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Parental Happiness and Social Policy in Asia

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Abstract

People in East and South Asia widely believe that having children brings fulfillment to an individual's life. However, over the past fifty years, modernisation in Asia has been accompanied by a remarkable drop in birth rates to a level even lower than most western countries. Prior research on western nations has shown that the time demands and financial stresses of parenthood, as well as current inflexible employment practices, contribute to the high cost of parenthood and discount the emotional rewards of having children. This study investigates the happiness of parents and childless individuals in East and South Asia, and whether social policies can improve parental happiness. We use individual-level data in 10 Asian countries from the World Values and the Asian Barometer Surveys, and find no country where parents report significantly greater happiness than non-parents after controlling for relevant sociodemographic differences. Multilevel models show that paid annual leave, paid maternity and parental leave, and flexible working schedules as well as a comprehensive policy index help alleviate the disparity in happiness between parents and non-parents across countries, in particular work flexibility, while family-friendly policies have no noticeable negative effects on non-parents' wellbeing.

Keywords

parenthood; Asian families; work-family policy; happiness

Introduction

People in East and South Asia commonly believe that having children brings happiness and fulfillment to an individual's life (Hansen, 2012). However, over the past fifty years, modernisation in Asia has been accompanied by an unexpected drop in birth rates to near or below replacement level, even lower than most post-industrialised western countries. Ultra-low fertility may not simply be the result of demographic transition (Jones, 2007; McDonald, 2006). Although researchers have identified possible mechanisms in social and economic change (e.g., Caldwell & Caldwell, 2005; Jones, 2007; Straughan et al., 2008), few studies have investigated parental wellbeing in East and South Asia and its potential role in promoting low fertility. Assessments of personal happiness reflect an overall evaluation of life, which could have an impact on decisions to postpone or avoid childbearing in

industrialising societies. Parents residing with minor children are exposed to unique stressors in rapidly urbanising and mobile populations, which may increase negative emotions and undermine positive feelings such as happiness (Pearlin, 1989).

Studies on western countries have shown that childrearing tends to be negatively associated with parental happiness (Hansen, 2012; Margolis & Myrskylä, 2011; McLanahan & Adams, 1989). This negative effect of parenthood on happiness is eased or reversed in social democratic countries with high levels of public support for families (Glass et al., 2016; Hansen, 2012), showing that state-supported family policies are important to buffer the negative stressors of parenthood in post-industrial economies. Rapid social changes over the past several decades, including a dramatic increase in women's labour force participation and a decline in extended family residence, have made it as difficult for Asian parents to balance their economic and family responsibilities as parents in other western developed countries (Bongaarts & Zimmer, 2002; Yasuda et al., 2011; Eun, 2007). Yet we know little about the association between parenthood and happiness in Asian countries since existing studies are sparse and outdated (Hansen, 2012). In East and South Asia, childrearing has traditionally belonged in the private sphere. Family and community have been expected to take responsibility for all family care with less government intervention or support (Marshall & Olivier, 2003; Straughan et al., 2008). Although some countries are aware that this reliance on free family care may be limiting fertility and have begun to take action to reduce the burden of parenthood (An, 2013; Lee et al., 2009; McDonald, 2006; Ogawa, 2003; Peng, 2004), we know little about which policies might help maximise parental happiness in Asian contexts.

This study investigates whether the difference in average happiness between parents and non-parents varies across East and South Asia and whether these differences are associated with country-level differences in institutional support across our 10 countries. We compare the happiness *gap* between parents and non-parents across countries because the average absolute level of happiness among countries is more dependent on levels of economic development, security, and public health. Given that parents experience unique stressors that can be buffered by institutional support (Glass et al., 2016; Hansen, 2012), we hypothesise that the disparities in happiness based on parenthood are smaller in countries that provide more resources and supports to families than in countries that provide less assistance. Our research contributes to the existing literature by: (1) describing the variation in parental happiness in East and South Asia relative to non-parents, (2) comparing Asian and Western cultural contexts for parenting and responses to work-family dilemmas, and (3) exploring the impacts of work-family reconciliation policies on the overall happiness of Asian parents and those without children.

Background

Parenthood and Happiness

Around the globe, children are believed to provide parents with emotional and social rewards (Fawcett, 1988; Hansen, 2012). Yet research has shown parenting is a mixed bag, bringing meaning and joy for life as well as frustration or exhaustion (Deaton & Stone, 2014; Musick et al., 2016). Individual happiness, which is frequently used as a global

measure of emotional well-being in many international datasets (Margolis & Myrskylä, 2011; Ono & Lee, 2013), provides an overall evaluation of life since parenthood. In western societies, parenthood is mostly negatively associated with happiness or provides no additional happiness relative to childless individuals (Connidis & McMullin, 1993; Dykstra & Wagner, 2007; Hansen et al., 2009; Korpeckyj-Cox et al., 2007; McLanahan & Adams, 1987). Parents are more likely to report depression (Evenson & Simon, 2005), anger (Ross & Van Willigen, 1996), marital dissatisfaction (Keizer et al., 2010; Twenge et al., 2003), financial burden (McCrate, 2005; Nelson et al., 2013; Stanca, 2012; Warren & Tyagi, 2003), less free time (Mattingly & Sayer, 2006), and work-family conflict (Begall & Mills 2011; Gallie & Russel, 2009; Nomaguchi et al., 2005; Winslow, 2005).

Although studies of parenthood and happiness in Asia are rare (Hansen et al., 2009), some studies have found parenthood raises stress and lowers mental health and marital satisfaction (Ball & Chernova, 2008; Bjørnskov et al., 2008; Ghosh, 2017; Haller & Hadler, 2006; Lu, 2005, 2006; Stanca, 2012). East and South Asian countries share crucial features shaping the context in which parents raise children — rapid economic growth and similar religious and cultural traditions (Basu & Desai, 2016). They have experienced economic modernisation concurrently with a persistent patrilineal family system (Hermalin, 2002; Horton, 1996; Rajadhyaksha, 2012; Straughan et al., 2008; Utomo, 2012; Choo et al., 2016), potentially leaving parents in East and South Asia with even worse work-family conflicts than their western counterparts (Caldwell & Caldwell, 2005).

Modernisation in East and South Asia has brought profound social change to work and family structures (see Appendix 1). Service and manufacturing sectors are rapidly expanding, meaning that growing numbers of adults now have a job outside their household. Women's educational attainment and economic opportunities have improved, increasing their labour force participation (Brinton, 2001; Horton, 1996; Kamerman, 2002; World Bank) which by 2004 was around or above 50 percent in most East and South Asian countries. Moreover, full-time employees in Asia are expected to work long hours irrespective of family status (Chang & England, 2011; OECD, 2016; Tsuya et al., 2000). Alongside these changes has come growth in the number of nuclear and single-parent households as opposed to large traditional extended family households (Barik et al., 2015; Horton, 1996; Kuo et al., 2009; Rajadhyaksha, 2012; Yeung & Park, 2016; Yasuda et al., 2011), creating a shortage of adults available to care for the household. This is especially problematic in places where men's long work hours and reluctance to give up family breadwinning have limited their housework and childcare involvement (Tsuya & Bumpass, 2004; Straughan et al. 2008).

Additionally, East and South Asian countries share a common ideology of familism. Families, especially mothers, in these societies are expected to provide the fundamental social safety net for the care of elders and children (Alesina & Giuliano, 2013; Barik et al., 2015; Ji, 2015; Rajadhyaksha, 2012; Utomo, 2012). This implicit assumption has allowed governments to emphasise policies promoting economic development with relatively little attention to welfare state provision or labour regulation, inevitably creating challenges for families trying to fulfill work demands and family responsibilities (Aspalter, 2006; Eun, 2007; Marshall & Olivier, 2003; Raymo et al., 2015; Straughan et al., 2008).

Patrilineal family systems value children particularly because they are expected to provide financial and social support for aging parents later in life. Under intense pressure to produce these competitive and successful children, parents invest inordinate amounts of time and money earlier in the life course to help their children enter prestigious universities and obtain top jobs (Anderson & Kohler, 2013; Basu & Desai, 2016; Caldwell & Caldwell, 2005; Dalla Zuanna, 2009; Ogawa et al., 2009; Tan et al., 2016). For example, over 65 percent of children receive private tutoring in East Asia (Anderson & Kohler, 2013), which increases parents' proximate time deficit and financial burden while raising children. These rising costs in money and time may become a significant stressor for parents of dependent children. In brief, along with the growing nuclearisation of family structure and little government support for working families, intensive parenting may aggravate parents' burden as these East and South Asian countries industrialise, reducing parenthood happiness in East and South Asia.

Policy Context of Parental Happiness

Institutional support effectively explains the variations in parental happiness found across western countries. Studies have shown that countries with high public support for families equalise the costs of raising children and ease the combination of parenthood, marriage, and work, undoing the negative association between parenthood and happiness (Aassve et al., 2012; Hansen et al., 2009; Margolis & Myrskylä, 2011). Glass et al., (2016) dissect why parental happiness is higher in social welfare states by focusing on specific policies in western industrialised countries. They find that a comprehensive work-family policy package, including paid parental leave, schedule flexibility, and paid vacation and sick leave, increases parents' as well as non-parents' happiness. Subsidised childcare and generous paid vacation and sick leave proved to be the policies with the greatest potential to promote parental happiness.

Social welfare programs in East and South Asian countries have been predominantly structured to facilitate economic development, however, not to stabilise family life (Aspalter, 2006; Hort & Kuhnle, 2000; Kwon, 2005). When fertility rates precipitously declined, these countries either passively abolished family planning or actively promoted pro-natalist policies (An, 2013; Lee et al., 2009; McDonald, 2006; Ogawa, 2003; Peng, 2004; Pham, 2014; Prachuabmoh & Mithranon, 2003). Yet these policy changes have not had any great impact on fertility (McDonald, 2006; Jones 2019). Since the evidence of serious work and family conflict is now accumulating across Asian countries, policies that focus on reforming social institutions to better balance work and family responsibilities might enhance fertility by alleviating negative stressors that contribute to lower levels of happiness among parents (Choo et al., 2016; McDonald, 2006; Kuo et al., 2009; Prachuabmoh & Mithranon, 2003; Rajadhyaksha, 2012; Straughan et al., 2008; Tsuya et al., 2000).

We focus here on policies that have been shown to mitigate work-family conflict and improve parental happiness in western contexts (Gornick & Meyers, 2003; Heymann et al., 2007; Hyde et al., 1995). Paid annual sick and vacation leave helps parents balance the demands of work and family by allowing paid time off for family holidays, school or community events, and physical/mental health care. We hypothesise that the more generous

a country's paid annual leave policy, the higher reported parental happiness in that country will be. However, paid leave that accumulates with seniority could disadvantage parents' (especially mothers') wellbeing. A system that yields more time off for longevity at one's place of employment will disrupt parents' (mainly mothers) accumulation of paid leave because these systems punish short leave from the labour market or moves to a part-time job while raising young children.

Paid maternity and parental leave are other important family-friendly policies that maintain parents' income during temporary leaves for childbearing and childrearing, while providing job security. Since researchers have reported a significant association of work flexibility with increased happiness and reduced stress (Golden et al., 2013; Grzywacz et al., 2008), we also consider work schedule flexibility, which provides parents greater freedom to adjust their work hours and schedules to meet caregiving needs. We expect that policy support for flexible work hours could mitigate the strain of caring for children.

Finally, we combine these policies into a comprehensive policy index to see if a seamless package of social policies is the most efficacious way to reduce parental stress. We are aware that policies need to be implemented and institutionalised in order for parental happiness to be influenced by them. For this reason, we create a four-year difference on average between when policy features in each country are measured and when happiness is measured in available survey data.

Data and Methods

Data

To answer our research questions, we employ individual-level representative survey data as well as a variety of country-level policy and economic data to run multilevel models of individual happiness nested within countries. Countries included in this study are China, Hong Kong, Japan, India, Indonesia, Malaysia, South Korea, Taiwan, Thailand, and Vietnam. The 10 countries selected are either one of the "Four Asian Tigers" (Hong Kong, South Korea, and Taiwan) or members of the Association of Southeast Asian Nations Plus 3 (China, Indonesia, Japan, Malaysia, Thailand, Vietnam) and India. Although India does not belong to either of these analytic categories, prior research has shown that India shares several essential features with these other Asian countries, including rapid growth in the service sector, shrinkage of extended families, falling urban fertility rates, and tensions between work and family (see Baral & Bhargava, 2011; Somashekher, 2018; Dhanabhakya, 2014; Rajadhyaksha & Smita, 2004). Across this range of countries, we see differing levels of institutional support for employed parents, providing an opportunity to examine whether public policies help close any parental happiness gap in Asia.

For country-level family policies, including paid annual leave, paid maternity leave, paid parental leave, and flexible working schedule¹, we use policy information from the World Bank, International Labour Organisation, International Monetary Fund, and official annual

¹While we endeavored to get child care cost information on each Asian country, no publicly available data could be found on the cost of care for preschoolers across each country, reflecting the lack of institutional child care policy or formal child care programs in most of these countries compared to Western European countries.

reports. We measured public policies based on available information for each country listed in these sources between 2000 and 2003, several years before our survey measures of respondent happiness.

The individual-level data comes from the 2005-2009 World Values Surveys (WVS) (Inglehart et al., 2014) and the 2005-2007 Asian Barometer Surveys (ABS) (Inoguchi, 2005-2007). Both are nationally representative surveys conducted with samples of 1,000 to 2,000 subjects in each country (except for Vietnam in the ABS, in which major urban populations were sampled). The survey years largely coincide so that we expect no distinct change in parental happiness during this short period. To maximise the reliability of the data for each country as well as the number of countries available for analysis (Beckfield, 2006; Brooks & Manza, 2006) we combine these two datasets (Table 1). Andersson et al., (2014) show significant unreliability in the ranking of country-level happiness across survey years and/or datasets, suggesting that multiple observations of the same country in closely spaced years are necessary to get reliable estimates of country-level well-being.

Unfortunately, neither the WVS nor the ABS provide information regarding the age of children or whether they live with the respondent. We do not know each respondent's exact parenthood stage at the time of measurement. We restrict our sample in each country to respondents 60 years of age or under because the mean ages at childbirth for these 10 countries are around 27-30 years old (Appendix 1). Most of their children are likely to be independent and may no longer live with them after parents reach age 60. We know that parental happiness likely varies by children's age and when children grow older the stressors of parenthood may lessen. Sensitivity analyses with samples restricted to those under 45, 50 and 55 show similar substantive results. The effects of policies on happiness are significantly positive for parents and are insignificant for non-parents. Only the magnitude of effects is larger for those under 50 (likely to have the youngest children). We therefore chose the most inclusive age restriction for modeling.

Measurement

Dependent Variable: Self-Reported Happiness—In the WVS, respondents designated their current level of happiness using a 4-point scale (1=very happy, 2=quite happy, 3=not very happy, 4=not at all happy). In the ABS, happiness was measured on a 5-point scale (1=very happy, 2=pretty happy, 3=neither happy nor unhappy, 4=not too happy, 5=very unhappy). We converted the WVS's 4-point scale to the ABS's 5-point format by using categories 1, 2, 4, and 5 respectively since the descriptions of categories match each other across surveys, and the middle item in ABS indicates no preference. Therefore, self-reported happiness is a 5-point measurement. We then reverse coded so a higher score reflects a higher level of happiness. The distribution of self-reported happiness is approximately normal.

Country-Level Independent Variables: Policy Context and Economic/Cultural Controls—This study focuses on the following state-provided social policies that might reduce employed parents' stress.

Paid annual leave. Some countries have a fixed paid annual leave for vacation and illness, while in others the number of paid days of leave increases with seniority. We use two variables to capture paid annual leave policies. The first variable is the number of paid days of leave per year a worker is entitled to at the start of employment. The second is a dichotomous variable that notes whether the number of paid days of leave accumulates with seniority (1=yes, 0=no).

Paid maternity leave and paid parental leave. Maternity leave indicates the number of days provided to a mother before and after childbirth. Parental leave is the combined total number of days for maternity leave, paternity leave, and any gender-neutral parental leave. Because compensation levels influence a parent's willingness to use these policies, we measure maternity and parental leave by using the number of days of paid leave multiplied by the reimbursement's percentage of a covered employee's salary for each of those days.

Flexible working schedule refers to whether parents can request changes in their work schedule without reducing their overall work hours. If a country has a statutory work flexibility policy for parents or all employees, we code it as 1; otherwise, it is coded as 0.

Comprehensive Policy Index (CPI). The CPI combines policies, since any single policy cannot be expected to alleviate the multiple sources of parenthood stress but a policy "package" covering multiple objectives could have large impacts (Gornick & Meyers, 2003). To calculate this index, we convert measures of annual leave and maternity leave² to a percentage score, defined as a country's generosity relative to the highest-scoring country; these percentage scores were summed with flexibility (coded as 1 or 0) to produce the comprehensive index.

We recognise that other country-level characteristics may affect parents and non-parents' happiness and alter the policy mix in place, limiting our ability to get accurate estimates. We therefore consider several key indicators at the country-level that might differentiate them by level of industrial development, labour conditions, and degree of family migration and nuclearisation. These cross-national differences may both drive work-family policy adoption and affect parental happiness, making them important confounding variables to include.

Gross domestic product per capita (GDP) measures overall level of economic prosperity in each nation. A higher average standard of living can influence subjective well-being as well as levels of state spending on social welfare policies. GDP is measured in U.S. dollars, obtained from the IMF³. We also include *weekly working hours* obtained from the ILO⁴. Long work hours are a prominent feature in Asian economic development and can affect parents' happiness as well as demand for family accommodation⁵.

²We choose maternity leave instead of parental leave because only three countries have official parental leave with low or zero reimbursement, which could result in low usage and little discrimination across countries.

³The data is downloaded from World Economic Outlook Database, IMF. <https://www.imf.org/external/pubs/ft/weo/2016/02/weodata/index.aspx>

⁴The data is downloaded from ILOSTAT, ILO. https://www.ilo.org/ilostat/faces/ilostat-home/home?_adf.ctrl-state=xxshsb955_4&_afzLoop=2559345162528646&_afzWindowMode=0&_afzWindowId=null#!%40%40%3F_afzWindowId%3Dnull%26_afzLoop%3D2559345162528646%26_afzWindowMode%3D0%26_afz.ctrl-state%3D12owqmsq3w_4

⁵We also tested models by adding the GINI coefficient, which refers to levels of inequality indicate how much national prosperity is shared across households and could thus lower the parental happiness gap. The results stay substantially the same.

Additionally, *the total fertility rate* (TFR) was taken from World Bank data⁶. Countries with lower total fertility are likely to have stronger selection into parenthood, meaning that those who become parents are likely to have stronger unmeasured desires for children and more positive attitudes about parenthood that predispose them to happiness. A low TFR can also prompt government action to ameliorate obstacles to childbearing, including better work-family policy supports. We also control *the proportion of extended families* because living in an extended family can help ease parents' stress and reduce the government's incentive to invest in family-friendly policies. If respondents have children and live with parents in the WVS, or if respondents describe their family structure as "three generation" in the ABS, we define it as an extended family. We combined data from the WVS and ABS to create the average proportion of *extended family* in each country⁷.

Although we do not have information regarding enforcement of these policies at the organisational level, formal state policies are nevertheless useful proxies for employee benefit coverage for several reasons. First, countries with legally imposed work-family policies have a higher probability of implementation in public and private sector workplaces than those without them, since regulation signals public attention to an issue and enforcement power in the formal sector. Second, many companies understand that firm resistance to family-friendly policies will generate lower quality employees and lower productivity *ceteris paribus*, since better employees will move to more compliant firms in competitive labour markets. (Choo et al., 2016; Tsai & Chen, 2017). Finally, country-level compliance problems will result in underestimates of the effects of policies, making our analyses conservative lower bound estimates of comprehensive policy effectiveness (enhancing the reliability of any significant effects found). All details about country-level variables are in Appendix 1.

Individual-Level Independent Variables: Parental Status and

Sociodemographic Controls—Our primary covariate is whether an individual respondent is a parent. We use the variables *Has Child* to identify parents under 60 with at least one biological or adopted child. Based on previous studies of happiness (Hansen, 2012; Umberson et al., 2010), we include the following individual-level covariates shown to affect overall happiness.

Gender. We measure gender as male or female (0=male, 1=female).

Age. Age is measured in years with its square term for any nonlinearities with happiness.

Household Income. The WVS measures the respondent's household income relative to other households in deciles in a country. The ABS uses continuous categories to measure household income in the local currency. To harmonize the WVS and ABS datasets, we standardised household income within each country in each dataset. Unlike GDP which

⁶The data is downloaded from World Bank. <https://data.worldbank.org/indicator/SP.DYN.TFRT.IN>

⁷We also tested models including women's labour force participation rate (WLFP), which indicate the degree of breakdown in patriarchal family norms as well as lower availability of women for family care, both of which fuel demand for work-family policies. Models produce no significant change in effects of policies on parental happiness, but negative effects of some policies on population happiness. This may be due to collinearity between measures of TFR and WLFP. After removing TFR, the results with WLFP are the same as those controlling for only GDP, TFR, the proportion of extended family and weekly working hours.

measures a country's overall affluence, this measures a respondents' relative income within their country at the individual level.

Married. We code 1=married, 0= not currently married.

Employed. We treat employment as a dichotomous variable (1=employed, 0=not employed).

Education. We use a categorical variable to measure education, coding as 0=no post-secondary schooling, 1=some post-secondary schooling, and 2=university/graduate school.

*Professional Occupation.*⁸ This is a dichotomous variable based on whether the respondent held a managerial or professional occupation if employed (1=manager or professional, 0=not manager or professional).

Descriptive statistics for all variables are shown in Table 2.

Methods

We model the parental happiness gap using multilevel models, based on the following equations:

$$Y_{ij} = \beta_{0j} + \beta_{1j}X_{ij} + \beta_{2j}Z_{ij} + E_{ij} \quad (1)$$

$$\beta_{0j} = \gamma_{00} + \gamma_{01}W_j \quad (2)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}W_j \quad (3)$$

where

Y_{ij} = happiness of individual i in country j

X_{ij} = has child (1 if parent)

Z_{ij} = vector of individual attributes (age, age squared, gender, education, household income, married, employed, and professional occupation)

W_j = vector of variables representing each country in the analysis set with Japan as the referent.

First, we run fixed-effect models to estimate country-level differences in baseline happiness (γ_{01}) and in unadjusted effects of parenthood on happiness (γ_{11}), net of individual sociodemographic variables. Equation (2) provides country-specific intercepts for predicting happiness, controlling for individual sociodemographic variables, with Japan as the reference category given its highest level of GDP. Equation (3) is our primary interest which reveals country-level differences in the effect of parenthood on overall happiness.

⁸As table 1 shows, each country has two observations after combining the WVS and ABS. However, in the WVS South Korea did not provide information on respondent's occupation so we use only one observation for South Korea from the ABS in our analytical models.

Since the effect of parenthood on happiness varies across countries, we next use a mixed-effects model adding policy variables and country-level covariates in Equations 2 and 3 to see how social policies are associated with population happiness as well as parents' happiness. We estimate the effect of policy variables on baseline happiness (Equation 2a) and examine whether the effect of parenthood on happiness is mitigated by policy variables (Equation 3a), net of country-level covariates and individual sociodemographic controls.

$$\beta_{0j} = \gamma_{00} + \gamma_{02}F_j + \gamma_{03}P_j + U_{0j} \quad (2a)$$

$$\beta_{ij} = \gamma_{00} + \gamma_{12}F_j + \gamma_{13}P_j + U_{ij} \quad (3a)$$

where

F_j = vector of family policy variables

P_j = vector of country-level covariates

We transform some policy variables (annual leave, paid maternity leave and paid parental leave) into rank-order variables (Table 3). This transformation helps to stabilise policy estimates and to remedy policy variables with skewed or discrete distributions, a strategy employed by prior researchers (Glass et al., 2016).

Using 20 country observations with standard errors clustered by country enables us to include country-level covariates while preserving statistical power, yielding unbiased estimates (Bell et al., 2010). Prior researchers have adopted this approach for country-level comparisons since multiple observations per country both increase power and reliability in multilevel models (Beckfield, 2006; Billingsley & Ferrarini, 2014; Brooks & Manza, 2006). With limited degrees of freedom, we analyse only one policy at a time, along with our country-level covariates.

We ran a variety of robustness tests to ensure that our results were stable. All results support the models we present here. First, we detected potential outliers (Van der Meer et al., 2010) by employing indexes of Cook's d and DFBETAS. Excluding and including these outliers did not change the conclusions. Second, we ran models excluding each country in turn to detect influential cases. The effects of policies on parental happiness were remarkably similar after single-country exclusions, with one exception. The effect of seniority-based systems of accumulated annual paid leave loses significance when excluding either Taiwan or India. However, p -values are close to significance at .05 so we report models with all countries included. Third, we estimated three-level mixed-effects models nesting respondents within country observations within countries. These models produced the same findings. Fourth, we ran our primary mixed-effects models separately by dataset. Results were the same as the combined data, though two effects failed to reach significance in these smaller samples (see Appendix 6).

We also ran a series of sensitivity analyses focusing on potential moderators of policy impact, including informal sector employment and gender. Countries with large percentages of informal sector workers are likely to have weaker policy penetration than those with

mostly formal sector employment. However, the WVS and ABS do not differentiate between formal and informal sector workers. Therefore, we report sensitivity analyses that (a) limit the cross-national sample to wage and salary workers (excluding the self-employed and those working in family businesses) who are most likely to be in the formal employment sector, and (b) separate the sample into higher and lower levels of education since workers with more education are more likely to be employed in the formal sector subject to public policies (ILO, 1992, 2002, 2018). Additionally, while we believe institutional support is important for both mothers and fathers' happiness, the extra burden of family care that tends to fall most heavily on women in Asian societies suggests that mothers may be more responsive to supportive family policies than fathers. For this reason, we estimate models separated by gender. We discuss those results and implications in the next section.

Results

We turn first to the question of whether and how much parental happiness varies across our Asian countries. We ran a fixed-effects model estimating a country-specific interaction with parenthood, telling us which countries have a larger or smaller effect of parenthood on happiness. With Japan as the reference group, all countries in the study have negative interaction coefficients with parenthood, meaning that parents are happiest relative to non-parents in Japan, with every other Asian country showing less parental happiness. After calculating parenthood happiness gaps for each country according to the coefficients the fixed-effect model provides, Table 4 presents variation in the size and direction of the happiness gap between parents and non-parents across East and South Asia. The rank order of these 10 countries from the happiest parents to the least happy parents relative to those without children becomes: Japan, South Korea, Thailand, Vietnam, China, India, Hong Kong, Indonesia, Malaysia, and Taiwan.⁹ In this fixed-effects model, the happiness gap between parents and non-parents varies across countries and is actually reversed in some places (with parents slightly happier than non-parents after adjusting for sociodemographic differences), in part because the fixed-effects model does not free every sociodemographic variable to a country-specific estimate. However, results from individual country-specific regression models support our argument that parenthood is *never* significantly associated with a happier life in East and South Asia (see Appendix 7). Given variation in the impact of parenthood on happiness across our countries, we turn now to cross-national differences in work-family policy supports to model that variation explicitly while controlling for country-level covariates.

We began our policy analysis by simply graphing policy strength against the size of the adjusted happiness gap between parents and non-parents. Figures 1 and 2 show descriptive country-level scatterplots visualising the relationship between the parental happiness gap and (1) paid parental leave policy rank and (2) comprehensive policy index rank, respectively. The graphs show generally positive relationships between policy strength and

⁹To perform sensitivity checks on these rankings, we estimated the fixed-effects model separately by dataset (Columns 2 and 3 of table 4) to detect any instability or unreliability in the measurement of happiness. Results showed moderate instability in rankings across data sets, further justifying our decision to use multiple observations per country (Andersson et al. 2014).

parental happiness relative to non-parents, suggesting a role for public policy in improving parental well-being.

We next ran multilevel mixed-effects models to see whether the variation in the effects of parenthood on happiness across our Asian countries could be explained by work-family reconciliation policies, controlling for country-level economic and cultural variation (in prosperity, fertility, the proportion of extended families and weekly working hours). The effects of policies are estimated on everyone's happiness in the cross-national sample as well as on parents specifically (using Equations 2a and 3a above). The main effects of policies thus essentially represent the associations of social policies with the happiness of non-parents. The effects of each policy interacted with parental status provide the adjustment to those main policy effects for parents. Positive cross-level interactions with parental status thus indicate that policy is associated with greater happiness for parents than non-parents, narrowing or even reversing the happiness gap between parents and non-parents. Our main effects coefficients for *general happiness* (panel 1, Models 2 to 6 of Table 5) show that our five work-family policies and comprehensive policy indicator have no significant associations with the happiness of people *without children* across Asia, mitigating any concerns that policies increasing the happiness of parents might come at the expense of non-parents (Ono & Lee, 2013).

Our model coefficients for *parenthood slope adjustments* (panel 2, Models 2 to 6 of Table 5) display cross-level interactions between social policies and parental status to ascertain whether social policies increase the happiness of parents relative to non-parents and help explain variation in the impact of parenthood on happiness. Our baseline Model 1 shows no significant overall association of parenthood with happiness net of economic and cultural differences across nations, meaning that parenthood in the aggregate neither increases nor decreases personal happiness across the full sample of respondents across countries. This makes sense given the set of positive and negative effects of parenthood found across the full range of countries in Table 4. However, once policies are introduced into the model, the main effect of parenthood is consistently negative (models 2 through 6), revealing significantly lower happiness among parents in countries without any of these work-family reconciliation policies.

In Model 2, *paid annual leave* is interacted with parenthood and shows a significant positive effect on parental happiness ($p < 0.01$). The more generous a country's paid annual leave policy at the start of a new position, the happier parents report themselves to be. However, the accumulation of paid annual leave with seniority has a strong negative effect on parents' subjective wellbeing in these Asian countries. Because employees acquire benefits through longevity at their place of employment in these countries, parents are disadvantaged in accessing these benefits when they need them the most, because they are likely to be younger and change jobs more frequently than non-parents.

Paid maternity leave as well as *paid parental leave* policies (Model 3 and Model 4) promote parental happiness ($p < 0.01$). Taking care of infants and toddlers requires much time and money. Governments providing longer and better paid childbearing leaves for parents show smaller parental happiness gaps. Model 5 shows that the largest and single most important

policy impact comes from having a national *flexible work schedule* policy. Asian countries with such policies have significantly happier parents than those without. Parents with the ability to adjust their allocation of work hours can more readily adapt to the demands of caring for family.

The Comprehensive Policy Index (Model 6) significantly improves parental happiness as well, suggesting that a policy environment with comprehensive work-family reconciliation policies effectively reduces parents' strain. But surprisingly, the comprehensive policy index has a smaller impact on parental happiness than the single flexible work schedule policy.

Robustness Checks

We first conducted robustness checks to make sure our multilevel models were not overly-sensitive to differences in the extent of informal employment across countries. However, we were unable to differentiate between formal and informal sector workers due to data limitations so we created reasonable proxies instead. We first re-estimated our multilevel models after splitting the total sample of respondents into those with higher (at least some post-secondary) and lower (no post-secondary) levels of education. Those with lower levels of education have a higher probability of working in the informal sector relative to those with post-secondary education, and thus could be excluded from policy coverage at the national level. Appendix 2 shows that the policy effects already uncovered are indeed stronger when the sample is limited to better-educated respondents. The cross-level interactions with each social policy that adjust the parenthood slope on happiness are significant and larger than in Table 5 where the total sample is used. When the same interactions are estimated on the lesser educated sample, the social policy coefficients are smaller and occasionally lose significance. This is consistent with our understanding that the informal economy in Asian countries pulls in lesser-educated workers who have difficulty benefitting from social policies covering formal sector employment.

We then re-estimated the models in Table 5 excluding those respondents who were self-employed or working for family-owned businesses, eliminating most workers from the informal sector who may not be covered by social welfare policies. In Appendix 3, limiting the sample to wage and salary workers likely covered by labour regulation considerably strengthens the policy estimates identified in Table 5. These sensitivity analyses indicate that the total sample estimates in Table 5 are likely underestimates of true policy associations with parental happiness *where policy coverage is comprehensive across a population*.

Finally, we ran models separately by gender to see whether these social policies have stronger effects on women relative to men (Appendices 4 & 5), based on our hypothesis that mothers could be more affected by work-family reconciliation policies as the primary caregivers in most families. Surprisingly, however, in Appendix 4 *all* policies are shown to increase fathers' happiness while two policies have no significant association with mothers' happiness (paid annual leave and flexibility). This may be because mothers are more likely to work in family businesses or the informal sector compared to fathers (ILO, 1992, 2002, 2018), and have low levels of formal employment in certain countries (India, Indonesia). In Appendix 5, we restrict the male and female samples to those in the formal sector (not self-

employed or in family businesses). Here the pattern and effect sizes for policies stayed remarkably the same as in the joint models of Table 5, suggesting that both mothers and fathers in formal sector employment benefit from family-friendly policies. As we expected, mothers' happiness in waged work looks like it is impacted by welfare state policies more than fathers', with both coefficient sizes and significance levels indicating stronger relationships for mothers in the formal sector. And similar to western contexts, policies that impact family income directly (like paid maternity leave), seem to matter more for fathers' happiness by easing the financial strain that many fathers feel.

Conclusion and Discussion

This study investigated the happiness gap between parents and non-parents across 10 Asian countries and examined whether public policy supports can explain variation in the size of the happiness gap across countries. Applying multilevel mixed-effects models to data from the World Values Surveys and the Asian Barometer Surveys, we analysed the effect of paid annual leave, paid maternity leave, paid parental leave, rights to flexible work schedules, and a comprehensive index on happiness, net of country-level and individual sociodemographic differences. The result showed small overall differences in happiness between parents and non-parents, with Japan showing the clearest advantage in happiness for parents and Taiwan showing the clearest disadvantage in happiness. Country-level work regulation policies do significantly improve parents' happiness in Asian countries, with all our measured public policies showing significant positive impacts on parents' happiness (especially work flexibility policies and our comprehensive policy index). Moreover, no policies negatively impact non-parents' happiness.

Robustness checks show that policy associations with parental happiness are stronger when the sample is restricted to better-educated workers and those not self-employed or in family businesses, suggesting that policy coverage in the informal sector is weak across countries and remains a source of parental stress. Results suggest mothers in the wage and salary sector are more affected by work-family policies than fathers, as well. While analyses revealed surprisingly few overall gender differences in policy impacts between mothers and fathers in the total labour force, analyses restricted to formal sector workers show mothers' happiness appeared to be more sensitive to supports than fathers. Yet fathers still show significant associations between all work-family policies and happiness, reflecting the increasing costs of children for family wage-earners as well as the enhanced caregiving role of Asian fathers in modernised economies.

Policies designed to reward longevity, by letting the amount of paid annual leave accumulate with seniority, are negatively associated with parental happiness, showing how policy design can reduce the efficacy of public supports. The welfare-state systems of Asian countries have focused on supporting economic growth by increasing labour stability through seniority-based rewards systems, while investing in the "productive" labour force through education, healthcare, and housing assistance (Aspalter, 2006; Hort & Kuhnle, 2000; Kwon, 2005). Because seniority-based benefit systems operate against spending on young families, however, their design inhibits fertility and reduces parental happiness.

Our data have analytic limitations that warrant the continued study of work-family policy effects on parental happiness in Asia. Our data consisted of repeated cross-sections of country populations, so we were unable to model longitudinal changes in happiness following parenthood in different policy settings. This limits our ability to make causal inferences about the associations between social policies and parental happiness, despite the consistency of the positive associations of social policies with improved parental happiness. We were unable to obtain children's ages to identify parenthood stage of respondents or separate parents who lived with young children from parents who did not. Our analysis may underestimate the stronger effect of family policies on parental happiness among those with young children. Moreover, the lack of systematic and long-term collection of country-level economic, cultural, and policy indicators across Asia limited the information we could use in our models. For example, neither dataset directly identified workers in the informal sector. Lastly, because we had no employer data, we do not know how national policies get implemented or how individual employers behave in the absence of state policy. Despite these limitations, this analysis shows parents are happier in those East and South Asian countries that provide more resources and support to families earlier in the life course than in countries that provide less assistance, implying that more attention to work-family reconciliation policies would improve parents' subjective well-being in East and South Asia.

Appendix

Appendix 1.

The Profile of Countries

	Mean age at childbearing	Agriculture 2004 (% of GDP)	GDP 2004	TFR 2004	GINI 2002	% of women in labour force 2004	Informal employment ^c (%)	Working hours	Extend family
China	26.45	12.92	1512.64	1.50	0.454	67	32.0 (2010)	47	15.87
Japan	30.05	1.24	36453.80	1.29	0.498	48	16.3 (2016)	35	14.59
South Korea	30.02	3.53	15922.18	1.15	0.312	50	28.8 (2016)	45	7.86
Taiwan	28.80	1.63	15355.67	1.57	0.345	48		42	15.72
Hong Kong	29.81	0.07	24875.45	0.93	0.525	51		46	7.18
India	26.77	19.73	657.52	3.04	0.325 ^b	36	83.0 (1994-2000)	42	25.45
Indonesia	28.05	14.34	1280.70	2.48	0.33	50	78.0 (1994-2000)	40	10.90
Malaysia	30.50	9.27	5171.42	2.31	0.461	44		48	9.30
Thailand	27.03	9.29	2676.30	1.58	0.419	66	51.0 (1994-2000)	46	18.37
Vietnam	27.30	21.02 ^a	603.668	1.89	0.373	73	68.0 (2009)	46	16.88
	Paid annual leave	Accumulation	Work flexibility	Maternity leave (ML)	Cash benefit for ML	Parental leave (PL)	Cash benefit for PL	Paternity leave (FL)	Cash benefit for FL
China	0	no	no	90	100%	0	0	0	0
Japan	10	yes	yes	98	60%	93	40%	0	0

	Mean age at childbearing	Agriculture 2004 (% of GDP)	GDP 2004	TFR 2004	GINI 2002	% of women in labour force 2004	Informal ^c employment (%)	Working hours	Extend family
South Korea	15	no	yes	90	100%	365	40%	3	100%
Taiwan	7	yes	no	56	100%	730	0	3	100%
Hong Kong	7	yes	no	70	80%	0	0	0	0
India	12	no	no	84	100%	0	0	0	0
Indonesia	12	no	no	90	100%	0	0	2	100%
Malaysia	8	no	no	60	100%	0	0	0	0
Thailand	6	no	no	90	45*100% +45*50%	0	0	0	0
Vietnam	12	yes	no	150	100%	0	0	0	0

NOTE.

^aNo information of Vietnam is provided by World Bank until 2010.

^bThe year of India's GINI coefficient is 2000.

^cThe number in the parentheses is survey year. Information is from ILO, "Women and men in the informal economy: A statistical picture", Edition 1, 2, and 3.

^dAll family policies are observed in 2000-2004.

Appendix 2.

Results from Multilevel Mixed-Effects Regressions of Happiness on Parenthood and Work-Family Reconciliation Policies by Education

	High-Educated					
	(1)	(2)	(3)	(4)	(5)	(6)
Model for Happiness, β_{0j}						
Intercept, γ_{00}	3.389 **	3.723 **	4.766 **	4.524 **	3.924 **	3.841 **
Annual leave, γ_{01}		-0.044 *				
Accumulation with seniority, γ_{02}		0.177 ⁺				
Maternity leave, γ_{01}			-0.065 *			
Parental leave, γ_{01}				-0.029 ⁺		
Flexibility, γ_{01}					-0.258 ⁺	
Comprehensive Policy Index, γ_{01}						-0.111
Model for Parenthood Slope, β_{1j}						
Intercept, γ_{10}	0.087	-0.195	-1.591 **	-1.638 **	-0.534	-0.517
Annual leave, γ_{11}		0.042 ⁺				
Accumulation with seniority, γ_{12}		-0.117				
Maternity leave, γ_{11}			0.081 **			
Parental leave, γ_{11}				0.045 **		
Flexibility, γ_{11}					0.317 **	
Comprehensive Policy Index, γ_{11}						0.150 **

High-Educated						
	(1)	(2)	(3)	(4)	(5)	(6)
Low-Educated						
	(1)	(2)	(3)	(4)	(5)	(6)
Model for Happiness, β_{0j}						
Intercept, γ_{00}	3.443 *	3.876 **	4.639 **	3.848 *	3.566 *	3.711 *
Annual leave, γ_{01}		-0.047				
Accumulation with seniority, γ_{02}		0.019				
Maternity leave, γ_{01}			-0.052			
Parental leave, γ_{01}				-0.011		
Flexibility, γ_{01}					-0.070	
Comprehensive Policy Index, γ_{01}						-0.059
Model for Parenthood Slope, β_{1j}						
Intercept, γ_{10}	-0.009	-0.249	-0.704 *	-0.503	-0.124	-0.284
Annual leave, γ_{11}		0.027 **				
Accumulation with seniority, γ_{12}		-0.023				
Maternity leave, γ_{11}			0.031 **			
Parental leave, γ_{11}				0.013 *		
Flexibility, γ_{11}					0.068	
Comprehensive Policy Index, γ_{11}						0.063 **

Note. The high-educated refers to people with at least some post-secondary schooling; the low-educated refers to people with less than post-secondary schooling. Models include sociodemographic controls (gender, age, age squared, family income, married, employed, occupation) at level 1 and GDP, TFR, extended family, and working hours at level 2 (country).

**
p<0.01

*
p<0.05

+
p<0.1

Appendix 3.

Results from Multilevel Mixed-Effects Regressions of Happiness on Parenthood and Work-Family Reconciliation Policies, Excluding Self-Employed

Fixed effects	(1)	(2)	(3)	(4)	(5)	(6)
Models for Happiness, β_{0j}						
Intercept, γ_{00}	3.204 *	3.642 **	4.408 **	3.725 *	3.421 *	3.526 **
Annual leave, γ_{02}		-0.048				
Accumulation with seniority, γ_{02}		0.149				
Maternity leave, γ_{02}			-0.052			
Parental leave, γ_{02}				-0.013		
Flexibility, γ_{02}					-0.115	
Comprehensive policy index, γ_{02}						-0.069
Models for Parenthood Slope, β_{1j}						
Intercept, γ_{10}	0.195	-0.157	-0.801 **	-0.677 *	-0.112	-0.275

<i>Fixed effects</i>	(1)	(2)	(3)	(4)	(5)	(6)
Annual leave, γ_{12}		0.039 **				
Accumulation with seniority, γ_{12}		-0.073 *				
Maternity leave, γ_{12}			0.043 **			
Parental leave, γ_{12}				0.021 **		
Flexibility, γ_{12}					0.158 *	
Comprehensive policy index, γ_{12}						0.100 **
<i>Random Effects (variance)</i>						
Country mean, u_{0j}	0.043 **	0.042 **	0.042 **	0.043 **	0.043 **	0.043 **
Parent slope, u_{1j}	0.005 **	0.003 **	0.003 **	0.003 **	0.004 **	0.003 **
Individual level, e_{ij}	0.715 **	0.715 **	0.715 **	0.715 **	0.715 **	0.715 **

Note. Models include sociodemographic controls (gender, age, age squared, family income, married, employed, education, occupation) at level 1 and GDP, TFR, extended family, and working hours at level 2 (country).

**
p<0.01

*
p<0.05

+
p<0.1

Appendix 4.

Results from Multilevel Mixed-Effects Regressions of Happiness on Parenthood and Work-Family Reconciliation Policies by Gender

Men						
	(1)	(2)	(3)	(4)	(5)	(6)
Model for Happiness, β_{0j}						
Intercept, γ_{00}	3.152 **	3.595 **	4.474 **	3.835 *	3.497 *	3.518 **
Annual leave, γ_{01}		-0.054				
Accumulation with seniority, γ_{02}		0.184				
Maternity leave, γ_{01}			-0.059			
Parental leave, γ_{01}				-0.018		
Flexibility, γ_{01}					-0.199	
Comprehensive Policy Index, γ_{01}						-0.085
Model for Parenthood Slope, β_{1j}						
Intercept, γ_{10}	0.519 +	0.198	-0.573 *	-0.406	0.186	0.089
Annual leave, γ_{11}		0.041 **				
Accumulation with seniority, γ_{12}		-0.095 *				
Maternity leave, γ_{11}			0.050 **			
Parental leave, γ_{11}				0.024 **		
Flexibility, γ_{11}					0.201 **	
Comprehensive Policy Index, γ_{11}						0.104 *
Women						
	(1)	(2)	(3)	(4)	(5)	(6)

Men						
	(1)	(2)	(3)	(4)	(5)	(6)
Model for Happiness, β_{0j}						
Intercept, γ_{00}	3.667**	4.022**	4.923**	4.180**	3.732**	3.902**
Annual leave, γ_{01}		-0.040				
Accumulation with seniority, γ_{02}		0.088				
Maternity leave, γ_{01}			-0.056 ⁺			
Parental leave, γ_{01}				-0.014		
Flexibility, γ_{01}					-0.046	
Comprehensive Policy Index, γ_{01}						-0.056
Model for Parenthood Slope, β_{1j}						
Intercept, γ_{10}	-0.266 ⁺	-0.483*	-1.098**	-1.000**	-0.465	-0.589*
Annual leave, γ_{11}		0.026				
Accumulation with seniority, γ_{12}		-0.038				
Maternity leave, γ_{11}			0.037**			
Parental leave, γ_{11}				0.019*		
Flexibility, γ_{11}					0.111	
Comprehensive Policy Index, γ_{11}						0.077 ⁺

Note. Models include sociodemographic controls (age, age squared, family income, married, employed, education, occupation) at level 1 and GDP, TFR, extended family, and working hours at level 2 (country).

**
p<0.01

*
p<0.05

⁺
p<0.1

Appendix 5.

Results from Multilevel Mixed-Effects Regressions of Happiness on Parenthood and Work-Family Reconciliation Policies by Gender, Excluding Self-Employed

Men						
	(1)	(2)	(3)	(4)	(5)	(6)
Model for Happiness, β_{0j}						
Intercept, γ_{00}	3.045*	3.403**	4.639**	3.434*	3.291*	3.258*
Annual leave, γ_{01}		-0.043				
Accumulation with seniority, γ_{02}		0.186				
Maternity leave, γ_{01}			-0.052			
Parental leave, γ_{01}				-0.010		
Flexibility, γ_{01}					-0.136	
Comprehensive Policy Index, γ_{01}						-0.049
Model for Parenthood Slope, β_{1j}						
Intercept, γ_{10}	0.557*	0.312 ⁺	-0.704*	-0.183	0.297	0.227
Annual leave, γ_{11}		0.031**				
Accumulation with seniority, γ_{12}		-0.075*				

Men						
	(1)	(2)	(3)	(4)	(5)	(6)
Maternity leave, γ_{11}			0.031 **			
Parental leave, γ_{11}				0.019 **		
Flexibility, γ_{11}					0.146 *	
Comprehensive Policy Index, γ_{11}						0.076 *
Women						
	(1)	(2)	(3)	(4)	(5)	(6)
Model for Happiness, β_{0j}						
Intercept, γ_{00}	3.877 **	4.361 **	4.766 **	4.488 **	4.029 **	4.249 **
Annual leave, γ_{01}		-0.058 *				
Accumulation with seniority, γ_{02}		0.138				
Maternity leave, γ_{01}			-0.065 *			
Parental leave, γ_{01}				-0.016		
Flexibility, γ_{01}					-0.098	
Comprehensive Policy Index, γ_{01}						-0.090
Model for Parenthood Slope, β_{1j}						
Intercept, γ_{10}	-0.458 +	-0.831 **	-1.591 **	-1.423 **	-0.764 +	-0.972 **
Annual leave, γ_{11}		0.047 **				
Accumulation with seniority, γ_{12}		-0.079				
Maternity leave, γ_{11}			0.081 **			
Parental leave, γ_{11}				0.025 **		
Flexibility, γ_{11}					0.168 +	
Comprehensive Policy Index, γ_{11}						0.121 **

Note. Models include sociodemographic controls (age, age squared, family income, married, employed, education, occupation) at level 1 and GDP, TFR, extended family, and working hours at level 2 (country).

** p<0.01

* p<0.05

+ p<0.1

Appendix 6.

Results from Multilevel Mixed-Effects Regressions of Happiness on Parenthood and Work-Family Reconciliation Policies by Datasets

WVS						
	(1)	(2)	(3)	(4)	(5)	(6)
Model for Happiness, β_{0j}						
Intercept, γ_{00}	4.780 **	4.702 **	5.869 *	4.845 *	4.116 *	4.459 **
Annual leave, γ_{01}		0.026				
Accumulation with seniority, γ_{02}		-0.155				
Maternity leave, γ_{01}			-0.052			
Parental leave, γ_{01}				-0.003		

WVS						
	(1)	(2)	(3)	(4)	(5)	(6)
Flexibility, γ_{01}					0.437	
Comprehensive Policy Index, γ_{01}						0.074
Model for Parenthood Slope, β_{1j}						
Intercept, γ_{10}	0.735	0.334	0.095	0.118	0.663	0.257
Annual leave, γ_{11}		0.060 [*]				
Accumulation with seniority, γ_{12}		-0.051				
Maternity leave, γ_{11}			0.032 ⁺			
Parental leave, γ_{11}				0.019 ⁺		
Flexibility, γ_{11}					0.062	
Comprehensive Policy Index, γ_{11}						0.140 [*]
ABS						
	(1)	(2)	(3)	(4)	(5)	(6)
Model for Happiness, β_{0j}						
Intercept, γ_{00}	1.762	1.966	2.644 ⁺	2.179	1.961	1.904
Annual leave, γ_{01}		-0.022				
Accumulation with seniority, γ_{02}		0.122				
Maternity leave, γ_{01}			-0.040			
Parental leave, γ_{01}				-0.011		
Flexibility, γ_{01}					-0.114	
Comprehensive Policy Index, γ_{01}						-0.043
Model for Parenthood Slope, β_{1j}						
Intercept, γ_{10}	-0.358	-0.593	-1.661 ^{**}	-1.502 [*]	-0.780	-0.756
Annual leave, γ_{11}		0.026 ⁺				
Accumulation with seniority, γ_{12}		-0.118 ⁺				
Maternity leave, γ_{11}			0.057 ^{**}			
Parental leave, γ_{11}				0.028 ^{**}		
Flexibility, γ_{11}					0.213 ^{**}	
Comprehensive Policy Index, γ_{11}						0.090 [*]

Note. Models include sociodemographic controls (gender, age, age squared, family income, married, employed, education, occupation) at level 1 and GDP, TFR, extended family, and working hours at level 2 (country).

^{**} p<0.01

^{*} p<0.05

⁺ p<0.1

Appendix 7.

Individual Country-Specific Regression Models

	Happiness									
	China	Japan	Korea	Taiwan	Hong Kong	India	Indonesia	Malaysia	Thailand	Vietnam
Parent	0.041 (0.043)	0.033 (0.060)	0.037 (0.081)	−0.083 (0.056)	0.046 (0.043)	0.049 (0.052)	0.019 (0.043)	−0.010 (0.044)	0.047 (0.041)	−0.059 (0.050)
Female	0.051 (0.036)	0.174 ** (0.051)	0.195 ** (0.066)	0.198 ** (0.043)	0.135 ** (0.038)	−0.023 (0.055)	−0.110 ** (0.038)	0.055 (0.039)	0.026 (0.036)	−0.050 (0.033)
Age	−0.048 ** (0.013)	−0.044 * (0.018)	−0.056 * (0.023)	−0.060 ** (0.016)	−0.010 (0.012)	−0.009 (0.017)	−0.027 * (0.013)	−0.007 (0.013)	−0.029 * (0.012)	−0.017 (0.012)
Age squared	0.000 ** (0.000)	0.000 + (0.000)	0.000 (0.000)	0.001 ** (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 * (0.000)	0.000 (0.000)	0.000 + (0.000)	0.000 (0.000)
Married	0.374 ** (0.055)	0.549 ** (0.065)	0.604 ** (0.099)	0.048 (0.060)	0.089 + (0.050)	0.151 * (0.068)	0.069 (0.047)	0.042 (0.052)	0.101 * (0.047)	0.416 ** (0.048)
At least some post-secondary	−0.002 (0.050)	0.029 (0.052)	0.178 ** (0.067)	0.135 ** (0.050)	0.112 * (0.050)	0.211 ** (0.049)	0.261 ** (0.049)	0.025 (0.054)	−0.129 ** (0.049)	0.030 (0.048)
Employed	−0.031 (0.043)	−0.100 (0.062)	0.038 (0.071)	0.109 * (0.053)	−0.072 + (0.044)	−0.134 * (0.058)	0.110 * (0.049)	−0.020 (0.047)	0.102 * (0.051)	−0.096 ** (0.036)
Professionals	0.109 * (0.051)	0.134 * (0.054)	0.045 (0.082)	0.103 (0.064)	0.171 ** (0.049)	0.148 ** (0.057)	0.090 + (0.050)	0.047 (0.050)	0.009 (0.052)	0.070 (0.052)
Family income	0.198 ** (0.018)	0.136 ** (0.025)	0.112 ** (0.030)	0.058 * (0.022)	0.090 ** (0.020)	0.107 ** (0.023)	0.091 ** (0.017)	0.100 ** (0.018)	0.063 ** (0.019)	0.140 ** (0.017)
Constant	4.412 ** (0.234)	4.462 ** (0.336)	4.375 ** (0.434)	4.636 ** (0.279)	3.781 ** (0.221)	4.057 ** (0.292)	4.232 ** (0.220)	4.385 ** (0.215)	4.624 ** (0.222)	4.327 ** (0.203)

**
p<0.01,
 *
p<0.05,
 +
p<0.1

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Figure 1.
The Descriptive Country-Level Scatterplot for Parenthood Happiness Gap and Paid Parental Leave (Rank Order).

Figure 2.
The Descriptive Country-Level Scatterplot for Parenthood Happiness Gap and Comprehensive Policy Index.

Table 1.

10 Asian Countries, Datasets, Survey Years, Sample Size and Number of Observations

	World Values Survey	Asian Barometer Survey	No. of Obs.
China	2007 (1,991)	2006 (2,000)	2
Japan	2005 (1,096)	2006 (1,003)	2
South Korea	2005 (1,200)	2006 (1,000)	2
Taiwan	2006 (1,227)	2006 (1,006)	2
India	2006 (2,001)	2005 (1,238)	2
Hong Kong	2005 (1,252)	2006 (1,000)	2
Indonesia	2006 (2,015)	2007 (1,000)	2
Malaysia	2006 (1,201)	2007 (1,000)	2
Thailand	2007 (1,534)	2007 (1,000)	2
Vietnam	2006 (1,495)	2006 (1,000)	2
Total	10	10	20

Note. Sample size is in parentheses.

Table 2.

Overall Descriptive Statistics

Variable	M	SD	Min	Max
Happiness	3.89	0.89	1	5
A. Country-Level Policy and Contextual Variables				
Paid Annual Leave (days)	8.9	4.25	0	15
Accumulation of Annual Leave with Seniority	0.4		0	1
Paid Maternity Leave (days)	80.23	28.62	56	150
Paid Parental Leave (days)	99.35	56.30	56	239
Work Flexibility	0.2		0	1
Comprehensive Policy Indicator	1.33	0.65	0.60	2.60
GDP	10450.93	12397.99	603.67	36453.80
TFR	1.77	0.66	0.93	3.04
Extended Family	14.21	5.59	7.18	25.45
Working Hours	43.70	3.97	35	48
B. Individual-Level Variables				
Parent (has child)	0.73		0	1
Female	0.48		0	1
Age	38.06	11.22	15	60
Household Income (standardized)	0	1	-2.87	7.91
Married	0.73		0	1
Employed	0.72		0	1
Professional/Manager	0.19		0	1
Education			0	2
No Post-Secondary Schooling	0.74			
Some Post-Secondary Schooling	0.09			
University/Graduate School	0.17			

Table 3.

Transformations and Final Descriptive Statistics of Policy Variables for Multilevel Analyses

Policy Variable	Original Units	Transformation ^a				
			M	SD	Min	Max ^b
Annual Leave	Days	Stdized, RO	4.30	2.00	1	7
Accumulation with Seniority	'0' No / '1' Yes	-	0.40	0.55	0	1
Paid Maternity Leave	Days*Compensation rate	Stdized, RO	4.10	2.23	1	7
Paid Parental Leave	Days*Compensation rate	Stdized, RO	5.50	3.03	1	10
Work Flexibility	'0' No / '1' Yes	-	0.20	0.42	0	1
Comprehensive Policy Index ^c	Continuous	-	1.33	0.65	0.60	2.60

Note.

^a“Stdized” denotes z-score standardization. “RO” denotes rank ordering of policy by country. A higher rank reflects the more generous a country’s paid leave policy.

^bCountries which have the same days have the same rank so that the maximum is 7 out of 10 countries.

^cWe convert measures of annual leave and maternity leave to a percentage score, defined as a country’s generosity relative to the high-scoring country. These percentage scores were summed with flexibility (coded as 1 or 0) to produce the comprehensive policy index.

Table 4.

Parenthood Effects from Fixed-Effects Regression

	Parenthood Effect on Happiness					
	Combined Happiness		WVS Happiness		ABS Happiness	
Japan	0.170	(1)	0.224	(1)	0.034	(7)
South Korea	0.167	(2)			0.163	(1)
Thailand	0.057 ⁺	(3)	−0.052 ^{**}	(7)	−0.016	(9)
Vietnam	0.055	(4)	0.045 ⁺	(4)	0.075	(4)
China	0.054 ⁺	(5)	−0.115 ^{**}	(9)	0.093	(3)
India	0.032 [*]	(6)	−0.068 [*]	(8)	0.148	(2)
Hong Kong	0.010 [*]	(7)	0.060 ⁺	(3)	−0.002	(8)
Indonesia	−0.004 [*]	(8)	−0.046 ^{**}	(6)	0.037	(6)
Malaysia	−0.061 ^{**}	(9)	−0.185 ^{**}	(10)	0.073	(5)
Taiwan	−0.151 ^{**}	(10)	−0.017 [*]	(5)	−0.144 ⁺	(10)

Note.

^a Numbers present variation in the size and direction of the happiness gap between parents and nonparents.

^b Numbers in parentheses denote rank ordering of parents (1 = happiest parents).

^c Models include sociodemographic controls (sex, age, age squared, household income, married, employed, education, occupation).

^d The respondent's occupation is missing in the South Korea samples from WVS so we do not include it in the analytical models.

^e The significance symbol indicates whether parental happiness in that country is different from Japan.

^{**} p<0.01,

^{*} p<0.05

⁺ p<0.1

Table 5.

Results from Multilevel Mixed-Effects Regressions of Happiness on Parenthood and Work-Family Reconciliation Policies

<i>Fixed effects</i>	(1)	(2)	(3)	(4)	(5)	(6)
Models for Happiness, β_{0j}						
Intercept, γ_{00}	3.176 **	3.607 **	4.451 **	3.797 *	3.411 *	3.521 **
Annual leave, γ_{02}		-0.048				
Accumulation with seniority, γ_{02}		0.129				
Maternity leave, γ_{02}			-0.056			
Parental leave, γ_{02}				-0.016		
Flexibility, γ_{02}					-0.127	
Comprehensive policy index, γ_{02}						-0.075
GDP, γ_{03}	0.000	-0.000	-0.000	-0.000	0.000	0.000
TFR, γ_{03}	0.180	0.304	0.105	0.149	0.170	0.187
Extended family, γ_{03}	-0.002	-0.010	-0.005	-0.003	-0.002	-0.003
Weekly working hours, γ_{03}	0.018	0.009	0.001	0.008	0.013	0.012
Models for Parenthood Slope, β_{1j}						
Intercept, γ_{10}	0.205	-0.118	-0.771 **	-0.654 *	-0.096	-0.236
Annual leave, γ_{12}		0.036 **				
Accumulation with seniority, γ_{12}		-0.068 *				
Maternity leave, γ_{12}			0.043 **			
Parental leave, γ_{12}				0.022 **		
Flexibility, γ_{12}					0.161 *	
Comprehensive policy index, γ_{12}						0.097 **
GDP, γ_{13}	0.000	0.000 ⁺	0.000 **	0.000 **	-0.000	0.000
TFR, γ_{13}	-0.011	-0.101 **	0.048 **	0.036	0.004	-0.019
Extended family, γ_{13}	0.002	0.007 **	0.004 **	0.004	0.002	0.003
Weekly working hours, γ_{13}	-0.005	0.002	0.008 **	0.009 ⁺	0.001	0.003
<i>Random Effects (variance)</i>						
Country mean, u_{0j}	0.045 **	0.043 **	0.043 **	0.045 **	0.045 **	0.045 **
Parent slope, u_{1j}	0.004 **	0.003 **	0.002 **	0.002 **	0.003 **	0.003 **
Individual level, e_{ij}	0.707 **	0.707 **	0.707 **	0.707 **	0.707 **	0.707 **

Note. Models include sociodemographic controls (gender, age, age squared, family income, married, employed, education, occupation) at level 1.

**
p<0.01

*
p<0.05

⁺
p<0.1