Second Demographic Transition: Association between Women's and Men's Gender Attitudes and Housework Share in 24 Countries

Man Yee Kan, *University of Oxford*

Kamila Kolpashnikova, *National Taipei University*

Tsui-o Tai, *National Taipei University*

Abstract

We examine trends of the second demographic transition in 24 countries as it expresses in the association between gender attitudes and housework participation. Using the International Social Survey Program, 2002 - 2012, we find that the association between gender attitudes and housework hours has become stronger, signifying that in most countries the second demographic transition is in place. We also find that as the lagged adaptation theory predicts, the association between gender attitudes and housework participation has strengthened for both women and men. The gains in gender equality at home have been reversing in social democratic and conservative welfare regimes, but in liberal as well as South European and East Asian countries, gender ideology and the domestic division of labor have both become more egalitarian.

Changes in the labor market drive changes at home and vice versa. Women today are no longer held to traditional standards of the gender segregated division of housework (Sullivan, Gershuny, and Robinson, 2018; Gershuny, 2000; Heisig, 2011; Hook, 2006, 2010). The recent decade brought more evidence that gender convergence in housework time was taking place, albeit slower than expected (Kan, Gershuny and Sullivan, 2011; Sullivan, Gershuny, and Robinson, 2018; Altintas and Sullivan, 2017).

It has been suggested that these changes in gender relations were brought about by what is called the Second Demographic Transition (Lesthaeghe, 2010, van de Kaa, 1986) marked by lower fertility rates, higher proportions of aging population and marriage dissolution. Esping-Andersen and Billari (2015) argued that the initial shockwave of the gender revolution and the

departure from the male-breadwinner traditional gender specialization model brought about the abatement in fertility and increase in divorce rates, and above all, realignment in gender relations at home. With time, these new more egalitarian gender arrangements will take root in everyday life because when shared by a critical mass of people, societies start to settle into new non-traditional family relations equilibria.

The demographic changes, elucidated by Lesthaeghe (2010) and Esping-Andersen and Billari (2015), must be traceable in all individual activity affected by the shifts in the societal gender ideology. Most literature on the division of housework focuses on the resource-based explanations of the gendered division of household labor and pays considerably less attention to the effects of gender ideology. This is a major oversight considering that Esping-Andersen and Billari (2015) and Lesthaeghe (2010) postulate that it is the latter that drives demographic changes as well as the shifts in the division of domestic labor. Albeit the participation in housework and its association with gender ideology have been examined in previous studies (Hu & Kamo 2007, Lewin-Epstein et al. 2006, Gazso-Windle & McMullin 2003, Baxter 1992, Kan 2008a, Bianchi et al. 2000, Coltrane & Ishii-Kuntz 1992, Cunningham 2005, Greenstein 1996; Fuwa 2004), yet none of these studies connected the results explicitly with the second demographic transition (Lesthaeghe 2010) and the multiple equilibria theories (Esping-Andersen & Billari 2015).

This paper contributes to the research agenda by adding the theoretical expectations about the effects of the second demographic transition at the individual level. We explore how the changes in the association between gender ideologies and women's and men's housework share can contribute to the theory of the second demographic transition and multiple equilibria. The

paper analyzes gender attitudes and the division of domestic labor in 24 countries of the International Social Survey Program (ISSP) for the period between 2002 and 2012.

1 Theoretical approaches

1.1 Second Demographic Transition and Multiple Equilibria

In 1986, Lesthaeghe and van de Kaa argued that the rapid decrease in fertility and increase in union dissolution marked the second demographic transition. Due to longer education years and individuals' reorientation to self-actualization and career building rather than family, more women and men started postponing marriage and children, which lead to a precipitous fall in total fertility rates (TFR).

Becker (1981), on the other hand, explained these demographic changes in terms of the convergence in women's marketable skills with those of men. Because women's human capital increased while the returns to marriage and childbearing decreased, women are more likely to postpone marriage or children and to retain paid employment instead.

The recent research, however, presented evidence that the trends in TFR and divorce were reversing: in a few more gender egalitarian societies, particularly in the Scandinavian region, the TFR began to increase (Lesthaeghe, 2010). Thus, the association of the economic development and TFR reversed for those countries and became positive. The resulting rift between theory and empirical findings inspired new developments within the two competing frameworks.

Lesthaeghe (2010) extended his theory of the second demographic transition by adding explanatory factors contributing to the reversal of the overall trend in select cases. He argued that such reversal in TFR is only attainable in societies with higher levels of gender symmetry in most spheres of life as well as an advanced system of social benefits and of policies helping

women and men to balance work and family such as universal access to childcare facilities and paid fatherhood leave.

On the other hand, Esping-Andersen and Billari (2015) challenged Lesthaeghe ideas that the reversal can happen only given certain criteria, specifically the contention that the institutional welfare support and progressive family policy are fundamental. An evidence that they provided was that the reversal was also apparent in the rest of the world where institutional support was not historically developed, such as in Southern European countries and the US. These countries did not experience a period of protracted sub-replacement TFR as Lesthaeghe (2010) predicted. Instead, Esping-Andersen and Billari (2015) contended that the period of low fertility rates was only a temporary shock to the previous old equilibrium in the traditional family relations marked by specialization of men in the labor market and women – at home. However, as new family forms emerge such as dual-earners and women-breadwinner households, societies will settle into a multiple equilibria model where new family forms will establish new relations between family members distinct from the old traditional relations equilibrium. Over time and with generational change, the whole system will stabilize into this new set of equilibria.

Trends around the world support the latter theory. For example, Myrskyla et al. (2009) found that among countries with the highest human development index (HDI), the association with TFR reverses and becomes positive. Moreover, studies showed that there was a reversal in fertility among people of higher socioeconomic status in many advanced economies, specifically in Scandinavia (Hoem 1997; Kravdal and Rindfuss 2008, Lyngstad 2004). All the above international studies suggest that there occurred a reversal in fertility rates and marriage stability among the higher socioeconomic stratum, which may eventually spillover to the rest of the population.

1.2 Gender Ideology and the Division of Housework

The second demographic transition also found its reflection in daily activities. Driven by the increase in egalitarian gender relations both in the labor market and at home, women and men readjusted their day-to-day lives to accommodate the new gender ideology. It became normative for a woman to be employed, as well as for men – to do housework.

Egalitarian gender ideology concomitant with the second demographic transition contributed to a more equitable division of housework. As Davis and Greenstein (2009) summarized it, studies consistently showed that more egalitarian women were doing less housework, whereas men with more egalitarian views were more likely to take on housework than traditional men (Hu & Kamo 2007, Lewin-Epstein et al. 2006, Gazso-Windle & McMullin 2003, Baxter 1992, Kan 2008, Bianchi et al. 2000, Coltrane & Ishii-Kuntz 1992, Cunningham 2005, Greenstein 1996; Fuwa 2004, Nordenmark 2004). Housework research, however, rarely connected the association between gender ideology and housework with the second demographic transition and the multiple equilibrium theories.

Moreover, on a closer look, among studies analyzed in Davis and Greenstein (2009) that in fact discussed the association between gender attitudes and housework participation, most reported somewhat mixed results. Hu and Kamo (2007) found a significant positive association between Taiwanese men's gender egalitarianism and participation in housework but the association for Taiwanese women was not significant. Cunningham (2005) reported similar results for American men and women. Using 1994 ISSP data, Fuwa (2004) showed that men's more egalitarian gender attitudes contributed to more equitable division of housework but did not test the association for women. Coltrane and Ishii-Kuntz (1992) found that gender traditionalism was significantly associated with less housework only for a specific group of American men – those who delay parenthood. Similarly, Greenstein (1996) found that in the US, egalitarianism

was associated positively with housework participation only for husbands with already more egalitarian gender ideology. Conversely, Lewin-Epstein et al. (2006) reported that German and Israeli egalitarian women did significantly less housework than traditional ones, yet for men the results were not significant and not in the expected direction. Gazso-Windle and McMullin (2003) established similar results for Canadian women and men, Baxter (1992) - for Australian women and men, Bianchi (2000) – for American women and men. Only in one study, Kan (2008), the results reported unequivocally that traditionalism was significantly associated with women's increase and men's decrease in housework time in the UK.

The mixed findings can be accounted for by the lagged adaptation to new gender relations (Gershuny, 1992). With gradual erosion of the gendered expectations especially within the 20th century, the traditional specialization model underwent change. Increasingly more families chose to be dual-earners; more men shared housework responsibilities than before. The process of egalitarian gender socialization underwent wider diffusion: in families, in schools, at the workplace, and became normalized for all human activity (Davis & Greenstein, 2009). However, the transition to new family arrangements departing from the traditional men-breadwinner/women-homemaker model needed time to adjust with the second demographic transition and new equilibria in gender ideology. This 'lagged adaptation', envisioned by Gershuny (1992) for men, can be responsible for the mixed and inconclusive results of the previous studies.

The 'lagged adaptation' or lagged alignment between gender ideology and housework participation can be also conflated with period and cohort effects because socialization is also dependent on period and cohort effects (Davis & Greenstein, 2009). Younger generations are socialized in a more egalitarian way than older generations; thus, they are expected to share

housework in a more egalitarian way (Brewster & Padavic 2000). Because of the period effect (Brewster & Padavic 2000, Carter & Borch 2005, Ciabattari 2001), the gender ideologies might be just a reflection of a new era, rather than more the true association between housework participation and gender ideologies, to name a few alternative explanations, which need to be weeded out.

1.3 Second Demographic Transition and the Association between Gender Attitudes and Housework Participation

The process that societies undergo under the second demographic transition can be separated into three stages: pre-transitional, transitional, and post-transitional. Applied to housework activities, the transition process can be tracked in the association between gender attitudes and housework share. Figure 1 shows the theoretical expectations about the change in the association between gender attitudes and housework share for women (left panel) and men (right panel).

Pre-transitional state identifies a prolonged historic period of the traditional division of labor, where family equilibrium was maintained by specialization: women did most of housework (higher average level of housework share) and men took on paid work activities (lower average level of housework share) (Esping-Andersen and Billari, 2015). In this stage, the differences between housework share assumed by more egalitarian women compared to more traditional women is minimal. Thus, the slope of the association between egalitarianism and housework share for the pre-transitional stage remains relatively flat for both women and men.

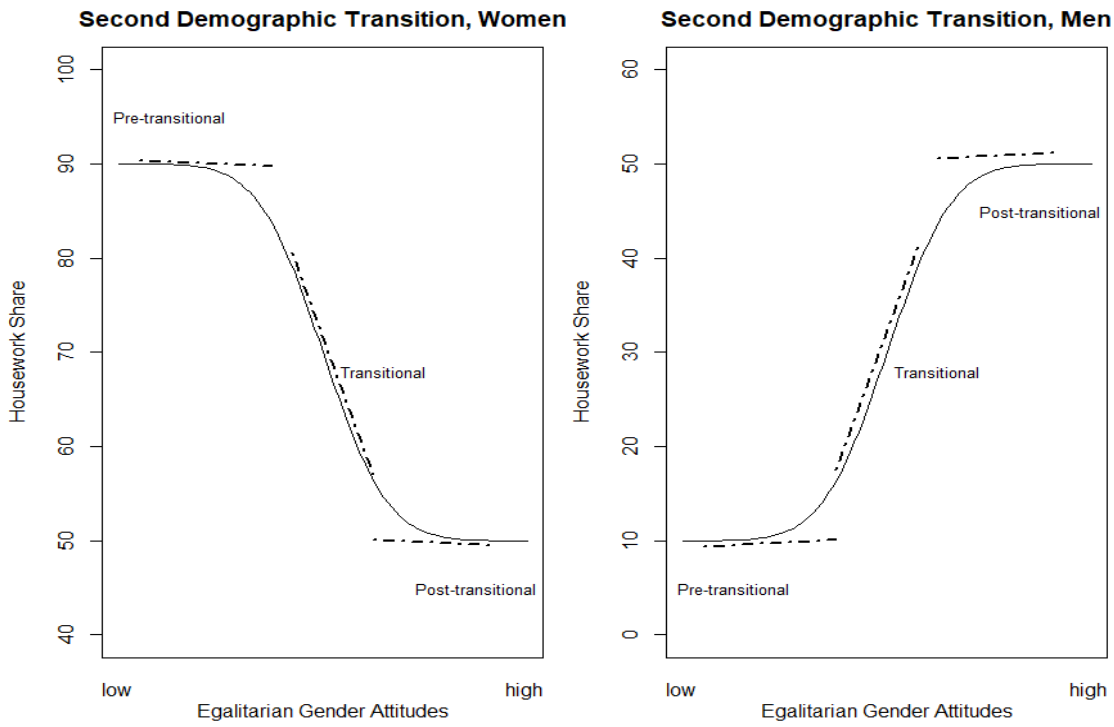

Figure 1 Theoretical Expectations About the Change in the Association Between Gender Attitudes and Housework Share

When societies enter the second demographic transition stage (Lesthaeghe, 2010), women and men adopt more egalitarian attitudes, however, the adoption occurs unequally. The behavior of more egalitarian women and men aligns with their attitudes, whereas the traditional women and men lag in the adoption of more egalitarian ideologies and behaviors. This creates starker differences between egalitarian and traditional women and men, due to the lagged adaptation phenomenon (Gershuny, 1992; Esping-Andersen and Billari, 2015). Thus, in the transitional stage, the slope of the association between egalitarianism and housework share is steeper, reflecting the sharper differences between egalitarian and traditional women and men.

Eventually, however, a transitional society enters the multiple equilibria stage with new family forms demonstrating more egalitarian relations between women and men (Esping-Andersen and Billari, 2015). In this stage, the previously lagging more traditional women and

men catch up with their egalitarian counterparts and the differences become less distinct compared to the previous stage. Thus, in the post-transitional stage, the slope of association between gender attitudes and housework share also flattens out for both women and men.

This process, however, can as well be non-linear due to political, societal, and economic shocks. For example, after the collapse of the Soviet Union, countries of the post-Soviet regime underwent transition to more traditional gender relations as a result of the decline in institutional provisions and benefits such as universal access to nurseries and kindergartens (Pascal and Manning, 2000), abolishment of state ideology, including the ideology of the 'Soviet women-workers' capable to work on par with men (Atwood, 1999), revival of religion promulgating more orthodox gender values, and because of globalization and diffusion of more traditional gender attitudes common in other countries outside of the Soviet Union. Therefore, political, economic, and social shocks can cause a reversal at all stages of the process, depicted in Figure 1.

1.4 Hypotheses

Generally speaking, egalitarian gender attitudes are associated with less housework for women and more housework for men. As it takes time to achieve symmetrical gender roles from traditional ones, we expect to find that:

Hypothesis 1. The association between gender attitudes and housework became stronger between 2002 and 2012 for both men and women due to the lagged adaptation.

Hypothesis 2. The association between gender attitudes and housework is weaker for men than for women, because of more lagged adaptation for men to undertake housework.

After the transitional period, societies are expected to settle in a new system of multiple family forms and archetypes of family and gender relations. In post-transitional society, we expect that more traditional women and men will catch up with egalitarian ones in their behavior

including participation in housework. Therefore, the differences between traditional and egalitarian women and men in their housework activities would decrease.

Hypothesis 3. The association between gender attitudes and housework share became weaker and traditional women and men catch up with more egalitarian counterparts in regimes, where the second demographic transition is assumed to have already occurred (in the Social democratic countries).

Thus, we expect to find weaker differences between egalitarian and traditional women and men in Scandinavian countries, where the previous literature has established that the new equilibrium of the post-transitional stage has been reached (Esping-Andersen and Billari, 2015). Conversely, we expect sharper differences between egalitarian and traditional women and men in countries, which only started to undergo the transitional period such as Southern European countries. Additionally, we expect more stable systems and fewer differences between egalitarian and traditional women and men in countries outside of the Western world, where the processes might not yet have started or may have a different cultural trajectory, such as in countries of East Asia, Eastern Europe and Latin America.

2. Data, Measures and Analytical Strategies

We use the International Social Survey Program (ISSP), Family and Changing Gender Roles, for the years of 2002 and 2012 (ISSP Research Group, 2016). Sampling procedures differ among individual countries: partly simple, partly multi-stage stratified random samples are used. ISSP interviewed individuals above 18 years old. The modes of interview collection differed among countries: some collected data in face-to-face interviews (partly CAPI) with standardized questionnaire, some used paper and pencil postal surveys and web surveys. Countries that had all

variables in both survey points are included into the sample. Netherlands and Finland were dropped because there was no personal income information available for at least one of the survey years. Thus, the results for the social democratic regime countries in the present paper rely on Sweden, Denmark, and Norway. Austria and Belgium are dropped because they did not have information on housework participation for 2002. Bulgaria is dropped because there is no data on respondents' children in 2002.

We estimate random intercept-random slope models to test our hypotheses. Our data comprise individuals clustered in countries, making it necessary to account for this clustering with a random intercept. We are further interested in cross-national variation in association between gender attitudes and housework participation, requiring a random slope for the covariance between the two random parameters. We conduct robustness checks by using OLS regression models whereas the country-level fixed effects are included as controls.

Following previous studies (e.g. Kan et al 2011), countries included into the liberal regimes are the US, Australia, and the UK. Southern European countries are represented by Spain and Portugal. Conservative regime countries included Germany, France, and Switzerland. Eastern European countries included Czech Republic, Poland, Slovenia, Slovakia, Hungary, and countries of the former Soviet Union. East Asian countries are represented by Japan and Taiwan. Latin American countries were Mexico and Chile. We also performed clustering analysis to define the typologies. Following the clustering analysis results, Israel was included together with the Liberal Regime states and the Philippines with countries of Latin America.

2.1 Dependent Variable

The dependent variable is measured as the share of self-reported hours in aggregated time of respondents and spouses on an average week. Even the stylized surveys like the ISSP are often biased (Kan, 2008b; Kan & Pudney, 2008) and time diary measures are more accurate for

measuring time spent on housework, most time use surveys, such as the American Time Use Survey and the Canadian General Social Survey, do not capture adequate instruments for measuring gender ideology. Furthermore, Kan and Pudney (2008) also find that most the measurement error of stylized data are random.

The ISSP covers a range of countries with difference economic and social situations, the use of housework share variable is more apt because the absolute number of hours spent on housework may depend on country-specific conditions. For instance, in countries with lower access to household appliances, domestic work may take longer hours than in countries with abundant access to technologies.

2.2 Independent variables

The egalitarian gender attitudes scale aggregated from seven questions concerning gender attitudes available both in the ISSP 2002 and 2012. Table 1 summarizes the seven item inter-correlations.

Table 1 Summary of the 7-item Construct of Gender Ideology, Item Correlations

Items	*1*	*2*	*3*	*4*	*5*	*6*	*7*
(1) warm relationship with children as a not working mom	-						
(2) Working mom: Preschool child is likely to suffer	.345***	-					
(3) Working woman: Family life suffers when woman has full-time job	.349***	.610***	-				
(4) What women really want is home and kids	.185***	.378***	.395***	-			
(5) Being housewife is as fulfilling as working for pay	.034***	.209***	.197***	.342***	-		

(6) Both should contribute to household income	.213***	.104***	.127***	.043***	.132***			
(7) Men's job earn money, women's job look after home	.240***	.395***	.394***	.492***	.300***	.161***		
Mean +- SE (weighted)	3.734	2.945	3.046	2.866	2.806	4.010	3.264	
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)	
Cronbach's alpha								.731

Adjusted coefficients; Robust standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The egalitarian gender attitudes scale includes the following seven items: (1) 'Q1a Working mom: warm relationship with children as a not working mom' (2) 'Q1b Working mom: Preschool child is likely to suffer' (3) 'Q1c Working woman: Family life suffers when woman has full-time job' (4) 'Q1d Working woman: What women really want is home and kids' (5) 'Q1e Working woman: Being housewife is as fulfilling as working for pay' (6) 'Q2a Both should contribute to household income' (7) Q2b 'Men's job earn money, women's job look after home.' The response options were in Likert Scale from (1) strongly agree to (5) strongly disagree. We recoded the Spanish attitudes responses in the ISSP 2012 'can't choose' as 'neither agree nor disagree'. After preliminary analysis of the item consistency, we decided to reverse code items (1) and (6). The resulting Cronbach's alpha for the scale is 0.73. From 2002 to 2012, the gender attitudes among women and men overall became more egalitarian (see Table 2 and 3).

Social democratic regime (Scandinavian) countries have higher levels of egalitarianism in gender attitudes and more equitable division of housework compared to other regions. Figure 2 plots the association between average housework share and mean egalitarian gender attitudes among women by country, and Figure 3 – among men. The graph shows that Scandinavian countries have the highest mean of egalitarianism among women and Scandinavian women do

lower share of housework. Women in countries of the liberal regime and Eastern Europe assume lower share of housework but in liberal states they also have higher levels of egalitarian gender attitudes, on average. Although women in Central European countries are as egalitarian as women in the liberal states, their average share of housework is higher. Women in countries of Southern Europe, East Asia, and Latin America do higher share of housework compared to women in other regions, especially in Japan, where the share of women's housework is the highest. Among the latter three regions, Southern European women have the highest levels of egalitarianism and Latin American women – the lowest overall.

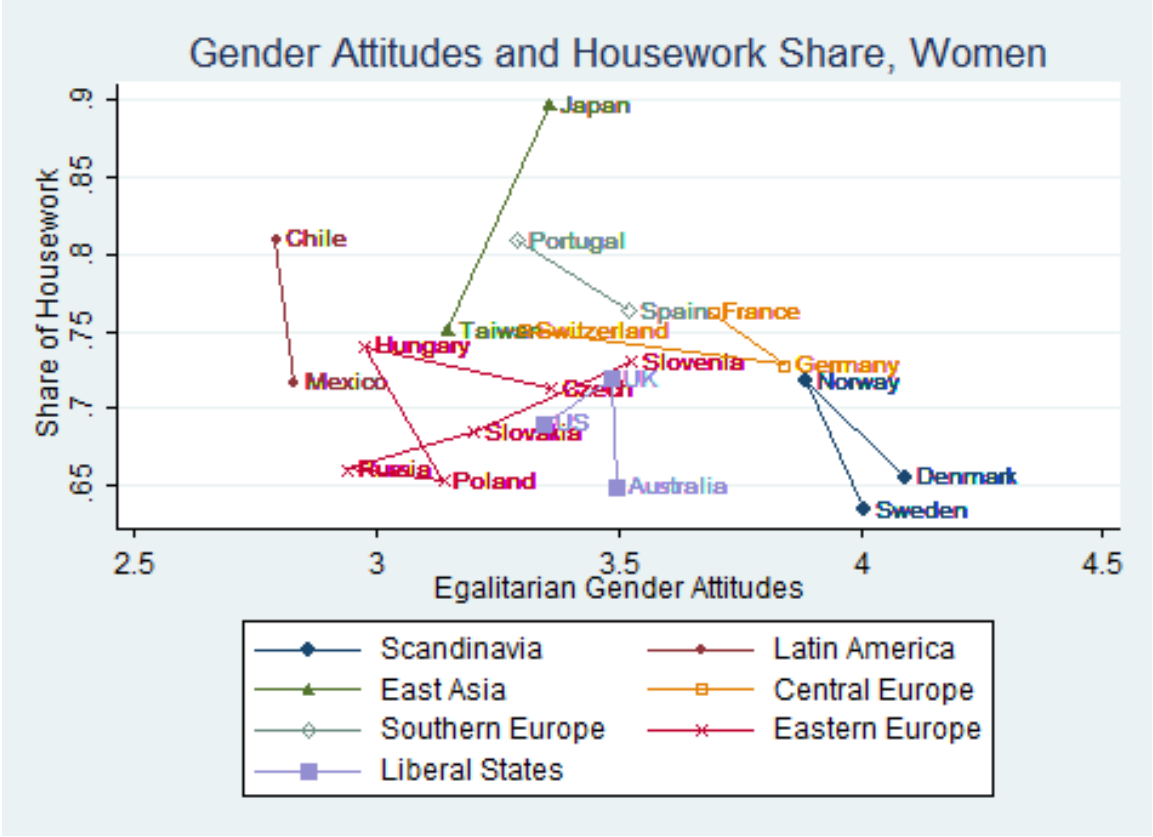

Figure 2 Gender Attitudes and Housework Share, Women

On the other hand, Scandinavian men (Figure 3) have, on average, the highest levels of egalitarianism and do the highest share of housework compared to men in other regions. For the most part, the results for men mirror the results for women. The least egalitarian men are in Latin

America, whereas the Japanese men do the least share of housework, even though comparatively their egalitarianism levels are comparable to those of men in liberal regimes and in Central Europe.

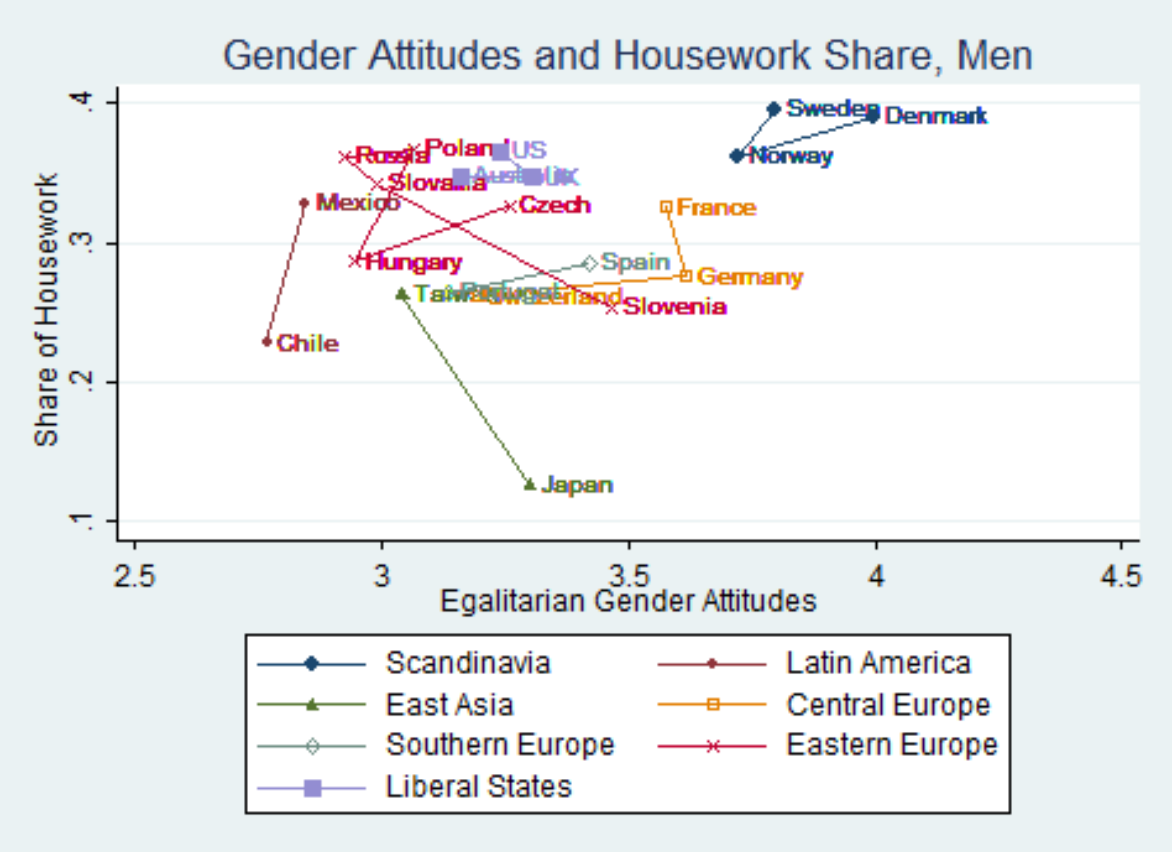

Figure 3 Gender Attitudes and Housework Share, Men

The original personal income and household income variables in the ISSP data were not harmonized. This posed problems for researchers who usually opt out and avoid employing them in studies. However, to make income comparable across the variety of countries in the ISSP, we decided to divide income variable into quartiles by country and by year. The quartile 1 represents the lower 25% income group of a country in 2002 or 2012, whereas quantile 4 represents the upper 25% of the income distribution.

The paid work hours and employment status were measured for both the respondent and the spouse. Paid work was measured in reported hours spent per week and capped at 96 hours. In the analyzed period, women and men had decreased the number of hours they work. Education was measured in years of education. In most countries, women and men have around 13 years of education (just above high school) except in Mexico, Philippines, and Portugal, where the average education level is lower. The education has slightly increased in the analyzed period in all countries. Employment status is a dummy variable (1= 'employed'; 0 = 'otherwise'). The level of dependency is measured using the original ISSP variable requesting respondents to report who in the couple has higher income, ranging from 1 ('spouse has no income') to 7 ('I have no income').

Housework participation depends on the availability of opportunities to outsource. We control for the presence of outsourcing of housework (1= 'housework outsourced'; 0 = 'otherwise'). Seven age cohort categories use the cohort born in between 1978 and 1982 as the reference category.

The models also control for household composition variables such as number of children and number of household member. All models control for country- and year-fixed effects.

Table 2. Mean (SD) of Main Variables Women in ISSP Countries

	HW share, 2002	HW share, 2012	Housework, 2002	Housework, 2012	Spouse Housework, 2002	Spouse Housework, 2012	Gender Attitudes, 2002	Gender Attitudes, 2012	Paid Work, 2002	Paid Work, 2012	Dependency, 2002	Dependency, 2012
Australia	0.687	0.641	20.907	16.685	9.326	12.453	3.333	3.532	18.442	25.892	2.256	4.729
	(0.214)	(0.210)	(13.252)	(11.109)	(7.846)	(20.807)	(0.760)	(0.699)	(19.919)	(17.631)	(1.605)	(1.379)
Chile	0.825	0.787	38.567	36.007	8.079	10.696	2.686	2.990	18.657	15.844	5.197	5.119
	(0.167)	(0.178)	(20.323)	(18.006)	(10.379)	(11.535)	(0.518)	(0.563)	(26.293)	(21.518)	(1.861)	(1.932)
Taiwan	0.771	0.729	15.942	14.898	5.035	5.468	3.154	3.137	30.995	29.055	4.958	5.106
	(0.209)	(0.212)	(12.517)	(11.089)	(6.387)	(6.755)	(0.402)	(0.462)	(24.460)	(24.325)	(1.510)	(1.528)
Czech	0.728	0.715	26.059	20.546	9.765	9.159	3.057	3.382	4.706	32.273	3.294	4.661
	(0.122)	(0.155)	(12.502)	(10.280)	(6.704)	(8.016)	(0.684)	(0.688)	(13.401)	(19.097)	(2.024)	(1.037)
Denmark	0.684	0.630	13.193	12.036	6.755	7.550	4.085	4.098	36.776	34.550	4.667	4.491
	(0.176)	(0.166)	(7.041)	(7.449)	(5.799)	(7.171)	(0.706)	(0.670)	(9.694)	(7.764)	(1.229)	(1.265)
France	0.808	0.717	12.588	10.950	3.027	4.403	3.551	3.835	25.441	27.825	4.989	4.562
	(0.159)	(0.168)	(9.633)	(8.644)	(3.730)	(4.547)	(0.812)	(0.759)	(16.161)	(16.301)	(1.420)	(1.353)
Germany	0.740	0.720	19.959	16.690	6.941	6.529	3.715	3.928	20.769	21.876	4.994	4.649
	(0.151)	(0.171)	(13.009)	(10.972)	(7.190)	(7.441)	(0.782)	(0.805)	(19.875)	(17.072)	(1.502)	(1.629)
Hungary	0.734	0.753	26.877	27.207	11.098	9.224	3.008	2.901	23.033	23.741	4.689	4.534
	(0.164)	(0.185)	(16.365)	(15.914)	(12.202)	(9.222)	(0.763)	(0.787)	(21.817)	(22.113)	(1.455)	(1.625)
Israel	0.750	0.728	18.122	21.467	5.878	7.425	3.396	3.345	23.638	25.627	4.821	4.231
	(0.207)	(0.191)	(13.780)	(16.252)	(7.050)	(7.702)	(0.789)	(0.702)	(18.805)	(18.530)	(1.527)	(1.787)
Japan	0.921	0.873	27.758	25.740	2.261	3.315	3.355	3.360	20.558	21.569	5.921	5.945
	(0.112)	(0.139)	(12.883)	(15.260)	(3.193)	(3.980)	(0.601)	(0.588)	(17.953)	(18.624)	(0.924)	(1.015)
Latvia	0.657	0.681	20.246	25.315	11.463	11.903	3.113	2.878	32.560	30.250	4.358	4.073
	(0.162)	(0.163)	(14.308)	(16.131)	(11.331)	(10.190)	(0.589)	(0.694)	(21.951)	(20.291)	(1.351)	(1.563)
Mexico	0.714	0.725	28.217	29.133	12.834	12.211	2.884	2.764	23.871	16.800	3.991	3.961
	(0.212)	(0.220)	(15.873)	(18.097)	(13.716)	(14.033)	(0.596)	(0.626)	(25.392)	(23.414)	(2.169)	(2.256)
Norway	0.750	0.680	11.350	11.047	3.864	5.089	3.773	4.021	32.405	37.105	5.018	4.634
	(0.165)	(0.153)	(6.894)	(7.645)	(4.434)	(4.224)	(0.689)	(0.646)	(11.691)	(15.230)	(1.042)	(1.101)
Philippines	0.696	0.673	26.158	27.299	11.809	13.445	2.864	2.813	16.401	17.500	5.921	5.633
	(0.163)	(0.201)	(14.380)	(18.549)	(11.319)	(12.013)	(0.460)	(0.546)	(23.514)	(26.770)	(1.540)	(1.618)
Poland	0.655	0.649	20.768	24.209	12.051	15.269	3.068	3.261	24.958	25.933	4.506	4.590
	(0.175)	(0.190)	(15.410)	(14.960)	(13.495)	(14.977)	(0.723)	(0.741)	(23.191)	(21.008)	(1.798)	(1.542)
Portugal	0.831	0.807	23.431	25.190	4.846	5.429	3.172	3.528	34.106	27.429	4.772	4.635
	(0.191)	(0.169)	(14.152)	(20.352)	(6.644)	(5.956)	(0.636)	(0.490)	(18.522)	(21.822)	(1.530)	(1.406)
Russia	0.668	0.651	26.010	27.961	14.025	16.737	2.941	2.942	30.381	25.914	4.644	4.579
	(0.172)	(0.203)	(14.416)	(17.048)	(12.499)	(14.534)	(0.595)	(0.682)	(20.394)	(21.191)	(1.523)	(1.755)
Slovakia	0.674	0.689	22.392	21.962	12.098	10.923	3.083	3.244	29.059	25.523	2.706	4.508
	(0.173)	(0.171)	(14.381)	(13.104)	(10.247)	(10.046)	(0.762)	(0.639)	(18.869)	(19.568)	(1.653)	(1.196)

Slovenia	0.731	0.730	24.239	26.040	9.304	9.802	3.040	3.700	23.261	25.452	3.717	4.254
	(0.244)	(0.179)	(15.479)	(15.970)	(10.932)	(10.137)	(0.512)	(0.684)	(22.013)	(19.795)	(1.471)	(1.436)
Spain	0.819	0.725	32.886	24.905	6.023	9.039	3.399	3.605	16.673	22.116	5.589	4.963
	(0.166)	(0.202)	(20.411)	(16.344)	(6.829)	(9.116)	(0.655)	(0.661)	(19.250)	(19.661)	(1.716)	(1.624)
Sweden	0.649	0.613	12.644	12.908	6.904	8.352	3.907	4.159	34.606	33.352	4.538	4.620
	(0.151)	(0.140)	(7.642)	(6.657)	(5.553)	(5.361)	(0.667)	(0.644)	(10.457)	(14.439)	(1.277)	(1.207)
Switzerland	0.773	0.743	18.600	19.682	5.108	6.513	3.192	3.340	30.769	19.774	3.431	3.733
	(0.145)	(0.178)	(12.100)	(12.990)	(4.793)	(6.158)	(0.647)	(0.693)	(17.672)	(17.583)	(2.099)	(2.059)
UK	0.730	0.681	12.145	12.076	4.927	6.196	3.457	3.595	25.399	21.554	4.822	4.946
	(0.187)	(0.188)	(8.511)	(8.368)	(6.320)	(6.696)	(0.660)	(0.661)	(18.422)	(16.760)	(1.451)	(1.386)
US	0.705	0.674	13.481	13.520	5.377	6.570	3.390	3.296	24.368	23.190	4.632	4.510
	(0.190)	(0.194)	(12.077)	(12.684)	(6.426)	(7.759)	(0.849)	(0.627)	(20.438)	(21.835)	(1.702)	(1.579)
Total	0.743	0.707	20.574	20.138	7.343	8.633	3.296	3.434	25.626	25.386	4.853	4.702
	(0.188)	(0.190)	(15.585)	(15.164)	(9.189)	(10.288)	(0.745)	(0.774)	(20.989)	(20.329)	(1.669)	(1.613)
N	4593	4564	4599	4567	4599	4567	4599	4567	4599	4567	4599	4567

Table 3. Mean (SD) of Main Variables Men in ISSP Countries

	HW share, 2002	HW share, 2012	Housework, 2002	Housework, 2012	Spouse Housework, 2002	Spouse Housework, 2012	Gender Attitudes, 2002	Gender Attitudes, 2012	Paid Work, 2002	Paid Work, 2012	Dependency, 2002	Dependency, 2012
Australia	0.283	0.365	9.643	9.121	25.667	17.191	2.852	3.243	38.548	43.752	2.095	2.796
	(0.174)	(0.164)	(8.508)	(6.261)	(13.647)	(11.995)	(0.636)	(0.669)	(19.459)	(16.024)	(1.008)	(1.244)
Chile	0.230	0.227	10.294	9.973	38.436	33.342	2.757	2.793	51.990	45.452	2.392	2.342
	(0.205)	(0.181)	(11.484)	(12.302)	(22.172)	(20.707)	(0.607)	(0.554)	(21.381)	(18.759)	(1.580)	(1.397)
Taiwan	0.248	0.278	5.266	5.528	18.040	16.852	3.008	3.077	47.633	45.535	2.652	2.846
	(0.190)	(0.205)	(5.112)	(6.356)	(12.511)	(13.203)	(0.428)	(0.455)	(19.720)	(19.224)	(1.395)	(1.486)
Czech	0.272	0.331	10.438	10.345	28.250	20.650	3.008	3.277	36.875	42.383	3.063	3.238
	(0.184)	(0.166)	(9.515)	(7.737)	(17.059)	(11.566)	(0.539)	(0.715)	(25.597)	(12.299)	(0.929)	(0.951)
Denmark	0.365	0.415	7.350	8.122	12.671	11.763	3.866	4.118	42.210	39.577	3.063	3.192
	(0.167)	(0.143)	(5.860)	(7.053)	(8.428)	(8.710)	(0.756)	(0.718)	(8.909)	(6.615)	(1.194)	(1.153)
France	0.312	0.337	4.286	5.330	10.734	11.080	3.405	3.719	41.247	39.074	3.039	2.979
	(0.205)	(0.171)	(5.589)	(4.554)	(8.930)	(7.642)	(0.859)	(0.787)	(11.097)	(16.356)	(1.308)	(1.099)
Germany	0.246	0.297	6.133	7.841	22.247	19.674	3.479	3.715	44.590	41.348	2.440	2.683
	(0.153)	(0.167)	(5.194)	(6.565)	(15.381)	(12.822)	(0.667)	(0.771)	(13.678)	(15.026)	(1.047)	(1.166)
Hungary	0.276	0.307	10.711	11.267	28.066	23.967	2.906	3.028	38.818	29.433	3.207	3.517
	(0.172)	(0.149)	(9.251)	(8.789)	(16.572)	(10.928)	(0.651)	(0.645)	(23.053)	(20.580)	(1.244)	(1.524)
Israel	0.285	0.299	6.874	8.669	19.259	22.764	3.319	3.226	41.630	41.412	2.978	3.196
	(0.176)	(0.203)	(7.256)	(8.540)	(14.838)	(15.488)	(0.737)	(0.641)	(19.238)	(21.587)	(1.249)	(1.323)
Japan	0.102	0.148	2.471	3.452	24.777	25.800	3.201	3.392	53.983	48.370	2.017	1.978

	(0.143)	(0.163)	(3.312)	(4.057)	(13.352)	(16.321)	(0.717)	(0.678)	(14.414)	(15.236)	(1.088)	(1.003)
Latvia	0.378	0.370	12.695	14.640	18.881	24.270	2.992	2.891	47.034	37.300	3.068	3.030
	(0.176)	(0.141)	(10.998)	(12.764)	(11.083)	(16.911)	(0.611)	(0.592)	(18.327)	(16.847)	(1.076)	(1.359)
Mexico	0.334	0.329	15.018	14.282	29.287	29.324	2.873	2.813	50.156	42.165	2.587	2.888
	(0.229)	(0.270)	(14.607)	(15.809)	(18.473)	(20.705)	(0.610)	(0.576)	(21.924)	(24.858)	(1.359)	(1.608)
Norway	0.314	0.406	5.106	7.336	11.573	10.608	3.644	3.790	43.412	43.654	2.814	3.124
	(0.171)	(0.154)	(5.159)	(8.242)	(8.600)	(8.490)	(0.758)	(0.689)	(12.192)	(15.498)	(1.000)	(1.117)
Philippines	0.412	0.342	15.767	16.641	22.852	32.439	2.888	2.790	42.056	38.145	2.604	3.092
	(0.190)	(0.209)	(12.698)	(15.834)	(16.206)	(21.856)	(0.494)	(0.503)	(19.079)	(24.693)	(1.901)	(1.994)
Poland	0.374	0.354	12.846	16.527	20.971	28.000	3.052	3.087	37.686	39.187	3.017	2.846
	(0.190)	(0.160)	(13.251)	(14.501)	(14.474)	(17.104)	(0.674)	(0.649)	(24.477)	(21.275)	(1.680)	(1.324)
Portugal	0.259	0.276	6.648	10.719	22.465	28.825	2.952	3.360	42.732	40.667	2.972	3.298
	(0.235)	(0.225)	(6.379)	(11.566)	(16.822)	(20.729)	(0.636)	(0.676)	(15.272)	(17.344)	(1.134)	(1.253)
Russia	0.362	0.362	14.748	17.644	25.141	30.525	2.928	2.923	40.452	39.426	3.148	2.931
	(0.172)	(0.175)	(11.121)	(15.029)	(15.067)	(20.630)	(0.597)	(0.691)	(15.094)	(22.186)	(1.290)	(1.336)
Slovakia	0.280	0.364	12.176	13.589	28.980	22.285	2.805	3.053	43.667	33.536	2.392	3.212
	(0.167)	(0.173)	(11.625)	(10.713)	(16.057)	(12.410)	(0.651)	(0.663)	(28.851)	(20.018)	(1.021)	(1.117)
Slovenia	0.156	0.275	5.733	10.038	29.233	24.977	2.819	3.610	41.500	36.621	2.800	3.333
	(0.181)	(0.149)	(8.170)	(9.327)	(15.941)	(12.138)	(0.618)	(0.636)	(22.589)	(16.816)	(1.270)	(1.391)
Spain	0.262	0.301	8.877	11.396	28.167	28.257	3.329	3.479	40.705	36.314	2.396	2.896
	(0.210)	(0.201)	(10.718)	(10.671)	(18.937)	(17.792)	(0.683)	(0.731)	(16.513)	(20.873)	(1.357)	(1.591)
Sweden	0.384	0.416	7.228	9.398	12.620	12.867	3.768	3.845	40.707	40.257	3.234	3.142
	(0.157)	(0.171)	(4.839)	(6.469)	(9.174)	(8.457)	(0.742)	(0.740)	(10.035)	(12.335)	(1.114)	(1.125)
Switzerland	0.232	0.273	6.000	7.263	23.183	20.742	3.043	3.249	46.268	42.925	2.380	2.559
	(0.172)	(0.179)	(5.385)	(6.528)	(14.038)	(11.982)	(0.770)	(0.596)	(11.664)	(14.558)	(1.061)	(1.115)
UK	0.342	0.358	7.296	7.314	14.860	13.412	3.267	3.401	44.502	40.755	2.728	2.971
	(0.202)	(0.202)	(7.799)	(7.565)	(12.978)	(11.120)	(0.693)	(0.606)	(16.808)	(17.107)	(1.229)	(1.246)
US	0.380	0.357	8.896	8.946	14.791	18.747	3.251	3.236	45.358	42.639	2.761	3.096
	(0.167)	(0.211)	(10.473)	(9.092)	(14.546)	(17.504)	(0.796)	(0.633)	(18.040)	(19.429)	(1.264)	(1.402)
Total	0.307	0.324	8.835	9.851	21.045	21.465	3.181	3.317	44.123	40.761	2.740	2.951
	(0.199)	(0.194)	(9.806)	(10.401)	(16.235)	(16.333)	(0.727)	(0.740)	(18.214)	(18.658)	(1.365)	(1.383)
N	3562	3893	3570	3894	3570	3894	3570	3894	3570	3894	3570	3894

2.3 Sample Selection

We took a few steps before we selected our final analytical sample. We included all countries for which the information for all independent variables was available. The sample with all variables consisted of 24 countries of the ISSP. To mitigate the effects of outliers we capped Personal income at 10000 and household income at 18000, number of children at 6, and the number of the household member at 10. We also capped education at 20 years. Albeit, a few respondents reported that they were in education for more than 20 years, formal education is highly improbable to exceed graduate school. Note that in the models, we used income quartiles, therefore, the capping of the income variables had no effects on the model results. Upon exclusion of cases with missing values, the total sample consists of 16,630 respondents. Fifty three percent of the weighted sample were women.

2.4 Models

We use the OLS and random intercept – random slopes estimation in all our models. Due to heterogeneity among countries, all models control for country-fixed effects.

We have checked the robustness of the results using other techniques such as applying the Heckman adjustment to estimators to account for the selection bias and the negative binomial regression and the results were indistinguishable for those presented in here.

3. Results

3.1 Overall Results

Tables 4-5 summarize the outputs for OLS & Random Intercept – Random Slopes regression estimates for year 2002 (Model 1), year 2012 (Model 2), pooled 2002-2012 without control variables (Model 3), pooled model with control variables (Model 4), and pooled model with control variables and interaction between gender attitudes variable and year (Model 5).

Egalitarian gender attitudes are associated significantly with housework share for both women (Table 4) and men (Tables 5). We find that, in fact, for women, egalitarian gender ideology is reversely associated with participation in housework: women who hold more egalitarian beliefs do less housework, controlled for all other independent variables. This is consistent with the Hypothesis 1. Similarly, we find evidence supporting Hypothesis 1 among men, that is, the relationship of egalitarianism with participation in housework is positive for men. The association remains on significant level for women and men when we introduce an interaction term with the period effect (Model 5 in Tables 4-5). The interaction terms are on significant level as well. The findings, therefore, indicate that the association between egalitarianism and housework participation has changed in between 2002 and 2012. These results confirm the previous findings on the association between gender attitudes and housework participation Kan (2008).

The effects of gender attitudes are a little stronger for women in the most recent time point. In 2012, an average woman in the group with the most egalitarian views did 11% less of the housework share than an average woman in the group with most traditional views (Model 2 in Table 4, b= -2.676, se = 0.726), an average egalitarian man did about 10% more than an average traditional man (Model 2 in Table 5, b=2.474, se = 0.919). Overall, however, the picture is not that clear. Thus, we find mixed evidence for the Hypothesis 2, *i.e.* the lagged adaptation phenomenon in men's housework participation is not as evident in the period between 2002 and 2012. One explanation for this finding is that in the analyzed societies, the lagged process for men might have happened before 2002.

Table 4. OLS & Random Intercept – Random Slopes Estimators for Housework Hours Among Women, ISSP 2002-2012

VARIABLES	(1) Housework Share In 2002	Multilevel	(2) Housework Share In 2012	Multilevel	(3) Housework Share Combined		(4) Housework Share Combined		(5) Housework Share With interaction	
Egalitarian Gender Attitudes	-1.400***	-1.271**	-2.798***	-2.676***	-4.388***	-4.355***	-2.188***	-1.966***	-1.343***	-1.290**
	(0.420)	(0.532)	(0.445)	(0.726)	(0.298)	(0.627)	(0.307)	(0.545)	(0.388)	(0.602)
Year of 2012					-3.132***	-3.263***	-2.096***	-2.329***	3.393*	2.192
					(0.410)	(0.393)	(0.398)	(0.382)	(1.769)	(1.683)
EGA # Year									-1.638***	-1.344***
									(0.501)	(0.488)
Paid Work (min.)	-0.084***	-0.087***	-0.148***	-0.142***			-0.112***	-0.111***	-0.110***	-0.110***
	(0.021)	(0.0194)	(0.026)	(0.0225)			(0.016)	(0.0147)	(0.016)	(0.0147)
Employed	-2.324**	-2.067**	1.826*	1.617*			-0.224	-0.150	-0.240	-0.176
	(0.936)	(0.961)	(1.023)	(0.974)			(0.684)	(0.673)	(0.683)	(0.672)
Dependency	0.861***	0.852***	0.617***	0.627***			0.722***	0.724***	0.725***	0.726***
	(0.203)	(0.186)	(0.195)	(0.190)			(0.140)	(0.132)	(0.140)	(0.132)
Education in Years	-0.555***	-0.526***	-0.206**	-0.252***			-0.366***	-0.382***	-0.368***	-0.384***
	(0.0922)	(0.0882)	(0.0947)	(0.0824)			(0.0662)	(0.0601)	(0.0662)	(0.0601)
1.Lower 25% of Income Distribution	Ref.		Ref.				Ref.		Ref.	
2. 25% to 50%	-0.158	-0.231	-1.622*	-1.273			-1.215**	-1.110*	-1.289**	-1.176*
	(0.876)	(0.899)	(0.861)	(0.833)			(0.611)	(0.604)	(0.612)	(0.605)
3. 50% to 75%	-0.923	-1.256	-4.243***	-3.554***			-3.014***	-2.823***	-3.018***	-2.820***
	(0.934)	(0.959)	(0.940)	(0.895)			(0.662)	(0.649)	(0.662)	(0.649)
4. Upper 25% of Income Distribution	-3.654***	-3.921***	-5.498***	-4.948***			-4.896***	-4.874***	-4.913***	-4.864***
	(1.098)	(1.065)	(1.158)	(1.038)			(0.793)	(0.738)	(0.794)	(0.738)
Outsource	-1.084	-1.273	-0.401	-0.263			-0.895	-0.876	-0.856	-0.856
	(0.965)	(0.824)	(0.995)	(0.874)			(0.695)	(0.600)	(0.694)	(0.600)
1.Cohort, 20-24 y.o. in 2002	Ref.		Ref.				Ref.		Ref.	
2. 25-29 y.o. in 2002	1.379	1.188	1.407	1.587			1.384	1.304	1.402	1.299
	(1.501)	(1.396)	(1.215)	(1.163)			(0.927)	(0.885)	(0.927)	(0.885)
3. 30-34 y.o. in 2002	1.130	1.399	1.684	2.128*			1.452	1.761**	1.438	1.737**
	(1.488)	(1.364)	(1.187)	(1.141)			(0.912)	(0.864)	(0.911)	(0.863)

4. 35-39 y.o. in 2002	2.001	2.284*	2.432**	2.286**			2.161**	2.243***	2.190**	2.250***
	(1.514)	(1.373)	(1.210)	(1.135)			(0.928)	(0.863)	(0.927)	(0.863)
5. 40-44 y.o. in 2002	3.233**	3.407**	5.192***	5.246***			4.230***	4.313***	4.252***	4.321***
	(1.501)	(1.363)	(1.211)	(1.151)			(0.922)	(0.864)	(0.921)	(0.863)
6. 45-49 y.o. in 2002	3.531**	3.284**	3.252**	3.237***			3.416***	3.265***	3.450***	3.280***
	(1.492)	(1.372)	(1.287)	(1.198)			(0.946)	(0.887)	(0.946)	(0.887)
7. 50-54 y.o. in 2002	3.918**	4.205***	3.050**	3.285***			3.417***	3.629***	3.474***	3.664***
	(1.535)	(1.382)	(1.313)	(1.216)			(0.977)	(0.899)	(0.976)	(0.899)
Children	0.372	0.487	-0.205	-0.303			0.0365	0.0948	0.0744	0.119
	(0.376)	(0.357)	(0.402)	(0.381)			(0.271)	(0.256)	(0.271)	(0.257)
Employed Spouse	3.060***	2.865***	-1.275	-1.740			1.758**	1.388*	1.803**	1.434**
	(1.128)	(0.963)	(1.362)	(1.124)			(0.852)	(0.717)	(0.852)	(0.717)
Spouse's Paid Work	0.086***	0.0880***	0.169***	0.169***			0.110***	0.111***	0.109***	0.110***
	(0.0207)	(0.0179)	(0.0249)	(0.0206)			(0.0150)	(0.0129)	(0.0150)	(0.0129)
Household Size	0.622**	0.517*	0.615*	0.632**			0.675***	0.607***	0.666***	0.603***
	(0.304)	(0.277)	(0.323)	(0.301)			(0.220)	(0.203)	(0.220)	(0.203)
Country fixed-effects	YES		YES		YES		YES		YES	
Constant	75.38***	74.86***	69.34***	76.18***	82.94***	89.77***	71.78***	76.61***	68.99***	74.36***
	(3.829)	(3.216)	(3.139)	(3.453)	(1.835)	(3.126)	(2.354)	(2.772)	(2.479)	(2.903)
Observations	4,599	4,599	4,567	4,567	9,166	9,166	9,166	9,166	9,166	9,166
R-squared	0.215		0.178		0.116		0.194		0.195	

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

Table 5. OLS & Random Intercept – Random Slopes Estimators for Housework Hours Among Men, ISSP 2002-2012

VARIABLES	(1) Housework Share In 2002		(2) Housework Share In 2012		(3) Housework Share Combined		(4) Housework Share Combined		(5) Housework Share With interaction	
Egalitarian Gender Attitudes	2.924***	2.954***	2.179***	2.474***	4.897***	5.106***	2.706***	2.727***	2.046***	2.191***
	(0.512)	(0.595)	(0.479)	(0.919)	(0.349)	(0.618)	(0.350)	(0.453)	(0.469)	(0.537)
Year of 2012					1.483***	1.675***	0.242	0.356	-3.751*	-2.903
					(0.471)	(0.446)	(0.457)	(0.429)	(1.968)	(1.857)
EGA # Year									1.234**	1.003*
									(0.577)	(0.556)
Paid Work (min.)	-0.0807***	-0.087***	-0.207***	-0.198***			-0.133***	-0.134***	-0.134***	-0.135***

	(0.0237)	(0.020)	(0.0269)	(0.0228)	(0.0180)	(0.0151)	(0.0180)	(0.0151)
Employed	-2.870	-1.943	0.793	0.653	-1.595	-1.318	-1.599	-1.337
	(1.882)	(1.537)	(1.624)	(1.362)	(1.214)	(0.995)	(1.213)	(0.995)
Dependency	2.248***	2.142***	1.846***	1.836***	2.027***	1.968***	2.029***	1.970***
	(0.350)	(0.275)	(0.311)	(0.249)	(0.231)	(0.185)	(0.231)	(0.185)
Education in Years	0.287***	0.317***	0.550***	0.514***	0.429***	0.431***	0.431***	0.432***
	(0.100)	(0.0944)	(0.0907)	(0.0842)	(0.0676)	(0.0628)	(0.0675)	(0.0628)
1.Lower 25% of Income Distribution	Ref.		Ref.		Ref.		Ref.	
2. 25% to 50%	0.734	0.135	4.129**	3.305**	2.495*	2.076*	2.530*	2.097*
	(2.173)	(1.769)	(1.683)	(1.354)	(1.328)	(1.072)	(1.328)	(1.072)
3. 50% to 75%	0.791	-0.306	1.572	1.131	1.453	0.921	1.467	0.923
	(2.003)	(1.697)	(1.585)	(1.276)	(1.247)	(1.024)	(1.246)	(1.023)
4. Upper 25% of Income Distribution	-0.212	-1.143	0.532	0.0430	0.190	-0.264	0.200	-0.260
	(2.056)	(1.709)	(1.615)	(1.305)	(1.273)	(1.037)	(1.273)	(1.037)
Outsource	-1.254	-0.928	-0.386	0.271	-0.578	-0.0910	-0.577	-0.0959
	(1.204)	(1.051)	(1.078)	(0.965)	(0.802)	(0.714)	(0.802)	(0.714)
1.Cohort, 20-24 y.o. in 2002	Ref.		Ref.		Ref.		Ref.	
2. 25-29 y.o. in 2002	-3.300	-3.024	2.761*	2.461*	1.068	0.775	1.091	0.771
	(2.393)	(2.100)	(1.583)	(1.467)	(1.337)	(1.210)	(1.339)	(1.209)
3. 30-34 y.o. in 2002	-3.956*	-4.373**	0.518	0.275	-0.711	-1.239	-0.668	-1.227
	(2.353)	(2.010)	(1.535)	(1.434)	(1.308)	(1.166)	(1.310)	(1.166)
4. 35-39 y.o. in 2002	-3.855*	-4.158**	0.545	0.00981	-0.630	-1.215	-0.600	-1.211
	(2.307)	(2.001)	(1.494)	(1.419)	(1.270)	(1.156)	(1.272)	(1.156)
5. 40-44 y.o. in 2002	-5.453**	-5.446***	-0.358	-1.042	-1.865	-2.400**	-1.874	-2.426**
	(2.311)	(1.991)	(1.496)	(1.402)	(1.269)	(1.144)	(1.271)	(1.144)
6. 45-49 y.o. in 2002	-5.466**	-5.621***	-0.592	-1.395	-1.968	-2.618**	-1.944	-2.621**
	(2.317)	(1.984)	(1.542)	(1.425)	(1.287)	(1.151)	(1.289)	(1.151)
7. 50-54 y.o. in 2002	-6.174***	-6.562***	-1.202	-1.770	-2.566**	-3.206***	-2.588**	-3.244***
	(2.307)	(1.986)	(1.534)	(1.426)	(1.287)	(1.155)	(1.291)	(1.155)
Children	-0.520	-0.622	-0.0478	-0.303	-0.223	-0.410	-0.250	-0.425
	(0.435)	(0.405)	(0.419)	(0.378)	(0.303)	(0.273)	(0.301)	(0.273)
Employed Spouse	3.243***	3.255***	-0.392	-0.694	2.024***	1.777**	2.027***	1.794**
	(1.090)	(0.983)	(1.148)	(1.045)	(0.769)	(0.700)	(0.768)	(0.700)
Spouse's Paid Work	0.085***	0.0953***	0.201***	0.203***	0.128***	0.139***	0.128***	0.139***
	(0.0279)	(0.0234)	(0.0297)	(0.0245)	(0.0192)	(0.0164)	(0.0192)	(0.0164)
Household Size	-0.190	-0.163	-0.478	-0.257	-0.401	-0.272	-0.387	-0.266
	(0.356)	(0.319)	(0.341)	(0.292)	(0.253)	(0.215)	(0.250)	(0.215)

Country fixed-effects	YES		YES		YES		YES		YES	
Constant	23.82***	18.85***	20.94***	15.82***	17.89***	12.99***	20.60***	15.93***	22.66***	17.65***
	(4.341)	(4.060)	(3.388)	(4.394)	(1.743)	(3.558)	(2.622)	(3.175)	(2.831)	(3.287)
Observations	3,570	3,570	3,894	3,894	7,464	7,464	7,464	7,464	7,464	7,464
R-squared	0.239		0.233		0.122		0.225		0.225	

Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

There is a significant period effect for women and men (see Model 4 in Tables 4-5). The direction of association is in the predicted direction: within the period from 2002 to 2012, women decreased and men increased their participation in housework, *ceteris paribus*. Figure 3 summarizes the marginal effects for each level of egalitarian attitudes on housework participation among women (left panel) and men (right panel). However, it uses a quadratic approximation for the association between egalitarianism and housework share because quadratic approximation can provide a more accurate predicted pattern between egalitarianism and housework share.

Egalitarian women did less housework and men did more with increase in their levels of egalitarianism compared to what they did in 2002. There was no significant change for women and men with more traditional attitudes. Therefore, the support for the Hypothesis 1 can be traced only for egalitarian women and men. In addition, this might indicate that traditional women and men lag in adaptation compared to their more egalitarian counterparts (Gershuny et al., 2005), indicating the nascent polarization between egalitarian and traditional women and men and the inception phase of the second demographic transition (Lesthaeghe, 2010).

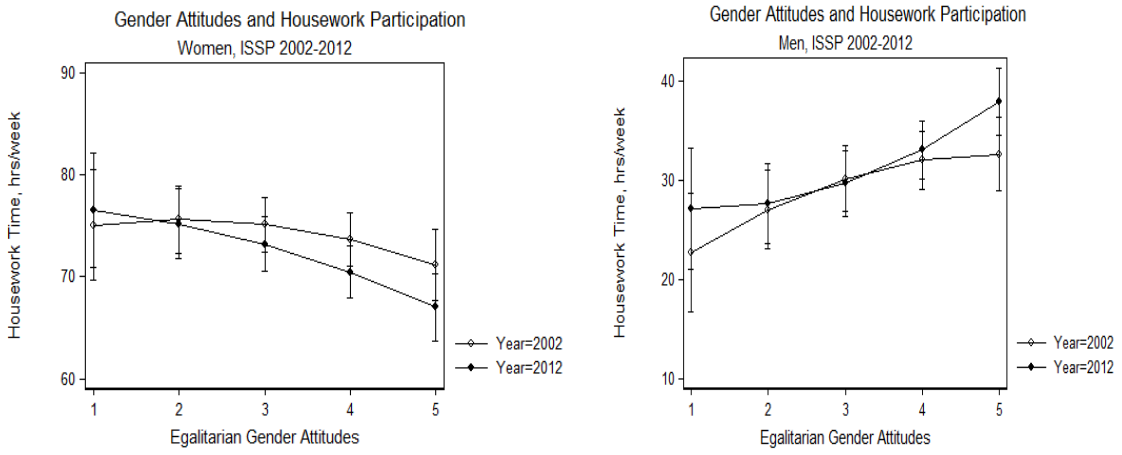

Figure 4 Marginal Effects of Egalitarian Gender Attitudes on Housework Participation for Women and Men, 2002 and 2012 ISSP data

The results for education are significant for women and men: more highly educated women tend to do less housework, whereas more highly educated men tend to do more. The association for women weakened over time, indicating that there was an increase in gender parity in educational level and that the differences in socialization were no longer associated with the level of education *per se.* On the other hand, among men, the association between gender attitudes and housework share strengthened in between 2002 and 2012.

The cohort effects are significant for women but not so much for men in 2012. Women of older generations involve with housework more compared to earlier Millennials (born in between 1978 and 1982). However, for women born in between 1968 and 1977, the effects were not on a statistically significant level in 2002, albeit positive as well. Surprisingly, in 2012, men born in between 1973-1977 did significantly more housework then men born in 1978-1982. This might have to do with the fact that men in this age are usually burdened by family obligations more than men in other age categories.

We also note differences in how resource-based factors work for women and men. Time availability measured in time spent on paid work is statistically significant even when controlled for employment status, education, and all other independent variables in Model 4 (model combining the sample from both years). The income measure in quartiles is on statistically significant level for women but not for men. Women of upper income quantiles do less housework than those in the lowest quartile. These results tie in together with the argument that wealthier women are more likely to outsource housework. However, controlled for other variables, the ability to outsource is not on the significant level but is in the expected direction. The level of dependency is positively associated with the share of housework both for women

and men. When women and men depend economically on their spouses, they are likely to take on larger housework share. The paid work and employment status of the spouse are significantly associated with the housework share assumed. Respondents with working partners are more likely to do more housework.

On the whole, the results show that egalitarian gender attitudes motivate women to decrease their housework participation, as well as increase the participation of more egalitarian men. These results, net of the country context, are consistent with the transitional stage of the second demographic change where gender ideology of more egalitarian women and men precedes the adaptation of more traditional women and men (Lesthaeghe, 2010). This is evident from the sharp differences between egalitarian and traditional women and men.

3.2 Welfare Regimes

The results for the analysis by welfare regimes confirm the multiple equilibria hypothesis (Esping-Andersen and Billari, 2015) among the social democratic regime (Scandinavian) countries. For Scandinavian countries, identified by Esping-Andersen and Billari (2015) as having reached the new equilibrium, we find that the Hypothesis 3 holds. The differences between more traditional and egalitarian women and men started to level out in between 2002 and 2012.

The consequences of the ongoing second demographic transition are apparent in countries of liberal regime, Southern Europe, for women of Latin America, East Asia, and Conservative (Central European). Table 6 summarizes the results of the association between egalitarian gender attitudes and housework share by regions and by year, controlled for all other variables.

Table 6. Summary of OLS & Random Intercept – Random Slopes Estimates of the Association between Egalitarian Gender Attitudes and Housework by Welfare Regime and by Years, for Women

	Women, Year 2002	Women, Year 2012	
Scandinavia	-1.567	-1.699	→
East Asia	-1.300	-3.730	↗
Central Europe	-1.329	-3.083	↗
South Europe	-1.336	-3.867	↗
Eastern Europe	-1.021	-0.945	↘
Liberal	-1.341	-3.727	↗
Latin America	-1.001	-1.679	↗

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
All models control for independent/control variables: paid work and employment status of the respondent and the spouse, dependency level, quartiles of personal income, educational level, outsourcing housework, cohorts, number of children and household members, and country-fixed effects.

Table 7. Summary of OLS & Random Intercept – Random Slopes Estimates of the Association between Egalitarian Gender Attitudes and Housework by Welfare Regime and by Years, for Men

	Men, Year 2002	Men, Year 2012	
Scandinavia	2.879	1.754	↘
East Asia	3.607	3.140	↘
Central Europe	3.487	1.070	↘
South Europe	3.333	4.756	↗
Eastern Europe	2.787	0.453	↘
Liberal	2.391	4.347	↗
Latin America	2.195	1.796	↘

Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
All models control for independent/control variables: paid work and employment status of the respondent and the spouse, dependency level, quartiles of personal income, educational level, outsourcing housework, cohorts, number of children and household members, and country-fixed effects.

Figure 5 plots the association between the mean gender attitudes and housework share by region and by year for women (left panel) and for men (right panel). The slopes of the association between gender attitudes and housework participation are represented by lines (see Table 6) for year 2002 and 2012, and the dots are the means for the respective regimes. The

results show a quite consistent picture for the women's and men's transitional stage as hypothesized theoretically in Figure 1.

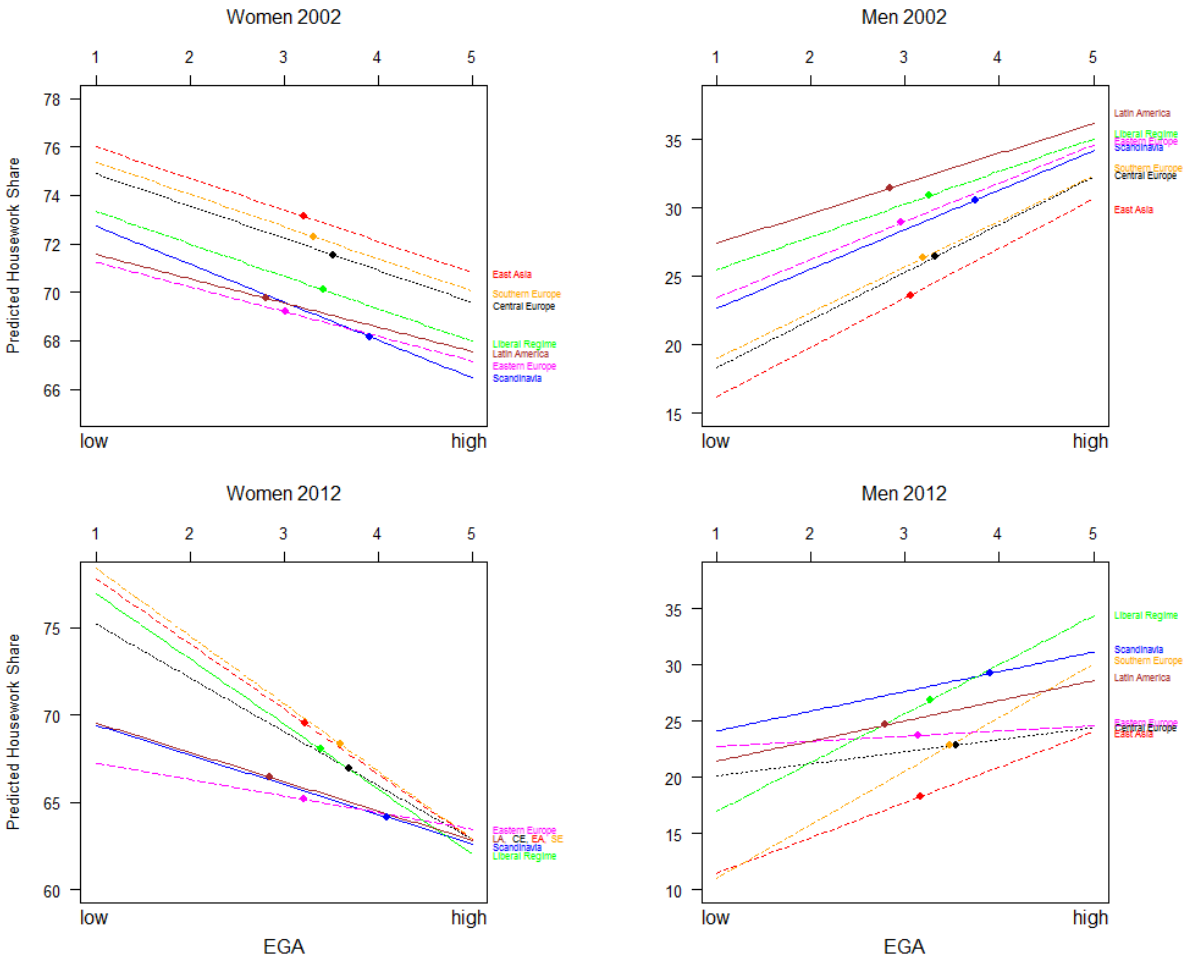

Figure 5 Association between Gender Attitudes and Housework Share, 2002and 2012

All in all, Table 6 shows that for women in Scandinavian and Eastern European countries, the association between gender attitudes and housework share became less sharp in 2012 compared to 2012. Summaries in Figure 6, based on models from Table 6, show that among Scandinavian women more changes happened among more traditional women: they started to catch up with the egalitarian women in 2012. However, for Eastern Europe, the might have been reversal for the more egalitarian women, which slowed down the transitional stage.

Eastern European countries, especially Russia, have experienced reversal to more traditional gender roles over the period, which is probably also found reflection in the present results.

Within the ISSP data, the results for men are also consistent with the Hypothesis 3. We find that the difference between more traditional and egalitarian men are slowing down in Scandinavian and Central European regions (social democratic and conservative regimes), indicating that men are settling into the new equilibrium of the post-transitional stage, where more traditional men are catching up with more egalitarian ones. We also find such deceleration in Eastern European, East Asian, and Latin American countries. However, the interpretation differs for the findings in Eastern Europe and Latin America, considering the political developments in the regions. We explain these findings as the evidence of the reversal in these regions as a result of recent social shocks rather than of the second demographic transition.

The association between gender attitudes and housework participation became stronger in the above-identified transitional states: Southern Europe, liberal regime states, and among women in East Asia. Latin American men's pattern shows the reversal to the pre-transitional equilibrium like in Eastern Europe.

4. Conclusions

In our paper, we have investigated whether the gender ideologies worked in the expected way as the previous research suggests and whether the results for regional analysis of the association between gender attitudes and housework share fit the second demographic transition and the post-transitional multiple equilibria theories. Furthermore, we have examined whether a more egalitarian outlook translated into less housework for women and more housework for men and whether there was change apparent in transitional states. Using the ISSP data for 24

countries, we find that egalitarian attitudes are tied with comparable actions for both women and men. Women with more egalitarian views do less housework and more egalitarian men do more.

We also find for the overall, country-context free, pattern also shows the evidence of the lagged adaptation for more traditional women and men (Gershuny et al., 2005). Thus, the gains in higher housework participation can be observed among women and men with higher levels of egalitarian views, whereas for more traditional men such trend is not evident. The overall trend for the ISSP countries is, therefore, that of the transitional stage.

The analysis by welfare regimes showed that in countries of the Scandinavian region, there is the expected flattening out in the association between gender attitudes and housework participation: the differences between egalitarian and traditional women and men in their domestic work have muted down. This result confirms both theories by Lesthaeghe (2010) and Esping-Andersen and Billari (2015). The same process is evident among men in Central European countries. The purely transitional states are as predicted by Esping-Andersen and Billari (2015) are in Southern Europe, liberal regime countries, as well as East Asian countries. The frameworks are less likely to be able to explain the results for Latin American and Eastern European women and men, which experienced less stable political, economic, and social situations in the period between 2002 and 2012.

References

Altintas, E., & Sullivan, O. (2017). Trends in fathers' contribution to housework and childcare under different welfare policy regimes. Social Politics

Atwood, L. 1999. Creating the New Soviet Woman: Women's Magazines as Engineers of Female Identity. New York.

Baxter, J. (1992). Power attitudes and time: The domestic division of labour. Journal of Comparative Family Studies.

Becker, G. S., 1981. A Treatise on the Family. Cambridge, MA: Harvard University Press.

Bianchi, S. M., Milkie, M. A., Sayer, L. C., & Robinson, J. P. (2000). Is anyone doing the housework? Trends in the gender division of household. Social Forces, 79(1), 191–228.

Brewster, K. L., & Padavic, I. (2000). Change in Gender-Ideology, 1977-1996:The Contributions of Intracohort Change and Population Turnover. Journal of Marriage and Family, 62(2), 477–487

Carter, J. S., & Borch, C. A. (2005). Assessing the Effects of Urbanism and Regionalism on Gender-Role Attitudes, 1974-1998*. Sociological Inquiry, 75(4), 548–563.

Ciabattari, T. (2001). Changes in Men's Conservative Gender Ideologies. *Gender & Society*, 15(4), 574–591.

Coltrane, S., and Ishii-Kuntz, M., 1992. Men 's Housework: A Life Course Perspective. In: Journal of Marriage and Family 54 (1), 43–57.

Cunningham, M., 2005. Gender in Cohabitation and Marriage. The Influence of Gender Ideology on Houseork Allocation Over the Life course. In: Journal of Family Issues 26 (8), 1037–1061, doi:10.1177/0192513X04273592

Davis, S. N., & Greenstein, T. N. (2009). Gender Ideology: Components, Predictors, and Consequences. Annual Review of Sociology, 35(1), 87–105.

Esping-Andersen, G. (1990). The Three Worlds of Welfare Capitalism. Cambridge, UK: Polity Press.

Esping-Andersen, G., & Billari, F. C. (2015). Re-theorizing Family Demographics. Population and Development Review, 41(1).

Fuwa, M. (2004). Macro-level Gender Inequality and the Division of Household Labor in 22 Countries. American Sociological Review, 69(6), 751–767.

Gazso-Windle, A., & McMullin, J. A. (2003). Doing Domestic Labour: Strategising in a Gendered Domain. Canadian Journal of Sociology/Cahiers Canadiens de Sociologie, 28(3), 341–366.

Gershuny, J., 2000. Changing Times: Work and Leisure in Postindustrial Society. Contemporary Sociology 31. Oxford, New York, Oxford University Press.

Greenstein, T. N. (1996). Husbands' Participation in Domestic Labor: Interactive Effects of Wives' and Husbands' Gender Ideologies. Journal of Marriage and the Family, 58(3), 585.

Heisig, J. P., 2011. Who Does More Housework: Rich or Poor?: A Comparison of 33 Countries. In: American Sociological Review 76 (1), 74–99.

Hoem, J. M. (1997). Educational Gradients in Divorce Risks in Sweden in Recent Decades. Population Studies, 51(1), 19–27.

Hook, J. L., 2006. Care in Context: Men's Unpaid Work in 20 Countries, 1965-2003. In: American Sociological Review 71 (4), 639–660.

Hook, J. L., 2010. Gender inequality in the welfare state: sex segregation in housework, 1965-2003. In: AJS; American journal of sociology 115 (5), 1480–523.

Hu, C.-Y., & Kamo, Y. (2007). The Division of Household Labor in Taiwan. Journal of Comparative Family Studies, 38(1), 105–124.

ISSP Research Group (2016): International Social Survey Programme: Family and Changing Gender Roles IV - ISSP 2012. GESIS Data Archive, Cologne. ZA5900 Data file Version 4.0.0, doi:10.4232/1.12661

Kan, M. Y. (2008a). Does gender trump money? Housework hours of husbands and wives in Britain. Work, Employment and Society, 22(1), 45–66. doi:10.1177/0950017007087416

Kan, M. Y., 2008b. Measuring housework participation: The gap between "stylised" questionnaire estimates and diary-based estimates. In: Social Indicators Research 86 (3), 381–400.

Kan, M. Y., & Pudney, S. (2008). Measurement Error in Stylized and Diary Data on Time Use. Sociological Methodology, 38(1), 101–132.

Kan, M. Y., Sullivan, O., and Gershuny, J., 2011. Gender Convergence in Domestic Work: Discerning the Effects of Interactional and Institutional Barriers from Large-scale Data. In: Sociology 45 (2), 234–251.

Kravdal, Ø., & Rindfuss, R. R. (2008). Changing Relationships between Education and Fertility: A Study of Women and Men Born 1940 to 1964. American Sociological Review, 73(5), 854–873.

Lesthaeghe, R. J. (2010). The Unfolding Story of Transition. Population and Development Review, 36(2), 211–251.

Lewin-Epstein, N., Stier, H., & Braun, M. (2006). The division of household labor in Germany and Israel. Journal of Marriage and Family, 68(5), 1147–1164.

Lyngstad, T. H. (2004). The impact of parent's and spouses' education on divorce rates in Norway. Demographic Research, 10(June 2004), 121–142.

Marini, M. M., & Shelton, B. A. (1993). Measuring household work: Recent experience in the United States. Social Science Research, 22, 361–382.

Myrskyla, M., Kohler, H. P., & Billari, F. C. (2009). Advances in development reverse fertility declines. Nature, 460(7256), 741.

Nordenmark, M. (2004). Does gender ideology explain differences between countries regarding the involvement of women and of men in paid and unpaid work? International Journal of Social Welfare, 13(3), 233–243.

Pascall, G., & Manning, N. (2000). Gender and social policy: comparing welfare states in Central and Eastern Europe and the former Soviet Union. Journal of European Social Policy, 10(3), 240–266.

Robinson, J. P. (1985). The Validity and Reliability of Diaries versus Alternative Time Use Measures. In F. T. Juster & F. P. Stafford (Eds.), Time, goods, and well-being (pp. 33–62). Ann Arbor, MI: University of Michigan Press.

Sullivan, O., Gershuny, J., & Robinson, J. P., 2018. Stalled or Uneven Gender Revolution? A Long-Term Processual Framework for Understanding Why Change Is Slow. In: *Journal of Family Theory & Review*.

van De Kaa, D. J. (2002). The Idea of a Second Demographic Transition in Industrialized Countries. Paper Presented at the Sixth Welfare Policy Seminar of the National Institute of Population and Social Security, Tokyo, Japan, 29 January 2002, (January), 1–34.