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Measurement Matters: Family Leave Policies and Women's Employment

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Measurement Matters: Family Leave Policies and Women's Employment

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CROSS-NATIONAL
DATA CENTER
in Luxembourg

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**Measurement Matters: Family Leave Policies
and Women's Employment**

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Abstract

Although work-family scholars generally agree that maternal and parental leave policies affect women's labor force outcomes, the direction and extent of this effect is highly contentious. Complicating the debate, parental leave policies are measured in a variety of ways in cross-national research, making it difficult to compare findings across studies. There is little assessment of how measurement affects outcomes or of alternate ways to measure these leave schemes. Using data from the Luxembourg Income Study (~2013) and an original collection of parental leave measures from 26 countries, this paper analyzes how different measurement strategies affect women's employment rates by examining combinations of paid and unpaid maternal and parental leave, wage replacement rates, job protection, and eligibility requirements. The results suggest that competing findings in previous work may be explained by scholars' focus on different pieces of maternal and parental leave policy, shedding new light on the importance of using comparable indicators. I argue for the use of reliable ways to measure policy, such as the importance of including wage replacement rates in future models for more consistent, complete perspectives of policy effect.

Keywords: family policy, measurement, labor market outcomes, employment, women

Introduction

The literature comparing cross-national family-friendly policies and the extent to which they have an influence on women and mothers' labor market outcomes is equally theoretically and empirically rich. Whether certain types of paid parental leave promote positive labor force outcomes for women and mothers is an important question for both theory and policy. Unfortunately, the evidence base is complicated and at times contradictory. Cross-national studies on the effects of family-friendly policies on women's labor market outcomes have found that when leave offered to new parents is fully paid, women's workforce attachment increases, though in areas that have particularly long parental leave schemes, women's workforce attachment decreases (Hegewisch and Gornick 2011; Evertsson and Duvander 2011). While some studies have shown paid parental leave combined with high wage replacement rates has a positive effect on women's employment rates and wages (Gornick et al 1998), others find these effects are curvilinear: in leave periods that are a year or more, though positive for mothers to an extent, are negative thereafter, signaling a threshold period where leaves benefit mothers (Pettit and Hook 2005, 2009; Dobrotić and Stropnik 2020; Waldfogel 1998). Still others contend national-level parental leave policies have no significant effect on these same labor market outcomes (Brady, Blome, and Kmec 2020).

However, each of these studies measure parental leave policy in different ways, creating inconsistent benchmarks to compare results. For example, Gornick et al (1998) found maternal employment rates to be higher in countries with longer leave available to mothers, a well-paid wage replacement rate, and access to job protection, on average, than countries with shorter leave lengths and lower wage replacement. Brady, Blome, and Kmec (2020), however, find that there is no significant association between their leave measures—paid parental leave length and its squared—and women's employment rates. This wide spectrum of results presents an unstable picture of parental leave schemes. What is “good” leave for women's employment rates? What is “bad” leave? Does leave affect employment rates at all? Do methods of policy measurement used in research have any effect on magnitude and significance? These competing findings complicate

our understanding of the association between parental leave and women's labor force attachment, which is why the measurement of these indicators requires further evaluation.

Studies' measures of parental leave may also be missing important pieces of the policies themselves, such as eligibility restrictions dictating which parents are allowed to take leave and when. While researchers have started to consider the importance of eligibility restrictions (Dobrotić and Blum 2019), cross-national research has yet to include eligibility restrictions as a main effect among leave characteristics. The addition of this aspect of leave can allow for greater attention to be drawn to which mechanisms of policy that may affect women's employment rates, as well as other labor market outcomes, such as occupational sex segregation and women's earnings.

This paper focuses specifically on maternal and parental leave schemes, which are national-level benefits for new parents intended to allow for and incentivize parental involvement in child rearing and childcare. Depending on the country¹, policies are offered to only mothers or to both parents,² though most leave is used by mothers. I assess differences in women's employment rates by analyzing and testing combinations of national-level leave policy characteristics, some of which were used in prior work, to further understand how measurement of indicators affects outcomes. This paper tests novel combinations of leave characteristics, one of which incorporates eligibility requirements for mothers, another includes job protection as a function of length, and the third uses a suggestion by the Parental Leave Network testing effects of well-paid leave versus low-paid leave. I argue that measurement matters when considering policy effects: maternal and parental leave policies are complicated forms of legislation which vary vastly between countries (Ray, Gornick, and Schmitt 2010) and by standardizing measurement in analyses, we can compare findings with greater accuracy. As the results show, specific leave policy combinations provide researchers with differing pictures of the direction and extent of effects.

Linking Policy Measurement to Theory

Depreciation of Human Capital

Scholars have argued that women and mothers may experience a depreciation in human capital when they are away from work caring for young children (Becker 1985). This depreciation could explain work experience and wage gaps between mothers and nonmothers (Adda et al 2017). Human capital depreciation theory follows, as women's time away from the workforce increases, work experience is less likely to accrue at the same rate as those working. We also know that, as in the case with extremely long maternal and parental leaves, mothers experience a depreciation in human capital during their time away from the labor force (Petit and Hook 2009; Hegewisch and Gornick 2011; Evertsson and Duvander 2011). The length of both maternal and parental leave exacerbates this time. When parents take leave, they are not accumulating work experience, time on the job, or training. The longer the leave, the longer

¹ Countries included are consistent with previous cross-national work, and include Austria (2013), Belgium (2013), Canada (2010), Czech Republic (2013), Denmark (2013), Estonia (2013), Finland (2013), Georgia (2013), Germany (2013), Greece (2013), Hungary (2012), Iceland (2010), Ireland (2014), Israel (2012), Luxembourg (2013), Netherlands (2013), Poland (2013), Russia (2013), Serbia (2013), Slovakia (2013), Slovenia (2012), South Africa (2012), Spain (2013), Switzerland (2013), UK (2013), US (2013).

² Although some countries offer leave reserved for fathers, no country only offers paternal leave without offering maternal leave.

parents are allowed to be away from work. Longer leaves are potentially more attractive to women and mothers if leaves are well paid, because they allow for parents to spend time caring for and spending formative time with their children without loss of compensation. Short leaves are potentially more attractive to women and mothers if these leaves are compensated at a lower rate (i.e. have low wage replacement rates).

Unpaid leave may operate similarly: if job-protected parental leaves are long yet a period of that time is unpaid after the initial payment period, mothers may be less likely to stay out on leave for financial reasons and may return to work faster than if the well-paid period was longer. So, although length of unpaid maternal or parental leave may directly matter for mothers' human capital depreciation, paid maternal and parental leave may matter more—as it might influence decisions about returning to work and either stalling or advancing work experience, education, etc. Paid leave is also potentially inconsequential to mother's decisions to stay out of the labor force if wage replacement rates offered in these policies do not match financial compensation while at work. Eligibility requirements also have the potential to affect the depreciation of human capital by selecting which parents are allowed to take the time away from the labor market.

Employer Discrimination

It is well known among researchers focusing on women's labor force attachment that mothers, on average, experience lower levels of employment (and lower wages) than do non-mothers (Angelov et al 2016). It is also well known that employers do discriminate against mothers (Correll et al 2007:1333). Researchers have focused efforts on parsing apart the relationship between employers and employees to understand gaps in hiring and promoting which influence employment rates, occupational sex segregation, and wages. Employers often rest their assumptions about mothers' productivity upon traditional Western understandings of gender roles, expectations, and scripts. In turn, employers make decisions about hiring, firing, and promoting. This occurs even in cases in which women and mothers are as equally qualified as their male counterparts (Correll et al 2007). To employers, women run the risk of leaving the workplace for an extended period to fulfill care obligations, a leave with potential to negatively impact the overall efficiency of production. For example, employers in Hungary's professional and managerial occupations screen out women in the hiring process who already have young children, plan to have children, or whose resumes indicate an employment gap consistent with the country's leave policy (Glass and Fodor 2011). Hungarian employers in their study "make family planning an explicit component of the recruitment process" and often congregate women who are at childbearing "risk" into lower-level positions (2011:13). Length of leave might be especially salient to employers' decisions regarding hiring, firing, or promoting women in lucrative or non-female-typed occupations. The longer the leave offered to women in a specific context, the likelihood employers will assess the cost-to-benefit of hiring women increases, given the heightened chance that women would use leave (Glass and Fodor 2011).

Especially in the United States, women and mothers run the risk of incurring financial burden upon employers if the employers offer paid maternity or parental leave. In some federally mandated paid parental leave policies cross-nationally, wage replacement falls partly upon the employer, rather than solely a federal insurance system such as social security (INLPR). Though there is yet empirical evidence supporting this hypothesis, employers making hiring, firing, and promoting decisions might keep financial costs in mind when evaluating women and mothers. If employers are required to compensate mothers during their time on leave, employers may choose

non-mother candidates to hire and promote, especially if this leave is well-paid. Employers in countries in which all employed parents are eligible for leave may particularly discriminate on the basis of parental status. Further, if leave is job-protected, employers may again avoid hiring or promoting parents to positions where lengths of time away would negatively impact production or accumulation of skills. These decisions may then cluster women into certain female-typed occupations, such as the public sector which has longer maternal leave options in some countries, and part-time work; further feminizing the public sector and low-wage positions. This unequal distribution of women across the labor force creates gender discrepancies in occupational sorting, both vertically and horizontally within and between occupations (Hook and Petit 2015; Charles and Grusky 2004; Wright et al 1995; Goldin 1990; Adda et al 2017).

Leave Policy and Women's Employment Rates

Several studies (Petit and Hook 2005, 2009; Mandel and Semyonov 2006; Gornick and Meyers 2003; Boeckmann et al 2015; Evertsson and Duvander 2010; Blau and Khan 2013; Gornick et al 1997, Gornick et al 1998) examine maternal and parental leave policies and their effects on women's and mother's employment rates, though their findings are inconsistent. Gornick and colleagues (1997) created indices of national-level support for families based on the age of children to compare women's labor force participation across countries. One of these family support indices was parental leave policy³. The authors found vast cross-national differences in both policy offerings and subsequent employment rates for mothers. Their findings suggest that countries offering job protection and wage replacement at the time of childbirth were predicted to experience high rates of mothers in full-time employment. (1997:64). Countries that do not offer these packages, such as those with a lack of federally mandated maternal leave or high-paid wage replacement rate, have consistently lower employment rates for mothers, especially among mothers whose employment-dependent leave packages were exhausted. Similarly, Rønsen and Sundström (2002)⁴ find paid parental leave policies highly important to women and mothers' employment rates and that, within Nordic countries offering paid leave, women who are eligible for paid parental leave have higher re-entry rates than women who are ineligible.

Petit and Hook's (2005) cross-national findings complicate this assertion. The authors measure parental leave as a combination of two characteristics: maternity leave, as the number of paid weeks available to mothers, and parental leave as the total number of parental leave weeks available to mothers; including both paid and unpaid time. They also include a squared term for parental leave to test a curvilinear fit, giving insight to whether leave initially benefits mothers to a threshold and is detrimental thereafter. Pettit and Hook find that longer leaves up to three years are associated with higher rates of employment for mothers with young children. In their recent paper, Hook and Paek (2020) use spline modeling to examine how high-inequality contexts and parental leave policies interact to affect employment outcomes of mothers with varying levels of educational attainment. The authors measure paid leave as the total number of weeks mothers

³ Gornick and colleagues' (2007) measure of leave included a binary variable for job protection to signal the presence or absence of legislature which protects new parents' ability to return to the same or similar job after caring for children; paid maternity leave in weeks; the maternal wage replacement rate; and a binary measure for the presence of paternity benefits.

⁴ Rønsen and Sundström (2002) measure their indicators as length of parental leave and whether mothers are entitled to paid leave.

can receive payments, which includes weeks of maternity, parental, and extended leave. They find that maternal employment is least likely where leave policies extend past six months; considerably shortening previous understandings of long leaves' effects on women's employment. The authors note, however, that this relationship is most pronounced in contexts with high levels of inequality. Blau and Khan (2013) further complicate this picture of parental leave effect on mothers' employment rates. They measure indicators as the number of weeks available to parents and include the wage replacement rate for parents. The authors note increases in employment rates in countries with longer paid leaves and higher wage replacement rates are actually attributed to an increase in part-time work, rather than full-time. Congregations of mothers in part-time work can have consequences in earnings gaps between women, mothers, and men, and representation in full-time, high wage or salaried industries and positions.

[FIGURE 1 ABOUT HERE]

How Leave Policies Vary Cross-Nationally

The benefits leave schemes offer to parents are also not consistent between countries. The majority of high-income and industrialized countries offer some sort of job-protected paid maternal leave policy, with the exception of the United States. Maternal leave is often short and well paid. The United States and South Africa (U.S. Department of Labor; South African Labour Guide) are the only countries in this study to not offer paid maternal leave. Most other countries offering maternal leave require the entirety of that time to be paid, though compensation rates vary anywhere between 60 and 100 percent. Parental leave also varies considerably between countries by length and level of payment. Length of parental leave can range anywhere from 0 to 208 weeks in both unpaid and paid categories, and if paid, from 5 to 100 percent of average earnings. Even with these extensive leave policies available to both parents, mothers are overwhelmingly more likely to use the time (Närvi and Salmi 2019; Hegewish and Gornick 2011). These leaves may be relatively short, as in the case of Belgium, which offers 16 weeks of paid parental leave, or extremely long, such as in the case of Germany, which offers 156 weeks of unpaid parental leave and 14 weeks of paid maternal leave (see Appendix II).

Measurement of Leave Policies

As noted, maternal and parental leave policies vary considerably, as do measurement tactics used in cross-national comparative work on leave policies. Appendix IV illustrates model specifications by policy combination and in which previous works these policy characteristics have been tested. Some authors have used either maternity and/or parental leave in weeks or months, including time that is paid and/or unpaid. This focus on length is driven by the interest in how the total length of leave available to mothers affects women's employment. As previously mentioned, extended time out of the labor force can be consequential to human capital depreciation and may increase the likelihood of employer discrimination. Additionally, some authors choose to include wage replacement rates: monetary compensation while on leave. Job protection, or the right of a parent to return to the same or similar position post-leave, when included has been coded as a binary to indicate whether parents receive protection (Gornick et al 1997; Gornick et al 1998). This measurement tactic is problematic, given that most leave (maternal or parental) is job protected, creating a lack of variation between countries. This paper uses a novel technique, treating job protection as another way to measure length; details of which are described in the methods section.

Additionally, several studies have not treated each variable as an independent main effect. For example, Mandel and Semyonov (2005, 2006), Boeckmann et al (2015), and Misra, Budig, and Boeckmann (2011) treated length of leave and wage replacement as interacting in their models by multiplying the two variables together, rather than including each variable as an independent main effect. Multiplying length of paid leave with wage replacements rate can mitigate effects of pay schedules, such as periods of high pay combined with periods of low pay. Though one iteration replicates this model for means of comparison, the other iterations of policy combinations treat policy variable indicators as independent to maintain heterogeneity between indicators.

Another significant contribution of this study is the addition of an index of national-level eligibility restrictions as a main effect. Eligibility restrictions have been largely ignored in previous literature on family policy and labor market outcomes, apart from Rønsen and Sundström (2002) in which maternity leave status in Norway was constructed through the mother's eligibility to take leave and otherwise regarded as an exogenous variable. In Finland and Sweden maternity leave status signaled whether the mother was currently on leave. In their study, 73.3 and 49.1 percent of Norwegian women were eligible to take leave for first and second births, respectively. Eligibility restrictions are specific to each country's parental leave policy and are intended to only offer leave to those who need or will use it, and are often defined by employment status, parental status, or gender identity. For example, a country may require insurance payments within the last year; employment with the same employer for the last 9 or more months; and/or require that parents are biologically or legally related to children. These criteria restrict who is allowed to take leave, which could incur a vetting process affecting working parents (Dobrotić and Blum 2020). Rønsen and Sundström (2002) argue that pre-birth context of employment status eligibility is not appropriate to test as a main effect since eligibility status exists before their process timeline: the event of giving birth. Essentially, the authors treat eligibility as an exogenous variable since they could not "address policy impacts on pre-birth employment" (2002:133). However, including eligibility restrictions in analyses regarding women's labor market outcomes may influence the way we think about individuals' decisions regarding employment and family planning. Including eligibility restrictions will provide a broader scope of often ignored dimensions of leave and can clarify effects of family friendly policies on women's employment.

An additional significant contribution of this study is the inclusion of a novel suggestion to measure leave. As noted, maternal and parental leave policies vary considerably in length and wage replacement, which makes parsing apart actual effects of policies difficult. If researchers include extremely long, low-paid leaves in models along with short, well-paid periods, there is reason to believe that heterogeneity between payment schedules might be hidden. The Parental Leave Network has therefore suggested that researchers test weeks of well-paid leave against weeks of low-paid leave to further understand these differences in policy effects (2018). This threshold measure is described in detail in the methods and modeling section.

Data

Outcome Variables

This project analyzes individual-level data from the Luxembourg Income Study (LIS) Database to look cross-nationally at the effect of parental leave characteristics on women's employment rates. The cross-sectional analysis uses wave IX of LIS, which includes data from around 2013, and 26 countries: Austria (2013), Belgium (2013), Canada (2010), Czech Republic

(2013), Denmark (2013), Estonia (2013), Finland (2013), Georgia (2013), Germany (2013), Greece (2013), Hungary (2012), Iceland (2010), Ireland (2014), Israel (2012), Luxembourg (2013), Netherlands (2013), Poland (2013), Russia (2013), Serbia (2013), Slovakia (2013), Slovenia (2012), South Africa (2012), Spain (2013), Switzerland (2013), UK (2013), US (2013).

The LIS sample was restricted to working-aged individuals, which overlap considerably with parental status changes and age at first birth. Individuals between the ages of 25 and 54 are most likely to be affected by these macro-level policies. Women's employment rates in each country include full-time and part-time work. Employment is recoded as a binary from the individual-level *lfs* variable, those employed are coded as 1 and those unemployed, students, individuals who are disabled, homemakers, those retired, and those not in the labor force are coded as zero. Individuals in the "employed" category include those on maternity or parental leave.

Independent Variables—Leave Policy Indicators

Through an original compilation of available data from the Organization for Economic Cooperation and Development (OECD) Family Database, Parental Leave Network, International Labor Organization (ILO) Reports, and government policy profiles, this study employs a variety of indicators. From these databases, total weeks of maternity leave, total weeks of paid maternity leave, maternity leave wage replacement rate, total weeks of parental leave, total weeks of paid parental leave, parental leave wage replacement rate, eligibility requirements for mothers, and whether the leave is job protected for mothers, have been harmonized. Figure 1 shows each of these parental leave policy measures, the author's definition of the measure indicating how each was coded in the macro-data, and examples in previous work-family policy literature which tested each of these measures. Total measures of leave length, coded as continuous variables in months, include the total amount of time available to both parents or only to mothers in weeks that is both paid and unpaid. Total weeks of paid leave includes the number of months mothers are allowed to collect monetary compensation, or wage replacement, which includes paid time from both maternal and parental leave. Appendices I, II, and III outline how each of these measures were coded in the macro-data.

Wage replacement rates for mothers and fathers are individually coded for each country-year and indicate the amount of supplemental income benefit both parents, mothers, or fathers receive. Wage replacement rates, as previously noted, vary considerably between countries and are paid by employers, insurance, or social security payments. These rates are coded as a percentage of average weekly earnings, as stated in the country's policy. However, some countries offer wage replacement as a flat-rate benefit. Flat-rate wage replacements are coded as a percentage average weekly earnings for women in that country. Some countries offer wage replacement as a percent of average earnings with a weekly cap. In these cases, a weighted average was taken for all individuals earning above or below those thresholds; that was then applied to the wage replacement rate.

Job protection, coded as a continuous variable, indicates how many months parents are allowed to be away from work while maintaining the right to return to the same or similar position after leave. Countries vary on what constitutes as job protected leave. For example, in Germany, parents are legally protected from dismissal while on leave, while in Austria parents are protected for an additional month after leave ends. Eligibility restrictions are coded as an index, ranging from 0 to 3, which reflect national-level requirements on leave eligibility. This coding scheme is outlined in figure 1.

The Parental Leave Network has suggested that researchers use a threshold to define the number of weeks that would be considered well-paid and those that would be considered low-paid to potentially reveal inconsistencies in pay schedules between countries. The threshold for what the Parental Leave Network suggests is well-paid is a wage replacement rate during the paid leave period that is 66 percent of average income. This is coded in the macro-data as the number of months that leave (including maternal and parental leave, see Appendix IV) is paid at or above 66 percent of the wage replacement rate. An additional test of this threshold measures the number of months that leave is paid at or above 50 percent of the wage replacement rate.

Methods and Modeling Strategy

This study follows previous literature employing mixed effect multi-level regression models to explore the effects of varying leave policy characteristics on women's employment outcomes. Each model is restricted to a female, working age sample and controls for age, partner status, parental status, and respondent's education. High education, coded as a binary from the LIS, indicates that tertiary education was completed. Previous research indicates that age, partnership status, parental status, and high education are strong mediators in all labor market outcomes, especially for women. The model tests follow a logical progression of inclusion and exclusion of leave characteristics. Table 1 assesses the relationship between leave length and employment. These first eight models are linear functions and evaluate which measure of length is best fit to understand the effects on women's employment rates. Additionally, previous work has examined some of these combinations. Table 2 uses the same modeling strategy as Table 1, although all models include a squared term on leave to test curvilinear relationships. This modeling strategy is consistent with research which finds that extremely long leaves can be detrimental to women's employment (Hegewisch and Gornick 2011; Brady, Blome, and Kmec 2020; Nieuwenhuis et al 2017).

Table 3 includes variations of paid leave length and additional leave characteristics such as wage replacement rates and eligibility restrictions. These 13 models assess how measuring paid leave with rates of compensation and national-level restrictions to access leave affect women's employment rates.

Model fit in each of these tests is assessed through Akaike and Bayesian information criterion (henceforth AIC, BIC). AIC and BIC are model-fit statistical tests, based on the likelihood function, which test parameters of each model for cross-comparison purposes. When evaluating AIC and BIC, the lowest value across iterations indicates the preferred model. Of note: since these criterion naturally prefer models with few independent variables; some of the results suggest iterations with interactions over individual main effects.

Results

The tables below display results for each parental leave indicator, and control variables: parental status, partnership status, age, and tertiary education. The intent of these coefficients is not to make a case about effect size or significance parental leave schemes as mechanisms for either predicting or failing to predict women's employment rates, but rather to highlight the importance of how measurement matters when analyzing national-level policy frameworks.

Employment—Testing Length

Table 1 displays the effects of leave policy length on women's employment. Each model is linear and defines length as the number of months available to parents through maternal and/or parental leave, and model fit is assessed through AIC and BIC. Models 1 and 2 test the length of parental leave available both as a total length measure (both paid and unpaid months, model 1) and as a total paid measure (only months which are paid, model 2). Both trend positive, but only paid leave reaches statistical significance and model 2 is preferred by both fit statistics. Results are null for models 3 and 4, which test the total length and paid length of maternal leave, respectively, as are results for model 5, which tests a combined measure of paid maternal and parental leave length. Model 6 tests the total time that parents are granted job protection and produces null results. Models 7 and 8 test well-paid weeks and low paid weeks at a 66% and 50% threshold, respectively. Results are similarly null. In sum, the best fitting model among linear terms is length of paid parental leave. This is interesting, considering that the coefficient on total paid leave in the fifth model, which refers to all leave which is paid either through maternal or parental policies, is insignificant.

[TABLE 1 ABOUT HERE]

Employment—Testing Curvilinear Fit

Table 2 displays effects of leave policy length, as non-linear functions, on women's employment. Each model adds a squared term to the linear models in Table 1, testing a curvilinear fit. Consistent with previous work, the first five models find that length of leave is positive when linear, and negative as a squared coefficient, although the main effect only reaches statistical significance in model 2 (paid parental leave length). This means that length of leave (whether maternal or parental, total time or paid time offered) is positive up until a certain point, and then is negatively associated with women's employment rates. The AIC and BIC continue to prefer model 2. There is little difference (0.2) between the AIC in the linear model (Table 1) and the curvilinear model (Table 2), but the BIC prefers the linear model (as the BIC penalizes additional parameters more heavily than the AIC).

Interestingly, the test for the Parental Leave Network threshold suggestions of months paid at 66 percent or more (model 7) is not significant, although the additional test (model 8) which drops that threshold to months paid at 50 percent or more, has marginally significant linear and curvilinear coefficients on the well-paid measures. As linear terms, the coefficients on the well-paid leave in both models are positive, though when squared, turn negative, consistent with the signs of the coefficients in the first five models. The results for low-paid leave are null. The coefficients are also slightly larger when leave is measured by the 50 percent threshold. Additionally, AIC and BIC also prefer the 50 percent measure over the 66 percent threshold, indicating that if researchers are interested in comparing well-paid weeks to low-paid weeks, coding "well-paid" as the number of months in which the wage replacement rate is over 50 percent is the best fit. However, the best model fit in Table 2 is still paid parental leave and paid parental leave squared.

[TABLE 2 ABOUT HERE]

Employment—Testing Additional Leave Characteristics

Table 3 displays combinations of leave length, wage replacement rates, and eligibility restrictions. Since previous tests in Tables 1 and 2 indicated that paid leave (either maternal or

parental) were the best fit models and had coefficients with the greatest significance, Table 3's models do not include any unpaid leave. Overall, wage replacement rates are the most consistently significant leave characteristic across models, especially parental wage replacement rates. The effect of paid parental leave on women's employment rates does not fluctuate in any significant way in the first three models. However, when eligibility and the squared coefficient on leave are included, the effect of paid parental leave on employment turns negative, and the squared term turns positive. This change in signs is incompatible with previous work which argues that parental leave is positive for women's employment up until a point after which the effect turns negative (Pettit and Hook 2005, 2009; Dobrotić and Stropnik 2020; Waldfogel 1998). The first model is preferred by AIC and BIC, although the coefficient on parental wage replacement in the first model is the only coefficient with significance to the $p < .1$ level, and insignificant on the paid length coefficient. Interestingly, eligibility restrictions have no significant impact on effect size or direction across models. This could be due to the coding scheme—eligibility restrictions were measured ordinally. This is worth further exploration, especially in a longitudinal analysis in which restrictions are coded at the individual level (Rønsen and Sundström 2002). Interestingly, the AIC and BIC are also partial to the last model which tests the interaction between paid maternal leave and the maternal wage replacement rate. However, previous work contests use of this measure and is likely preferred by AIC and BIC because it is a single-covariate test.

[TABLE 3 ABOUT HERE]

Discussion

This research has shown that relationships between parental leave policies and women's employment may be more complicated than originally thought. As expected, there were slight variations between models in each outcome tested. These findings suggest that paid parental leave is the best way to measure length when considering policy effects specifically on women's employment, followed by paid maternal leave. This is true for when length is analyzed in both linear and curvilinear models. Further, when additional covariates are included, wage replacement rates are the most consistently significant characteristic. This is an important finding, considering that wage replacement is often left out of many studies analyzing national family leave contexts. However, though the coefficient in fifth model in Table 3 is parsimonious, it is missing critical information about the significance of wage replacements on women's employment. Interestingly, results for low-paid leave are null, consistent with the hypothesis that mothers might not use leave if it is low-paid. If mothers are not using leave, there likely would not be an effect on employment rates.

Measurement of family leave policies in work-family literature is just as important to consider as the method through which outcome variables are defined. When looking at maternal, parental and paternal leave, each characteristic of the policy—how much time parents are allowed to take from work, the level of benefit they receive and when, which parents are eligible for compensation and leave, whether leave is shareable—have a different effect on the labor force opportunities for women and context of the relationship between women and work.

Future research would benefit from understanding how parents are actually taking leave. Evaluating policy from a perspective that takes into account how long women are allowed to take away from the labor force is valuable, yet it fails to provide perspective into how women are using the leave. For example, to what extent are women staying on unpaid leave? Eligibility

requirements which require employees to contribute to payment systems, such as public insurance, are also worth further consideration: are parents able to use leave in its entirety? Attention must also be paid to employer responsibility in leave policy payment mandates: if employers are responsible for paying for parents' wages while they are on leave, what effect might that have on women's value in the labor market?

This research has shown that it is imperative to consider how policy researchers are treating their independent variables. Public policies are complicated forms of legislation that include much variability between countries. By examining the intricacies of family leave policies and reassessing what it means to test certain aspects, we can begin to understand how these characteristics work independently or separately to affect women's labor market outcomes.

Author declares no competing interests.

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OECD Countries*

Table 1. Multilevel Linear Regression Coefficients: Length on Women's Employment Rates

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 | Model 6 | Model 7 | Model 8 |
|-----------------------------|----------|----------|----------|----------|---------|----------|----------|----------|
| Total Parental Leave | 0.008 | | | | | | | |
| Paid Parental Leave | | .013* | | | | | | |
| Total Maternal Leave | | | -.028 | | | | | |
| Paid Maternal Leave | | | | -.024 | | | | |
| Total Paid Leave | | | | | 0.010 | | | |
| Job Protection | | | | | | -.000 | | |
| Well-Paid Leave (66%) | | | | | | | 0.007 | |
| Low-Paid Leave (66%) | | | | | | | 0.005 | |
| Well-Paid Leave (50%) | | | | | | | | 0.009 |
| Low-Paid Leave (50%) | | | | | | | | 0.006 |
| N | 201,560 | 201,560 | 201,560 | 201,560 | 201,560 | 201,560 | 201,560 | 201,560 |
| *p<.05 **p<.01 ***p<.001 | | | | | | | | |
| AIC | 215933.1 | 215931.4 | 215933.6 | 215934.5 | 215933 | 215935.5 | 215936.6 | 215936.1 |
| BIC | 216004.6 | 216002.9 | 216005.1 | 216006 | 216004 | 216007 | 216018.3 | 216017.8 |

| | | | | | | | | | |
|---------------------------------------|--|--|--|--|--|--|--|--|---------|
| Well-Paid Leave (50%) ² | | | | | | | | | -0.008* |
| Low-Paid Leave (50%) | | | | | | | | | -0.019 |
| Low-Paid Leave (50%) ² | | | | | | | | | 0.001 |

| | | | | | | | | | |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| N | 201,560 | 201,560 | 201,560 | 201,560 | 201,560 | 201,560 | 201,560 | 201,560 | 201,560 |
|---|---------|---------|---------|---------|---------|---------|---------|---------|---------|

*p<.05 **p<.01

***p<.001

| | | | | | | | | |
|-----|----------|----------|----------|----------|----------|----------|----------|----------|
| AIC | 215934.6 | 215931.6 | 215934.8 | 215932.5 | 215934.9 | 215936.7 | 215937.1 | 215935.2 |
| BIC | 216016.3 | 216013.3 | 216016.5 | 216014.2 | 216016.6 | 216018.5 | 216039.2 | 216037.3 |

Table 3. Multilevel Linear Regression Coefficients: Additional Leave Characteristics on Women's Employment

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|----------|----------|----------|----------|----------|
| Paid Parental Leave | 0.010 | 0.013 | 0.011 | -0.006 | |
| Paid Parental Leave ² | | -0.000 | | 0.000 | |
| Parental Wage Replacement | 0.435 | 0.406 | 0.409 | 0.554 | |
| Total Paid Leave ² Paid Maternal Leave * Maternal Wage Replacement Rate | | | | | -0.034 |
| Eligibility Restrictions | | | 0.091 | 0.114 | |
| N | 201,560 | 201,560 | 201,560 | 201,560 | 201,560 |
| *p<.05 **p<.01 ***p<.001 | | | | | |
| AIC | 215930.1 | 215932.1 | 215930.4 | 215932.1 | 215933.4 |
| BIC | 216011.8 | 216024 | 216022.3 | 216034.2 | 216004.9 |

Appendix I: Macro-Level Policy Data: Parental Leave

| Country | Parental Leave (weeks) | Paid Parental Leave (weeks) | Parental Wage Replacement |
|----------------|---------------------------|--------------------------------|---------------------------|
| Austria | 104 | 0 | 0 |
| Belgium | 16 | 16 | .45 |
| Canada | 35 | 35 | .5 |
| Czech Republic | 208 | 208 | .05 |
| Denmark | 32 | 32 | 1 |
| Estonia | 156 | 0 | 0 |
| Finland | 26.3 | 26.3 | .66 |
| Germany | 156 | 0 | 0 |
| Georgia | 50 | 0 | 0 |
| Greece | 16 | 0 | 0 |
| Hungary | 72 | 72 | .395 |
| Iceland | 12 | 12 | .789 |
| Ireland | 14 | 0 | 0 |
| Israel | 52 | 0 | 0 |
| Luxembourg | 26 | 26 | .73 |
| Netherlands | 19.782 | 0 | 0 |
| Poland | 156 | 0 | 0 |
| Russia | 156 | 78 | .4 |
| Serbia | 0 | 0 | 0 |
| Slovakia | 156 | 156 | .598 |
| Slovenia | 37 | 37 | 1 |
| South Africa | 0 | 0 | 0 |
| Spain | 156 | 0 | 0 |
| Switzerland | 0 | 0 | 0 |
| UK | 13 | 0 | 0 |
| US | 12 | 0 | 0 |

Notes: policy data from OECD, Leave Network Reports, ILO Reports, policy experts. See references for complete citations.

Appendix II: Macro-Level Policy Data: Maternal Leave and Job Protection

| Country | Maternal Leave (weeks) | Paid Maternal Leave (weeks) | Maternal Wage Replacement | Eligibility Restrictions | Job Protection |
|----------------|------------------------|-----------------------------|---------------------------|--------------------------|----------------|
| Austria | 16 | 16 | <u>1</u> | 2 | 16 |
| Belgium | 15 | 15 | .85 | 2 | 23 |
| Canada | 17 | 16 | .6 | 2 | 63 |
| Czech Republic | 28 | 28 | .7 | 0 | 28 |
| Denmark | 18 | 18 | 1 | 2 | 50 |
| Estonia | 20 | 20 | 1 | 2 | 195 |
| Finland | 15 | 15 | .806 | 0 | 80.3 |
| Germany | 14 | 14 | 1 | 0 | 170 |
| Georgia | 18 | 18 | 1 | 3 | 68 |
| Greece | 43 | 43 | 1.15 | 0 | 117 |
| Hungary | 48 | 24 | .7 | 3 | 159 |
| Iceland | 12 | 12 | .7945 | 1 | 24 |
| Ireland | 42 | 26 | .8 | 2 | 56 |
| Israel | 14 | 14 | 1 | 3 | 24 |
| Luxembourg | 16 | 16 | 1 | 2 | 50.8 |
| Netherlands | 16 | 16 | 1 | 2 | 61 |
| Poland | 24 | 24 | 1 | 1 | 24 |
| Russia | 20 | 20 | 1 | 3 | 176 |
| Serbia | 72 | 72 | 1 | 1 | 0 |
| Slovakia | 34 | 34 | .65 | 1 | 0 |
| Slovenia | 15 | 15 | 1 | 1 | 65 |
| South Africa | 16 | 0 | 0 | 2 | 55 |
| Spain | 16 | 16 | 1 | 2 | 172 |
| Switzerland | 14 | 14 | .8 | 2 | 14 |
| UK | 52 | 39 | .88 | 2 | 104 |
| US | 0 | 0 | 0 | 0 | 12 |

Appendix III: Well-Paid vs Low-Paid Months

| Country | Well-Paid Months (66%) | Low-Paid Months (66%) | Well-Paid Months (50%) | Low-Paid Months (50%) |
|----------------|------------------------|-----------------------|------------------------|-----------------------|
| Austria | 3.76 | 24.47 | 3.76 | 24.47 |
| Belgium | 3.53 | 3.76 | 3.53 | 3.76 |
| Canada | 0 | 12.24 | 3.76 | 8.47 |
| Czech Republic | 6.59 | 48.94 | 6.59 | 48.94 |
| Denmark | 11.76 | 0 | 11.76 | 0 |
| Estonia | 4.71 | 36.71 | 4.71 | 36.71 |
| Finland | 9.72 | 0 | 9.72 | 0 |
| Germany | 3.29 | 36.71 | 3.29 | 36.71 |
| Georgia | 4.24 | 11.76 | 4.24 | 11.76 |
| Greece | 10.12 | 3.76 | 10.12 | 3.76 |
| Hungary | 5.65 | 22.59 | 5.65 | 22.59 |
| Iceland | 5.65 | 0 | 5.65 | 0 |
| Ireland | 6.12 | 7.06 | 6.12 | 7.06 |
| Israel | 3.29 | 12.24 | 3.29 | 12.24 |
| Luxembourg | 9.88 | 0 | 9.88 | 0 |
| Netherlands | 3.76 | 4.65 | 3.76 | 4.65 |
| Poland | 5.65 | 36.71 | 5.65 | 36.71 |
| Russia | 4.71 | 36.71 | 4.71 | 36.71 |
| Serbia | 16.94 | 0 | 16.94 | 0 |
| Slovakia | 0 | 44.71 | 8 | 36.71 |
| Slovenia | 12.24 | 0 | 12.24 | 0 |
| South Africa | 0 | 3.76 | 0 | 3.76 |
| Spain | 3.76 | 36.71 | 3.76 | 36.71 |
| Switzerland | 3.29 | 0 | 3.29 | 0 |
| UK | 9.18 | 6.12 | 9.18 | 6.12 |
| US | 0 | 2.82 | 0 | 2.82 |

Appendix IV: Model Specifications and Similar Tests in Previous Literature

| Model | Policy Combination Tested | Similar Test in Previous Literature |
|-------|--|---|
| T1 M1 | total length of parental leave, in weeks (paid and unpaid) | Andringa et al (2015); Petit and Hook (2005); Budig et al (2012); Evertsson and Duvander (2010) |
| T1 M2 | total length of paid parental leave, in weeks | Brady, Blome, and Kmec (2020) |
| T1 M3 | total length of maternal leave, in weeks (paid and unpaid) | Waldfogel (1998) |

Figure 1: Parental Leave Policy Measures and Previous Tests in Literature

| Policy Measure | Definition | Examples of Tests in Previous Literature |
|---------------------------|--|--|
| Total Maternal Leave | Total number of weeks of federally mandated paid and unpaid maternal leave available to/reserved for mothers. | Waldfoegel (1998); Budig et al (2012); Maldonado & Niewenhuis (2015); Mandel & Semyonov 2005, 2006) |
| Paid Maternal Leave | Total number of weeks of federally mandated paid maternal leave available to/reserved for mothers. | Gornick et al (1998); Pettit and Hook (2005); Gornick et al (1997); Boeckmann et al (2015) |
| Maternal Wage Replacement | Supplemental income available to mothers during the period of paid maternal leave in the form of a percentage of earnings. | Mandel and Semyonov (2005, 2006); Misra et al (2011); Gornick et al (1997); Gornick et al (1998) |
| Total Parental Leave | Total number of weeks of federally mandated paid and unpaid parental leave available to parents. | Blau & Khan (2013); Budig et al (2012); Pettit and Hook (2005); Misra et al (2011); Hook (2010); Evertsson and Duvander (2011) |
| Paid Parental Leave | Total number of weeks of federally mandated paid parental leave available to parents. | Boeckmann et al (2015); Brady, Blome, and Kmec (2020) |
| Parental Wage Replacement | Supplemental income available to parents during the period of paid parental leave in the form of a percentage of earnings (ex. 80%). Wage replacements in the form of tax reductions and family entitlements as childcare benefits are not included. | Blau and Khan (2013); Misra et al (2011); Gornick et al (1998) |
| Total Paid Leave | Total number of weeks of federally mandated paid maternal and parental leave available to parents. | |
| Job Protection | Total number of months employees are protected from unlawful dismissal before, during, and after leave. | |
| Well-Paid Leave | Total number of months of federally mandated paid parental leave available to parents paid at or above 66 (Parental Leave Network, 2018) or 50 percent wage replacement. | |
| Low-Paid Leave | Total number of months of federally mandated paid parental leave available to parents which are paid at or below 66 (Parental Leave Network, 2018) or 50 percent wage replacement. | |
| Eligibility Restrictions | Index coded from 0 to 3 indicating national-level parental eligibility restrictions. 0 indicates no employment, parental status, or gender restrictions; 1 indicates existing parental status and/or gender restrictions without employment restrictions; 2 indicates existing employment restrictions without parental status and/or gender restrictions; 3 indicates existing employment and parental status and/or gender restrictions. | |

Figure 1 Alt Text: table of policy measures, respective definitions, and previous tests in literature.