Housework Participation and Fertility Intentions in Taiwan: Wives Want More Kids If Their Husbands Do More Housework

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Abstract Would more involvement of husbands into housework improve fertility intentions in Taiwan? Using the Taiwan Panel Study of Family Dynamics, we examine the association between wives' and husbands' housework participation on their own and their spouses' fertility intentions, according to the expectations of post-Second Demographic Transition reversal in fertility rates and the gender revolution framework. Our analysis shows that the effects are mostly evident among Taiwanese women but not men, who appear to lag behind on the gender revolution. Overall results show that more involvement into housework from husbands increase the fertility intentions among wives, but does not increase the fertility intentions among husbands.

Keywords: East Asia, fertility intentions, housework participation, Panel Study of Family Dynamics

Modern societies are plagued by low fertility rates (Billari and Kohler 2004; Frejka and Ross 2001; Kohler, Billari and Ortega 2002; McDonald 2000). Two notable patterns have emerged in counties of the global north. On the one hand, in some countries like the Nordic states, France, and the US, after a period of fluctuation, fertility rates settled close to the replacement level, which is 2.1 children per woman (Goldscheider, Bernhardt and Lappegård

2015; McDonald 2009; Sullivan, Billari and Altintas 2014). On the other hand, in other OECD countries, especially in Southern Europe and East Asia, fertility rates dropped below replacement and remained there over the recent decades (Brinton et al. 2018). Considering low levels of immigration in East Asia, in contrast with the Southern Europe, the region is bound to face shortages in labour market supply, as well as federal and local budget strains related to the support of rapidly increasing aging population (Morikawa 2018). The prospects are particularly dire, considering that the reversal and stabilisation of the fertility rate close to the replacement rate was only reported in Western countries but Japan and Korea (both East Asian countries) were reported to continue the decline in fertility rates (Myrskylä, Kohler and Billari 2009).

Theoretical developments in demographic research establish that gender role performances and intrafamilial relations shape these divergent trajectories (Esping-Andersen and Billari 2015). At the dawn of the gender revolution and the first demographic transition, fertility rates dropped as women began to take a more active role in education and the labour market (Brewster and Rindfuss 2000). As the number of gainfully employed women rose, the association of labour market participation with low fertility rates weakened and, in some cases, reversed by 1990s (Brewster and Rindfuss 2000).

The reversal was common among countries with greater gender equality, where women retained more equal rights with men in the labour market and at home, such as in the Scandinavian region (Esping-Andersen and Billari 2015). The increase in gender equality as well as the widespread adoption of more egalitarian gender attitudes were at the core of the reversal in fertility rates among the countries, undergoing the second demographic transition (Goldscheider, Bernhardt and Brandén 2013; Goldscheider, Bernhardt and Lappegård 2015; McDonald 2000; Myrskylä, Kohler and Billari 2009; Neyer, Lappegård and Vignoli 2013; Sullivan, Billari and

Altintas 2014). Because the most noticeable fertility reversals occurred in countries with the considerable rise in husbands' contributions to domestic work, scholars identified husbands' housework participation as one of the key factors (Kan and Hertog 2017; Kan, Hertog and Kolpashnikova 2019; Sullivan, Billari and Altintas 2014).

East Asian countries are similar to South European countries in low fertility rates and equally low acceptance of gender egalitarian attitudes in the general population (McDonald 2009), although many other cultural differences exist (Brinton et al. 2018). However, the literature is terse about the effects of men's participation in housework on fertility intentions outside the European and North American contexts, with few exceptions (Brinton et al. 2018; Kan and Hertog 2017; Kan, Hertog and Kolpashnikova 2019).

In this paper, we test the association between the gender egalitarian division of household labour and fertility intentions in Taiwan, using a panel data, which allows controlling for the heterogeneity among individuals by using fixed-effects models. Even though Taiwan is unique in its standing among other East Asian regions because it had a unique historical and cultural trajectory, it also shares many commonalities with other East Asian countries. Confucian family values and the reverence for the seniors are among the few common customs honoured in East Asian societies. East Asian countries also share demographic trend commonalities such as an increase in women's labour participation and educational attainment, a decrease in fertility rates, and an increase in delayed marriages (Kan, Hertog and Kolpashnikova 2019; Zhou and Kan 2019). This paper will investigate whether the association between men's participation in housework affects both husband and wives' intent to have more children.

Theoretical perspectives on the second demographic transition

Many career women struggle to fit motherhood into their long list of responsibilities at

home and in the labour market. However, with the rise of more egalitarian gender views in society, when men involve more actively in the domestic sphere, the pressures on women abate. In such cases, fertility rates may reverse and approach the replacement level on the aggregate level (Goldscheider, Bernhardt and Lappegård 2015). The reversal of the fertility rates occurs via two distinct mechanisms: (a) more involved husbands alleviate the burden of wives, whereas wives become more confident in having children when they can expect their husbands help at home, and (b) gender egalitarian ideology promotes more equal partnerships between people and, therefore, forms more stable unions with happier couples, able to trust in each other's support with maintaining a household and raising children.

Research in the area provided evidence for the effects of the second demographic transition on fertility rates, but it was based predominantly on the data from Western countries, even though the original theoretical framework was envisioned to apply regardless of the context (Goldscheider, Bernhardt and Lappegård 2015). However, a one-size-fits-all approach to explaining fertility decisions should not be taken at face value, particularly that two countries in the East Asian region, Korea and Japan, were identified as outliers in the original research by Myrskylä, Kohler and Billari (2009). The unique patterns of historical trajectories and the evolution of cultural institutes may have cast distinct family relations which presently affect fertility decisions (Balbo, Billari and Mills 2013). Moreover, the research of East Asian societies has consistently shown that the patterns of domestic relations are different from those in Europe and North America (Brinton et al. 2018; Qian and Sayer 2016; Raymo et al. 2015).

Sullivan, Billari and Altintas (2014) show that in conservative Southern and Central European societies, such as Italy, Spain, and Germany, fertility decisions also became responsive to husbands' increasing participation in unpaid work. Their findings indicate that the second

demographic transition manifests itself in these countries and that their fertility rates might rely increasingly on the egalitarian gender ideology and the equality between women and men.

East Asia has a few similarities with these conservative European countries in both more traditional gender roles and low fertility rates. Even though earlier studies were able to confirm only the effects of the labour market participation on fertility decisions (Ono 2003), more recent studies reveal the trends characteristic for the second demographic transition for the East Asian countries as well (Kan and Hertog 2017).

Because the transition occurs in countries at different developmental stages (Goldscheider, Bernhardt and Lappegard 2015; Goldscheider, Oláh and Puur 2010), the pace of the transition may vary across countries (Sullivan, Billari and Altintas 2014) and it might not always have a linear progression. This paper seeks to confirm whether the association between men's participation in housework and fertility intentions in one of the East Asian societies, Taiwan. The results of this paper will allow testing the applicability of the claims of the second demographic transition theory to the effects of egalitarian gender attitudes on fertility intentions in Taiwan, and East Asia, in general, extending the relevance of the framework to diverse cultural contexts.

Domestic work in East Asia and the link with fertility

Few studies examined fertility in East Asia (Chen and Li 2014; Frejka, Jones and Sardon 2010; Raymo et al. 2015; Sechiyama 2013), but even less—applied the second demographic transition framework to the analysis of the regional demographic trends. Frejka, Jones and Sardon (2010) present an exhaustive study of childbearing trends in East Asia (except China) since the 1950s. They emphasise the role of the expansion of education in the precipitous decline of fertility rates. Raymo et al. (2015) ascribe the low fertility in East Asian countries to the rapid social and economic changes, which transpired without the commensurate changes in family

attitudes. Chen and Li (2014) emphasise that the role of governments had on fertility rates was not uniform; it exerted and continues to exert a higher influence in China than in other counties of East Asia. Over the course of history, the differences in governmental intervention formed diverging patterns within the region (see Estevez-Abe and Naldini 2016 for a comparison of Japan and South Korea).

In addition, Suzuki (2013) argues that the declining fertility in East Asia is the result of the endemic gender inequality and the Confucian family ideals in East Asian societies. Similarly, McDonald (2009) suggests that gender inequality in East Asian societies exacerbates work-family conflict, and the lack of economic security among women results in the low fertility rates in the region. These arguments can be confirmed if our study can actually show that more egalitarian arrangements at home influence the fertility intentions of women and men.

Hypotheses

Based on the theoretical ideas of the second demographic transition (Esping-Andersen and Billari 2015; Myrskylä, Kohler and Billari 2009) and the previous empirical findings regarding the association between fertility intentions and husbands' participation in domestic work in East Asia (Kan and Hertog 2017; Kan, Hertog and Kolpashnikova 2019), we propose to test the following hypotheses:

Hypothesis 1: Husbands in couples where men contribute more to housework show higher fertility intentions.

Hypothesis 2: Wives in couples where men contribute more to domestic work also show higher fertility intentions.

Support for these hypotheses would confirm the relevance of the connections between the egalitarian division of housework in fertility intentions in the East Asian context. The support for

hypotheses will corroborate our findings, using the cross-country international comparison. It would also suggest that these countries are undergoing the second demographic transition at the stage, characterized by extremely low fertility rates and by the positive effects of gender egalitarianism on fertility intentions, i.e. the reversal stage of the J-curve in fertility rates (Myrskylä, Kohler and Billari 2009).

Data

We are using the Taiwanese Panel Study of Family Dynamics, 2007-2016 (Acadmia Sinica 2019). This study started in 1999 with a view to show the differences in family structures and dynamics in Taiwan and Greater China compared to the western world. As a challenge, the creators of the study have envisioned that their data will help challenge the conventional theories in family research based on western data.

For the purposes of the present study, we restricted our sample to the main sample of married people who were in between 25 and 45. This left us with 9,368 person-year observations out of 34,062 in total. In 2007, the main sample included the children of the original sample born in 1981-2, so the cohort of those born in 1982 is the youngest in the analytical sample.

We also excluded the observations with missing values in any of the main variables used for the analysis. This resulted in the analytical sample of 6,249 people (67% of 9,368), including 2,690 men and 3,559 women, residing in Taiwan. Most of the missing values (1,584 and 953) come from the spousal paid work variable and the fertility intention variable. However, because they are indispensable measures both for housework participation and fertility intentions, we decided to keep them in the models.

Dependent Variable

Our models use two variables in the analysis. One of the dependent variables is the number of hours respondents report that they and their spouses spend on housework on an average week. Table 1 and 2 show that men spent, on average, 6.6 hours a week on housework, whereas women spent 17.4 during 2007-2016. Although men estimated their own housework participation similarly to how women, on average, estimated their spouses' housework participation, men also underestimated the number of hours women spend on housework,

compared to that estimated by women themselves. Longitudinal data reveals that people of the same cohort do not change their housework participation over time in Taiwan, reflected in the level of housework hours in Tables 1 and 2 over the period.

Another dependent variable, measuring the fertility intentions, is a dummy variable representing whether the respondent wants to have more children (=1) or not (=0). Table 1 and 2, summarising the descriptive statistics for the sample, show that the fertility intentions among men, on average, are higher than among women, because higher proportions of men report wanting to have more children (41.6%) than women (30.7%). In between 2010-2014, the tables show that there was a spike in the fertility intention both among women and men, which is explained by the aggressive government promotion of marriage among younger generations, following an economic recession (Hsueh 2018). It is interesting, however, to see that in the sample of the same people observed over time. It suggests that the overall fertility intentions in the society might affect individual fertility intentions, even if the individual is not freshly married.

Independent and Control Variables

For the housework models, we chose demographic variables and variables that commonly are used to explain the gendered division of housework, such as income transfer, personal and household income variables, and education because, in housework research, resource variables are usually represented by the above variables.

Education variable is measured in years of schooling. Paid work time is measured in hours spent on paid work per week. Age is measured in years. Household size includes all household members. Children are a variable measuring the number of children in households. Personal and household incomes are measured in thousand New Taiwanese dollars per year.

Income transfer is calculated as a difference in personal income and partner's income, divided by the total income.

Tables 1 and 2 describe the samples of men and women by year. The overall educational level has increased among women and men between 2007 and 2016. Paid work time remained relatively stable over the period. Actual fertility, as reflected in the number of children, has decreased slightly from 2007 to 2016. Personal income and household incomes remained level over the period. There is, however, a slight progression towards economic equality as reflected in the progression of the income transfer variable from 2007 to 2016.

For the probit models of fertility intentions, we followed our previous research to allow comparability (Kan, Hertog and Kolpashnikova 2019), but we also added housework hours of the respondent and the spouse as the explanatory variables, as well as the pressure from parents and in-laws to have more children (1= 'presence of the pressure', 0 = 'otherwise').

Models

The first set of models estimates the hours spent on housework by women and men, as reported by respondents of themselves and their spouses, for the independent variables. For these models, we use fixed-effects regressions on the panel PSFD data (person-years). In the second sets of models, we run population-averaged probit models to estimate whether spousal housework participation affects fertility intentions, particularly among women. Model outputs are presented in Tables 3 and 4. We also ran a robustness check of our results, using the fixed-effect logit models. The effects were in the same direction as those reported in this paper; however, the significance of effect of the main independent variables varied depending on the choice of a model.

Table 1. Mean (SD) of Main Variables, Men

	Men in 2007	2008	2009	2010	2011	2012	2014	2016	Total
Fertility Intention	0.328	0.333	0.379	0.450	0.444	0.459	0.459	0.382	0.416
	(0.471)	(0.472)	(0.486)	(0.498)	(0.497)	(0.499)	(0.499)	(0.486)	(0.493)
Housework	5.210	5.114	6.340	9.347	6.452	6.047	7.176	5.908	6.576
	(5.792)	(5.794)	(7.180)	(14.456)	(8.062)	(6.913)	(8.282)	(8.932)	(8.925)
Spouse: Housework	13.544	14.184	14.917	16.840	12.719	11.462	13.128	10.891	13.159
	(10.688)	(13.446)	(14.370)	(19.513)	(13.122)	(10.851)	(14.972)	(12.260)	(14.064)
Education	9.031	9.039	9.485	9.759	10.071	10.298	10.804	10.987	10.139
	(3.243)	(3.201)	(3.079)	(3.169)	(3.050)	(2.952)	(2.785)	(2.888)	(3.081)
Spouse: Education	9.015	8.908	9.568	9.779	9.949	10.238	10.680	10.885	10.071
	(2.855)	(3.042)	(2.894)	(2.882)	(2.931)	(2.891)	(2.671)	(2.669)	(2.901)
Paid Work Time	51.179	49.899	46.772	49.676	50.314	49.206	49.527	47.597	49.210
	(17.133)	(15.460)	(17.540)	(17.665)	(16.887)	(17.892)	(14.663)	(13.009)	(16.156)
Spouse: Paid Work Time	45.354	46.298	45.005	46.628	45.579	44.623	44.297	43.288	44.956
	(12.352)	(13.787)	(13.057)	(14.770)	(12.881)	(12.043)	(10.955)	(10.242)	(12.386)
Age	35.892	36.298	36.432	34.186	34.673	34.772	35.701	36.858	35.542
	(4.525)	(5.026)	(4.770)	(4.670)	(4.383)	(4.166)	(3.529)	(3.256)	(4.281)
Household size	3.856	3.627	3.485	3.708	3.536	3.588	3.438	3.484	3.568
	(2.396)	(2.209)	(2.170)	(2.361)	(2.393)	(2.396)	(2.182)	(2.067)	(2.268)
Children	1.477	1.452	1.320	1.209	1.230	1.191	1.237	1.351	1.288
	(0.904)	(0.921)	(0.939)	(0.922)	(0.909)	(0.931)	(0.912)	(0.859)	(0.913)
Personal Income	667.451	611.808	644.785	613.513	603.089	618.992	676.831	746.417	652.951
	(988.447)	(704.559)	(738.557)	(828.367)	(469.643)	(414.439)	(392.680)	(637.723)	(632.799)
Spouse: Income	349.196	403.488	355.917	373.767	374.387	385.661	421.219	451.278	396.539
	(199.938)	(675.451)	(209.674)	(596.638)	(338.793)	(291.720)	(228.794)	(363.828)	(391.601)
Household Income	1016.647	1015.296	1000.703	987.279	977.476	1004.653	1098.050	1197.695	1049.489
	(1024.365)	(985.054)	(815.383)	(1303.330)	(732.929)	(615.764)	(513.512)	(784.462)	(849.350)
Income Transfer	0.256	0.226	0.267	0.232	0.236	0.247	0.223	0.231	0.237
	(0.310)	(0.359)	(0.314)	(0.365)	(0.339)	(0.344)	(0.314)	(0.351)	(0.339)
N	2690								

Table 2. Mean (SD) of Main Variables, Women

	Women in 2007	2008	2009	2010	2011	2012	2014	2016	Total
Fertility Intention	0.203	0.228	0.269	0.315	0.359	0.376	0.304	0.281	0.307
	(0.403)	(0.421)	(0.444)	(0.465)	(0.480)	(0.485)	(0.460)	(0.450)	(0.461)
Housework	16.237	14.512	15.545	22.873	18.533	17.891	17.027	14.018	17.371
	(17.359)	(15.204)	(17.271)	(27.086)	(22.635)	(23.085)	(21.544)	(17.737)	(21.503)
Spouse: Housework	5.233	4.795	5.402	9.639	6.496	6.278	6.747	5.280	6.460
	(7.776)	(6.712)	(7.937)	(15.475)	(8.718)	(7.548)	(9.297)	(7.618)	(9.646)
Education	9.047	9.098	9.523	9.498	9.792	10.301	10.507	10.698	9.985
	(2.700)	(2.671)	(2.639)	(2.776)	(2.722)	(2.688)	(2.612)	(2.708)	(2.750)
Spouse: Education	9.099	9.224	9.583	9.531	9.704	10.283	10.415	10.479	9.937
	(3.119)	(3.137)	(3.174)	(3.050)	(2.969)	(2.933)	(2.891)	(3.109)	(3.061)
Paid Work Time	34.246	32.815	31.413	32.876	33.712	33.458	34.065	33.059	33.292
	(22.818)	(21.978)	(22.002)	(21.910)	(21.256)	(20.507)	(21.006)	(20.638)	(21.294)
Spouse: Paid Work Time	48.681	49.323	49.572	51.210	50.533	49.520	49.302	49.032	49.734
	(13.530)	(12.437)	(15.054)	(14.952)	(14.319)	(14.247)	(14.425)	(14.411)	(14.323)
Age	35.095	35.358	35.284	32.900	33.327	33.665	34.928	35.928	34.436
	(5.077)	(5.476)	(5.552)	(4.515)	(4.201)	(3.698)	(3.045)	(3.090)	(4.267)
Household size	3.819	3.791	3.602	3.788	3.732	3.791	3.627	3.660	3.720
	(1.932)	(2.043)	(2.081)	(1.972)	(1.989)	(2.154)	(1.959)	(1.926)	(2.005)
Children	1.763	1.724	1.621	1.506	1.465	1.415	1.535	1.558	1.540
	(0.958)	(0.938)	(0.987)	(0.937)	(0.925)	(0.949)	(0.956)	(0.913)	(0.945)
Personal Income	338.563	335.359	336.386	284.720	322.830	348.795	366.995	382.685	341.853
	(685.740)	(336.226)	(404.052)	(352.948)	(489.648)	(271.827)	(316.427)	(328.101)	(390.256)
Spouse: Income	636.349	726.896	671.443	598.386	656.468	622.273	652.350	739.279	661.361
	(399.735)	(850.819)	(756.715)	(636.462)	(857.355)	(409.341)	(407.657)	(589.481)	(624.529)
Household Income	974.912	1062.255	1007.830	883.105	979.298	971.069	1019.345	1121.964	1003.214
	(811.084)	(1031.425)	(925.750)	(739.778)	(1157.201)	(548.392)	(572.743)	(759.038)	(818.010)
Income Transfer	-0.391	-0.390	-0.387	-0.399	-0.351	-0.319	-0.325	-0.353	-0.357
	(0.413)	(0.438)	(0.434)	(0.452)	(0.463)	(0.427)	(0.438)	(0.429)	(0.439)
N	3559								

Results

Models on Housework Hours

Table 3 summarises the fixed-effects models on housework participation among men and women. The coefficients for control variables are overall working in the expected directions. The more the respondents work, the less they contribute to housework, whereas their spouses are more likely to do more housework, as a result. These findings are in accordance to the time availability framework in housework research (Bianchi et al. 2000; Coverman 1985; England and Farkas 1986), stating that the more time women and men have, the more likely they are to do housework. Older respondents, particularly women, and their spouses do less housework than younger generations. This finding is more characteristic of the Taiwanese society than of other (western) countries, analysed in the previous housework literature, which stated that younger generations were more likely to do less housework than the older generations, who had more traditional arrangements at home (Gershuny 2000). Considering that the sample is restricted to below 45 years of age, this finding is strikingly different from the patterns usually reported in the western societies. The findings, however, are also reported in other Asian societies such as in Central Asia, where older women have more power in (usually) multigenerational households (Kolpashnikova, Shirakawa and Sudoh 2019). Women with children report and are reported by spouses to spend more time on housework. It is common that the time spent on housework is increased with marriage and childbearing (Kolpashnikova, Kan and Shirakawa 2019a; Kolpashnikova, Kan and Shirakawa 2019b). Overall, the respondents with higher levels of personal income report doing less housework than those who earn less, which confirms the mainstream (resource-based) findings in the housework research (Killewald and Gough 2010; Sayer 2010). In particular, it is clear from the model results that although men's personal income

does not affect the level of housework participation significantly, women's personal income affects both own and spousal housework participation. Women in higher quartiles of personal income are significantly more likely to report lower own housework hours and higher spousal hours. The education variable does not appear to affect respondent's own housework participation significantly. However, higher educated men are more likely to report higher levels of housework time spent by their spouses. The relationship between own housework and spouse housework does not seem to be a zero-sum game. On the contrary, in households, where women and men do more housework, their partners are likely to do more as well. One explanation to this phenomenon could be that the households residing in rural areas are more likely to require more housework hours than those in the urban areas. This might be the case why in households where women do more housework, men are also more involved in domestic chores.

The results of r-squared of the panel data reveal that the models can explain more within the panel variation and between, except in the model (2) of women's own housework participation. We chose the regressors based on the state-of-the-art housework theories. The results reveal that these variables (and, by extension, theories) better apply to the explanation of the differences between women than between men.

Table 3. Fixed-effect Models for Housework Hours

	Model (1) Men Housework	Model (2) Women Housework	Model (3) Men Spouse: Housework	Model (4) Women Spouse: Housework
Paid Work Time	-0.063***	-0.134***	0.086***	0.050***
	(0.017)	(0.031)	(0.024)	(0.013)
Spouse: Paid Work Time	0.053**	0.052	-0.052	-0.030*
	(0.019)	(0.037)	(0.034)	(0.014)
Age	-0.005	-0.700***	-0.410***	-0.215**
	(0.075)	(0.151)	(0.112)	(0.070)
Household size	0.167	0.571+	-0.213	-0.240+
	(0.131)	(0.324)	(0.180)	(0.131)
Children	0.320	5.520***	3.092***	0.648
	(0.583)	(0.984)	(0.652)	(0.447)
Income Transfer	-2.084+	-0.381	6.134***	-1.173+
	(1.150)	(1.320)	(1.548)	(0.628)
1. Lower PI Quartile	Ref.	Ref.	Ref.	Ref.
2. 25-50th PI Percentile	-3.684	-6.140**	2.057	1.546+
	(4.901)	(2.223)	(6.005)	(0.797)
3. 50-75th PI Percentile	-3.801	-8.066**	-0.181	2.685*
	(5.044)	(2.781)	(6.442)	(1.063)
4. Upper PI Quartile	-3.669	-10.126**	-0.468	4.169**
	(5.017)	(3.073)	(6.615)	(1.359)
Education	-0.201	-0.363	1.256**	0.075
	(0.481)	(0.626)	(0.478)	(0.303)
Spouse: Education	0.050	0.933*	0.049	-0.055
	(0.231)	(0.373)	(0.417)	(0.193)
Housework			0.955***	0.278***
			(0.040)	(0.025)
Spouse: Housework	0.420***	1.046***		
	(0.063)	(0.055)		
Constant	6.641	26.363**	1.773	6.078
	(5.502)	(9.785)	(9.354)	(3.897)
Observations	2690	3559	2690	3559
R-squared within	0.419	0.360	0.432	0.310
R-squared between	0.184	0.384	0.138	0.232
R-squared overall	0.303	0.381	0.265	0.272

Standard errors in parentheses. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Models on Fertility Intentions: Testing the Hypotheses

In the second set of models, presented in Table 4, we estimated the likelihood of wanting to have more children. The main focus and the main independent variables for the models was the spousal participation in housework among women and own housework participation among men, while controlling for other demographic variables.

On the one hand, we do not find enough evidence to support Hypothesis 1 among men's own fertility intentions, because the association between own housework participation and fertility intention is not on a significant level. Moreover, the odds ratios, reported in Table 4, are lower than 1, meaning that with more housework hours per week, men are less likely to want to have more children.

On the other hand, we find support for Hypothesis 2 among women. Women, whose spouses contribute more to housework, are significantly more likely to want to have more children than women, whose husbands contribute less to housework. These findings strengthen the claims in Kan, Hertog and Kolpashnikova (2019) by confirming that more support from husbands in housework helps to improve the fertility intentions among women.

However, the results indicate that although the gender revolution might have influenced the fertility intentions of women, men are lagging behind because the gender egalitarianism does not affect their fertility intentions as the lagged adaptation in gender revolution hypothesis suggests (Gershuny, Godwin and Jones 1994). The results show that men are more likely to follow the traditional model when it comes to higher fertility intentions. Overall, findings are supportive of the three-stage transitional theory findings in Kan, Kolpashnikova and Tai (2019), who also find that men are lagging in pre-transitional and transitional stages, whereas women are entering the post-transitional stage of the Second Demographic Transition.

Table 4. Probit models of the intention to have more children (odds ratios)

	Model (1) Men	Model (2) Women
Housework	0.997	0.998
	(0.004)	(0.002)
Spouse: Housework	1.008**	1.006+
	(0.003)	(0.003)
Paid Work Time	1.003	0.996+
	(0.002)	(0.002)
Spouse: Paid Work Time	1.004	1.006**
	(0.003)	(0.002)
Age	0.920***	0.898***
	(0.010)	(0.009)
Household size	1.027	1.006
	(0.019)	(0.020)
Children	0.244***	0.292***
	(0.019)	(0.019)
Income Transfer	1.024	1.044
	(0.136)	(0.133)
1. Lower PI Quartile	Ref.	Ref.
2. 25-50th PI Percentile	0.512**	1.018
	(0.126)	(0.141)
3. 50-75th PI Percentile	0.498**	1.002
	(0.125)	(0.163)
4. Upper PI Quartile	0.576*	1.151
	(0.152)	(0.221)
Education	1.014	1.004
	(0.020)	(0.022)
Spouse: Education	1.047*	1.065***
	(0.021)	(0.020)
Pressure from parents	1.303*	1.279*
	(0.150)	(0.130)
Observations	2690	3559
Wald chi^2	430.900	589.259
Degrees of freedom	14	14
P-value	0.000	0.000

Exponentiated coefficients; Standard errors in parentheses. $^{+}$ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5. Conditional marginal effects on the intention to have more children

	Model (1) Men	Model (2) Women
Housework	-0.001	-0.001
	(0.002)	(0.001)
Spouse: Housework	0.003**	0.002+
	(0.001)	(0.001)
Paid Work Time	0.001	-0.001+
	(0.001)	(0.001)
Spouse: Paid Work Time	0.002	0.002**
	(0.001)	(0.001)
Age	-0.031***	-0.029***
	(0.004)	(0.003)
Household size	0.010	0.002
	(0.007)	(0.005)
Children	-0.520***	-0.335***
	(0.029)	(0.020)
Income Transfer	0.009	0.012
	(0.049)	(0.035)
1. Lower PI Quartile	Ref.	Ref.
2. 25-50th PI Percentile	-0.260**	0.005
	(0.095)	(0.037)
3. 50-75th PI Percentile	-0.270**	0.000
	(0.097)	(0.043)
4. Upper PI Quartile	-0.217*	0.040
	(0.103)	(0.053)
Education	0.005	0.001
	(0.007)	(0.006)
Spouse: Education	0.017*	0.017***
	(0.007)	(0.005)
Pressure from parents	0.098*	0.067*
	(0.042)	(0.028)
Observations	2690	3559

Standard errors in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5 summarises conditional marginal effects based on models in Table 4. It shows that an hour change in a weekly amount of spousal housework increases the intention of having more children by 0.2% among Taiwanese women. The same effect (but by 0.3%) can be observed among Taiwanese men. Although the associations are similar between women and men, the interpretations diverge. For women, the results indicate the support for more egalitarian division of labour. For men, the outcomes are indicative of a more traditional arrangements to be

associated with higher fertility intentions.

Among other variables, significantly associated with fertility intentions, Table 5 identifies education—women and men with better educated spouses are more likely to want more children, paid work time—women, who work longer hours, are less likely to report wanting to have more children, older women and men are less likely to report wanting to have more children, and those respondents who receive pressure from their parents or in-laws to have more children are more likely to want more children.

Conclusions

Our results show that women, whose spouses contribute more to housework, are more likely to want more children, which reflects more gender egalitarian expectation. However, this expectation is not reciprocated on the men's side. Men, who participate more in housework, are not more likely to want more children than men, who do less. These findings reflect the lop-sidedness of the gender revolution in East Asia: women need more egalitarian arrangements, whereas men are slow to change. This lop-sidedness might be at the core of the steep decline in fertility rates in most East Asian countries.

It is, however, advisable to extend the findings of this research to the rest of East Asia with caution. First, it is crucial to bear in mind that the gender revolution within East Asian countries have been uneven with diverse trajectories for all countries in the region (Kan and Hertog 2017; Kan, Hertog and Kolpashnikova 2019). Second, Taiwan also is a diverse society within itself, representing a multitude of people and cultures within itself (Kolpashnikova 2019; Kolpashnikova, Galway and Sudoh 2016), which may also have different trajectories in gender revolution than the main pattern revealed by the present work. For instance, Kolpashnikova, Galway and Sudoh (2016) show that depending on national identity, the behaviour regarding

cultural traditions and religious observation may vary among Taiwanese. Considering cultural heterogeneity within the region, it might be difficult to generalise the findings of the present paper to countries and regions outside Taiwan, including those in East Asia.

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