that this consciousness remains and is voiced through reports of greater work-family strain. But rather than a multiplier effect, whereby stigma is reduced, we suspect that these policies, a resource, may shift expectations for work and family increasing workers' sensitivity to work-family strain. Further, we find this relationship exclusively tied to work hours and not leave or other measures of gender empowerment. Additional research investigating shifts in cultural ideology pre and post work hour shifts is warranted. Further, given these consistently

inconsistent quantitative results, deeper qualitative research into the mechanisms driving these patterns is essential.

These results have additional limitations. First, we do not test for policy effects of maximum work hour regulation and thus we cannot make concrete policy recommendations. While our results show that shorter work hours are associated with reports of role strain, we do not apply longitudinal data to determine whether policy introduction or use affects work-to-family interference. Thus, we are not arguing that maximum work hour policies are detrimental for workers but rather identify work-family patterns by culture. We also do not measure the respondents' attitudes towards shortened work weeks. While individuals may experience higher work-to-family interference associated with living in a country where part-time work is more normative, they may feel greater work-life balance associated with work hour limitation. Indeed, Verbakel and DiPrete (2008) document a positive association between time in nonwork activities (i.e. raising children and longer vacations) and overall well-being. In this respect, blurring boundaries between work and family may be viewed as a workplace asset rather than a detriment. While we find evidence that individuals in countries with shorter mean work weeks are more sensitive to work-family and family-work interference, we rely on self-reports which can be subject to recall issues and response bias. A complimentary analysis applying multi-national time use data that measures the frequency of interference would strengthen these arguments. Finally, our results highlight the need to collect detailed work and family characteristics simultaneously. The significant results identified in this study may be explained by the distribution of family demands but without domain spanning data, we cannot assess these effects.

Ultimately, the results of this analysis are clear and robust: respondents report greater work-family strain in shorter work hour countries. These results suggest that normative expectations for work-time play a central role in weakening or strengthening boundaries

between work and family life beyond individual-level characteristics.

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Table 1: Country-Level Descriptive Statistics for Dependent and Macro-Level Measures (2005 ISSP)

Country	N	Mean Work-Family Interference	Mean Family-Work Interference	Mean Work-Time Preferences	Mean Family-Time Preferences	Mean Work Hours	Legislated Annual Leave (weeks)	GINI (2005)
Australia	945	2.88	2.22	2.55	4.09	38.43	4.5	35.20
Belgium	692	2.68	2.12	2.67	3.88	39.46	4.8	33.00
Bulgaria	411	2.80	2.26	3.94	3.67	44.48	4	29.20
Canada	489	2.78	2.31	2.38	4.22	37.63	2.5	32.60
Cyprus	554	2.71	2.36	2.73	3.43	38.82	4.4	29.00
Czech Republic	607	2.34	1.76	2.50	3.81	45.15	4	25.80
Denmark	1002	2.59	2.03	2.47	3.95	38.59	5	24.70
Dominican Republic	748	2.00	1.77	3.65	4.24	46.90	2.8	50.00
Finland	611	2.65	2.01	2.27	3.86	39.46	6.00	26.90
France	992	2.74	1.89	2.63	4.17	37.14	6.00	32.70
Germany	755	2.72	1.87	3.03	4.06	40.89	4.80	28.30
Great Britain	402	2.77	2.12	2.44	4.13	37.75	4	36.00
Hungary	421	2.44	1.60	3.08	4.06	39.26	5	30.00
Ireland	452	2.39	1.89	2.59	4.05	37.41	4	34.30
Isreal	454	2.29	1.75	3.31	4.10	39.80	4.2	39.20
Japan	409	2.34	1.98	2.70	3.66	41.26	2	24.90
Latvia	519	2.38	1.74	2.82	3.84	41.49	4	35.70
Mexico	547	2.54	2.15	3.75	4.09	41.38	2	48.10
New Zealand	709	2.70	2.05	2.48	4.12	37.69	5	36.20
Norway	857	2.58	1.90	2.62	4.03	38.90	3	25.80
Philipines	498	2.67	2.49	4.27	3.94	45.37	1	44.00
Portugal	906	2.41	2.00	2.90	3.91	40.32	4.4	38.50
Russia	788	2.16	1.54	2.92	3.91	40.96	5.6	37.50
Slovenia	465	2.72	1.70	2.72	4.02	43.07	4	31.20
South Africa	733	2.72	2.31	3.71	3.97	41.05	4.2	57.80
South Korea	726	2.20	1.83	3.57	3.81	48.45	2	31.60
Spain	486	2.42	2.06	2.73	3.82	40.64	6	34.70
Sweden	713	2.84	2.14	2.23	4.07	38.27	5	25.00
Switzerland	563	2.65	2.42	2.75	3.89	38.41	4	33.70
Taiwan	1105	2.02	1.76	3.46	3.68	46.79	1.5	43.40
United States	840	2.56	2.05	2.75	4.49	42.32	0	40.80

Table 2. Hierarchical Linear Model for Work-Family Interference: Regression Coefficients

Variable	Model 1 Coeff.		Model 2 Coeff.		Model 3 Coeff.		Model 4 Coeff.	
Intercept	2.586	***	2.356	***	2.354	***	2.355	***
Mean Weekly Work Hours	---		-0.049	***	---		-0.047	***
Annual Leave (weeks)	---		---		0.032		0.014	
GINI Coefficient	---		0.000		-0.006		-0.001	
Cross-level Effects								
Female	-0.073	**	0.041		0.042		0.042	
Mean Weekly Work Hours	---		0.011		---		0.009	
Annual Leave (weeks)	---		---		-0.027		-0.024	
GINI Coefficient	---		-0.001		0.000		-0.001	
VARIANCE COMPONENTS								
Intercept	0.066	***	0.042	***	0.058	***	0.041	***
Female	0.017	***	0.015	***	0.015	***	0.014	***
Model Fit (χ2 statistic compared to full individual-level model)	---		13.084	**	4.601		15.405	**
Level-1 r	1.087		0.848		0.848		0.848	

Note: *p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests). 2005 ISSP data. N=20,399 individuals nested in 31 countries. Note: model fit compares the model to the full individual-level model

Table 3. Hierarchical Linear Model for Family-Work Conflict: Regression Coefficients

Variable	Model 1 Coeff.		Model 2 Coeff.		Model 3 Coeff.		Model 4 Coeff.	
Intercept	2.004	***	1.817	***	1.815	***	1.816	***
Mean Weekly Work Hours	---		-0.033	*	---		-0.031	*
Annual Leave (weeks)	---		---		0.011		-0.001	
GINI Coefficient	---		0.005		0.001		0.005	
Cross-level Effects								
Female	0.014		0.088	*	0.089	***	0.088	***
Mean Weekly Work Hours	---		0.008		---		0.005	
Annual Leave (weeks)	---		---		-0.027	*	-0.026	
GINI Coefficient	---		0.002		0.003		0.002	
VARIANCE COMPONENTS								
Intercept	0.062	***	0.045	***	0.056	***	0.049	***
Female	0.005	**	0.010	***	0.006	***	0.006	***
Model Fit (χ2 statistic compared to full individual-level model)	---		6.93		6.826		11.327	
Level-1 r	0.823		0.865		0.762		0.762	

Note: *p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests). 2005 ISSP data. N=20,399 individuals nested in 31 countries. Note: model fit compares the model to the full individual-level model

Table 4. Hierarchical Linear Model for Preferences for more Time with Family: Regression Coefficients

Variable	Model 1 Coeff.		Model 2 Coeff.		Model 3 Coeff.		Model 4 Coeff.	
Intercept	3.935	***	3.847	***	3.846	***	3.847	***
Mean Weekly Work Hours	---		-0.025	*	---		-0.026	*
Annual Leave (weeks)	---		---		0.013		0.002	
GINI Coefficient	---		0.010	*	0.007		0.010	*
Cross-level Effects								
Female	0.078		0.097	***	0.096	***	0.096	***
Mean Weekly Work Hours	---		0.002		---		0.003	
Annual Leave (weeks)	---		---		0.012		0.013	
GINI Coefficient	---		0.000		0.001		0.000	
VARIANCE COMPONENTS								
Intercept	0.041	***	0.032	***	0.038	***	0.032	***
Female	0.003	**	0.002	**	0.002	*	0.002	**
Model Fit (χ2 statistic compared to full individual-level model)	---		7.108		4.388		9.052	
Level-1 r	0.622		0.596		0.596		0.596	

Note: *p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests). 2005 ISSP data. N=20,399 individuals nested in 31 countries. Note: model fit compares the model to the full individual-level model

Table 5. Hierarchical Linear Model for Preferences for more Work Time: Regression Coefficients

Variable	Model 1 Coeff.		Model 2 Coeff.		Model 3 Coeff.		Model 4 Coeff.	
Intercept	2.951	***	3.014	***	3.020	***	3.016	***
Mean Weekly Work Hours	---		0.102	***	---		0.097	***
Annual Leave (weeks)	---		---		-0.102	*	-0.065	*
GINI Coefficient	---		0.026	***	0.037	***	0.026	***
Cross-level Effects								
Female	-0.022		-0.069	***	-0.070	***	-0.069	***
Mean Weekly Work Hours	---		-0.007		---		-0.006	
Maternity Leave (weeks)	---		---		0.006		0.004	
GINI Coefficient	---		-0.005	*	-0.006	**	-0.005	*
VARIANCE COMPONENTS								
Intercept	0.288	***	0.081	***	0.148	***	0.073	***
Female	0.010	***	0.001	*	0.002	*	0.001	*
Model Fit ($\chi 2$ statistic compared to full individual-level model)	---		41.628	***	21.398	***	45.015	***
Level-1 r	0.817		0.775		0.775		0.775	

Note: *p < 0.05; **p < 0.01; ***p < 0.001 (two-tailed tests). 2005 ISSP data. N=20,399 individuals nested in 31 countries.
Note: model fit compares the model to the full individual-level model