What makes wives do more housework in some countries and less in others? Complementary relationships in couples' housework

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Abstract

  The focus of our analysis is the effect of the housework hours of husbands on those of wives, and the factors explaining the nation-level variation in this effect. Using ISSP-2002 data for 17 countries, the authors find that the relationship between wives' and husbands' housework is complementary. However, there is nation-level variance in the marginal effect of husbands' housework on that of wives. Multilevel modeling techniques are used to explain macro-level variance of intercept and coefficient by macro-level variables. We find that the nation-level variance cannot be explained by variables that measure gender-egalitarian equality like GEM and or GDI. These explain the reduction of wives' housework share compared to that of their husbands' (Fuwa 2004), but are no longer effective in explaining the nation-level variance of couples' housework. On the other hand, the variables such as the gender gap in the employment and the labor force participation rates explain the substantive part of the nation-level variations. We find that the marginal effect of husbands' housework hours on those of wives increases as the relative share of women in the labor market or employment increases; husbands help their wives with more housework in a gender-egalitarian context because it is economically efficient to do so, and the opportunity cost for wives spending their time doing housework is higher in a gender-egalitarian labor market. Further, the national average of relative income by gender explains the national-level difference. These findings reveal the relevance of the economic efficiency theory in explaining husbands' and wives' housework time allocations. This study suggests that increases in labor market opportunity for women might allow husbands to do more housework and help wives reduce the time they spend doing the same.

Introduction

What makes wives do more housework in some countries and less in others? Does housework performed by husbands reduce the amount of time their wives spend doing housework? Recent research on household division of labor among couples has started to put focus on variations across nations, taking advantage of the availability of internationally comparable data like that from the ISSP (International Social Survey Programme). However, these studies usually extend models that have been used for the analysis of a single country. For instance, the ratio of couples' housework allocation is the usual target of such analyses, taking couples' working hours, relative income level, number of children who need to be cared for, and attitude toward gendered division of labor as explanatory factors (Shelton et al:1996, Bianchi:2000). Nickols and Metzen (1982), using United States longitudinal data on time use, point out that husbands spend more time doing housework when their wives spend more time at work. However, Using Michigan PSID (Panel Study on Income Dynamics) from 1979 to 1987, Hersch and Leslie (1994) point out that wives' housework

time is positively related to their husbands' paid work hours, while husbands' housework is unaffected by wives' paid work hours. Szinovacs (2000), using NSFH (National Survey of Family and Household) data, found that retired husbands use more time for housework because they have more time available. Matsuda and Suzuki (2002) test the time availability hypothesis in Japan and find basic support for it.

Recent studies have found other factors affecting couple's housework allocation. South and Spitze (1994) point out the importance of couple's living situation (whether or not they are living together) and show that household formation increases women's housework hours while it decreases men's housework. Gupta (1999) found similar result using more recent data. Presser (1994) noted the impact of employment schedule: a husband's housework hours increase if his work hours are different from his wife's. The shared results of those analyses are that relatively higher income for women, relatively scarce time availability for women, and egalitarian attitudes on the part of men in terms of gender division of labor increase husbands' allocation of housework. We were interested in conducting a comparative study to examine why husbands do more housework in some countries even after controlling for these other characteristics.

Some comparative analyses implement models that are used in single-country studies and attempt to demonstrate their validity after controlling for national average differences, using longitudinal models. Davis et al. (2007), for instance, use ISSP-2002 data and demonstrate that egalitarian attitudes have a more positive effect on men's housework in cohabitating unmarried couples than in married couples. On the other hand, there are analyses that try to explain the national variance of the average or effect of explanatory variables. If the effects of some explanatory variables were to be estimated, it would be easy to imagine that there would be a definite national-level variation of that effect. Using time-use surveys, Hook (2006) examines the effects of children in the household on men's housework in 20 countries, and finds that the national variation of the effect can be explained by the national level of women's employment hours. Using ISSP-1994 data with a random intercept model of multilevel analysis, Fuwa (2004) found that time restrictions on wives' housework have an effect that varies significantly across countries. This variance can be explained by national-level attributes like GEM (Gender Empowerment Measure). In egalitarian countries, the effect of wives' relative time restrictions on housework is stronger than in less egalitarian countries.

Couples' housework division occurs in a certain social environment that has specific norms that determine the appropriate rate of exchange. Geist (2005) uses ISSP-1994 data for a selection of 10 countries and finds that equal sharing of housework by both partners is rare in conservative countries. Diefenbach (2002), using ISSP-1994 data, examines the impact of spouses' relative resources on the division of housework in egalitarian, transitional, and traditional cultural contexts, and finds that relative resources have a greater impact on the division of housework in a transitional context than in any other context. Batalova et al. (2002) also uses the 1994 data and finds that national rates of cohabitation without marriage have equalizing effects on all cohabitating couples, whether they are

married or not; however, the influence of cohabitation rates is only observed in countries with higher levels of overall gender equality. Those studies using ISSP-1994 data only examine men's and women's relative share of housework because of the lack of information about "absolute time" spent on housework. The share obscures national-level factors that influence both husbands' and wives' time in the same direction (Hook, 2006). In order to capture the effect of husbands' housework time on those of wives, for this paper we have used the ISSP-2002 data that contain the information on absolute time for housework.

  Previous studies, either using domestic data or internationally comparable data, have tried to explain the factors that increase husbands' share of housework or reduce wives', with either change giving rise to a more egalitarian situation. From an economic point of view, however, there is another potential focus for analysis: are the amounts of time that wives and husbands spend on housework substitutive or complementary? Moreover, if they are complementary, is that economically inefficient? Becker's theory of effective households predicts that they are substitutive in order to maintain economic efficiency. However, empirical research contradicts Becker's theory. Using Japanese data, Ueda (2005) found that husbands' housework time is not a perfect substitute for the wives' housework time. Matsuda and Suzuki (2002) demonstrate similar relationships between husbands' and wives' housework time based on a time survey in Japan. If husbands increase the amount of time they spend doing housework, leading to a less economically inefficient household, what makes husbands do more housework in some countries and less in others? Using ISSP-2002 data, Knudsen and Waerness (2008) found that while a high GEM tends to lower wives' relative contributions, high economic levels measured by GDP tend to increase it. The question of whether husbands do housework in order to reduce the amount of times their wives spend doing housework has not yet been answered. In this paper, using nationally comparable data, we explore whether time allocation for housework is different across countries, and, if so, what explains the nation-level variation.

Theory and hypothesis

As stated above, economic theory predicts that the relationship between wives' and husbands' housework is substitutive: when husbands increase the time they spend doing housework, this will directly reduce the time their wives spend doing the same, because division and specialization of labor provide a more efficient outcome (Becker 1965, 1991). In Table 1, we can see that the division and specialization of labor produce such an efficient outcome in Japan; the total time couples spend doing housework in Japan is the second lowest among the seven countries considered. (Japanese women spend about 4 and a half hours per day on housework, while Japanese men spend less than 30 minutes.) On the other hand, one can think of several reasons for a complementary relationship between the spouses' housework allocation. An egalitarian attitude might lead to joint housework rather than substitution. In other words, if the total need for housework is increased, husbands and wives might try to allocate the whole task in an egalitarian fashion, even if it is economically inefficient in terms of the advantage of division of labor and economic specialization

(see the countries other than Japan in Table 1). Further, more gender equality in the labor market and employment opportunities for women might lead to greater equality in couples' housework. The wives' housework and the husbands' housework can be considered as endogenous to each other, whether they are substitutive or complementary. However, because women spend more time on housework than men in almost all countries, this paper uses a linear model that takes wives' housework time as the target variable. The additional effect of husbands' housework time on wives' housework time is considered to have a random variance among countries. A multilevel modeling technique is used to explain macro-level variance of intercept and coefficient by macro-level variables.

Table 1: Mean minute of housework per day for men and women with children under 5 in the household in selected countries

(Minute)

	Men's hours of housework (including childcare)	Men's hours of housework (excluding childcare)	Men's hours of childcare	Women's hours of housework (including childcare)	Women's hours of housework (excluding childcare)	Women's hours of childcare	Couples' total hours of housework (including childcare)	Couples' total hours of housework (excluding childcare)	Couples' total hours of childcare
France(2000-2001)	90	50	40	349	232	117	439	282	157
Germany(1998-1999)	180	121	59	371	233	138	551	354	197
Japan(2001)	48	23	25	461	278	183	509	301	208
Norway(2000-2001)	192	119	73	326	189	137	518	308	210
Sweden(2001-2002)	201	134	67	329	208	121	530	342	188
United Kingdom(2003)	166	106	60	369	227	142	535	333	202
United States(2001)	206	133	73	381	220	161	587	353	234

Source：Eurostat, 2004, "How Europeans Spend Their Time Everyday Life for Women and Men"、Bureau of Labor Statistics of the U.S.,2004,"America Time-Use Survey Summary"、the Japanese Statistics Bureau, 2001, "Survey on Time Use and Leisure Activities"

1：hours of housework was calculated as the sum of "Household activities","Purchasing goods and services","Caring for and helping household members","Caring for and helping non-household members" for United States. "household activities" "Caring for and helping household members", "Childcare", "Grocery Shopping" for Japan. "Domestic Work" for European countries.

2：Total hours of housework was culculated as the sum of men's hours of housework and those of women's.

Data and method

This paper uses data from the ISSP-2002 (Family and Changing Gender Roles III). Countries that were lacking in specified variables or that had too small sample were excluded from the analysis. Seventeen countries are used for the analysis: Germany, Great Britain, the United States, Austria, Hungary, Norway, Sweden, Poland, New Zealand, Japan, Spain, Portugal, Denmark, Switzerland, Flanders (a part of Belgium), Finland, and Mexico. The response variable is "hours spent on housework per week by married or cohabiting women"[1]. The main explanatory variables are "hours spent on housework per week by married or cohabiting men." The focus of our analysis is on the effect on and the relationship of husbands' housework hours on wives' housework hours, and on factors explaining the nation-level variation of that effect. We propose a hypothesis stipulating that

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[1] The actual question is "On average, how many hours a week do you personally spend on household work, not including childcare and leisure time activities?" The question is posed to respondents and their spouses.

there is a cross-level interaction between the individual effect of a husband's housework and nation-level factors. The individual-level control variables are "working hours per week by wives and husbands (including those who cohabit)," "number of children under 6 years old within households," a "husband dummy (for controlling respondent bias)," and "age of the respondent."

The nation-level explanatory variables are GEM (Gender Development Measure), GDI (Gender-Related Development Index), the employment ratio gender gap, the labor participation ratio gender gap, and a national average ratio of income between women and men. GEM and GDI are taken from UNDP (United Nations Development Programme) (2002: P.222). GEM is calculated from indicators such as women's and men's percentage shares of parliamentary seats; positions as legislators, senior officials and managers, and in professional and technical positions; and estimated earned income. GDI is calculated from gender differences in life expectancy at birth, literacy rate, and the combined primary, secondary, and tertiary gross enrollment ratio, along with estimated earned income. We also used data on the employment gender gap and the ratio of women in the labor market in each country taken from the OECD (Organization for Economic Co-operation and Development) (2004:Pp.295-296). The employment ratio and labor participation ratio refer to the number of persons of each gender aged 15 to 64 years who are in employment or in the labor force divided by the working age population. The relative income is calculated from women's average income divided by men's average income in the ISSP data. The resulting sample size is 11,153. The summary statistics are shown in Table 2.

Table 2: Descriptive statistics

	Mean	SD	Min	Max
Dependent Variable				
Wives' hours of housework	21.16	15.43	0	95
Individual-level Variables				
Husbands' hours of housework	7.82	9.68	0	90
Husbands' hours of paid work	30.92	23.16	0	95
Wives' hours of paid work	17.89	19.55	0	95
Number of kids under 6	0.25	0.58	0	9
Sex	0.46	0.50	0	1
Age	49.22	14.40	18	96
Nation-level Variables				
GEM	0.70	0.10	0.50	0.84
GDI	0.91	0.04	0.79	0.94
Employment Gap	18.23	10.28	6.40	47.40
Labor Participation Gap	16.29	9.61	3.39	43.70
Relative Income	0.55	0.10	0.38	0.70

The primary focus of our analysis is to test whether the relationship between the amount of time wives and husbands spend on housework is substitutive or complementary in each country. Should there be a substantive nation-level variance, we will try to explain it. Thus, the basic random intercept model is specified as:

$$WH = (\gamma_{00}+u_{0j}) + \beta_{01}HH + \beta_{kj}\mathbf{X}_{kj} + e_{ij} ,$$

where WH and HH denote wives' and husbands' housework hours, respectively. This variance component model divides the error term into the national level (u_{0j}) and individual level (e_{ij}), controlling for other individual variables ($\mathbf{X}_{kj}$).

The random coefficient model, which allows β_{01} to be randomly distributed among countries, is specified as:

$$WH = (\gamma_{00}+u_{0j}) + (\gamma_{10}+u_{1j})HH + \mathbf{X}_{kj} + e_{ij} .$$

The model that explains the nation-level variance of the intercept (u_{0j}) and that of the coefficient (u_{1j}) is then:

$$WH = (\gamma_{00} + \gamma_{01}NX + u_{0j}) + (\gamma_{10} + \gamma_{11}NX + u_{1j})HH + \mathbf{X}_{kj} + e_{ij} .$$

Analysis

The relationships between husbands' and wives' housework (OLS fitted line) for each country are shown in Figure 1. Contrary to what the division and specialization of labor theory would predict, most countries show a positive relationship between wives' and husbands' housework hours. In other words, when the total amount of housework is increased, husbands and wives both increase their time for housework so that their share of housework stays the same. By contrast, in countries like Japan and Spain, there seems to be no relationship between husbands' housework and wives' housework; husbands only do a small amount of housework, even if the total amount of housework performed in the household has increased. We could see the same relationship from Table 3. Now, using the multilevel model, we will examine the effect of husbands' housework on wives' housework by controlling for each individual characteristic, and try to explain these nation-level differences

Figure 1: OLS fitted line by country

Figure 1: OLS fitted line by country

Table 3: Mean hours of housework per a week by country

Country	Couple's total		Men's total		Women's total	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Germany	27.6	16.9	7.0	6.9	20.5	13.8
Great Britain	21.1	16.0	6.7	7.7	14.4	11.6
the United States	20.3	16.8	7.0	8.2	13.4	12.1
Austria	29.0	15.5	6.9	7.3	22.2	13.5
Hungary	39.4	22.9	11.2	11.7	28.0	16.0
Norway	16.4	10.1	4.8	4.9	11.6	8.2
Sweden	21.4	12.0	7.3	6.3	14.1	8.9
Poland	33.3	24.3	12.5	12.7	20.6	15.1
New Zealand	22.3	15.8	6.5	7.3	15.4	11.6
Japan	30.1	15.3	3.5	5.4	26.2	14.3
Spain	36.8	20.5	7.4	9.2	29.6	19.2
Portugal	32.7	19.2	6.7	8.3	25.9	16.4
Denmark	20.4	12.7	7.1	7.1	13.1	8.6
Switherland	27.7	15.8	6.9	6.5	18.4	13.5
Flanders	33.6	26.0	9.9	14.1	23.7	16.2
Finland	19.4	12.9	6.3	6.0	13.3	9.8
Mexico	42.6	26.5	14.6	15.5	27.9	18.9
Total	27.9	17.6	8.1	10.3	21.1	16.2

Table 4: Mixed effects Multi-Level Models predicting Wives' Housework

|	Model 1 Coef.	SE	Model 2 Coef.	SE	Model 3 Coef.	SE	Model 4 Coef.	SE	Model 5 Coef.	SE	Model 6 Coef.	SE
Individual-level Variables												
Husbands' hours of housework(Intercept)	0.371 **	0.05	0.011	0.35	−0.043	1.08	0.562 **	0.09	0.550 **	0.10	−0.265	0.26
Husbands' hours of paid work	0.082 **	0.01	0.083 **	0.01	0.083 **	0.01	0.082 **	0.01	0.082 **	0.01	0.082 **	0.01
Wives' hours of paid work	−0.214 **	0.01	−0.214 **	0.01	−0.214 **	0.01	−0.213 **	0.01	−0.214 **	0.01	−0.213 **	0.01
Number of kids under 6	0.470 †	0.24	0.468 †	0.24	0.469 †	0.24	0.465 †	0.24	0.466 †	0.25	0.462 †	0.24
Male	−0.763 **	0.25	−0.764 **	0.25	−0.763 **	0.25	−0.764 **	0.25	−0.764 **	0.25	−0.768 **	0.25
Age	0.075 **	0.01	0.075 **	0.01	0.075 **	0.01	0.075 **	0.01	0.075 **	0.01	0.075 **	0.01
Nation-level Variables												
GEM			−31.013 **	8.37								
GDI					−52.680 *	23.89						
Employment Gap							0.345 **	0.10				
Labor Participation Rate Gap									0.297 **	0.10		
Relative income											−40.272 **	6.79
Cross-level Interactions												
Husband's housework × GEM			0.517	0.49								
Husband's housework × GDI					0.458	1.20						
Husband's housework × Employment Gap							−0.012 *	0.00				
Husband's housework × Labor Participation Gap									−0.010 *	0.00		
Husband's housework × Relative income											1.142 *	0.46
Constant	18.960 **	1.42	40.663 **	5.97	66.642 **	21.66	13.637 **	1.93	13.765 **	2.10	41.545 **	3.94
Variance Components												
National-Level variance of the Intercept	0.212		0.205		0.212		0.180		0.187		0.178	
National-Level variance of the Slope	4.906		3.628		4.319		3.715		3.918		2.751	
Residual	0.212		12.926		12.927		12.926		12.927		12.927	
Log likelihood	−44428.55		−44426.34		−44426.34		−44421.41		−44422.91		−44416.41	
Wald Chi^2	1160.26		1166.99		1166.99		1196.97		1187.55		1228.88	
(Degrees of freedom)	(6)		(8)		(8)		(8)		(8)		(8)	
Prob.>Chi^2	0.000		0.000		0.000		0.000		0.000		0.000	
LR test vs. liner regression	1792.95		1232.33		1547.21		902.03		1005.18		527.96	
Number of Obs.	11153		11153		11153		11153		11153		11153	
Number of groups (Nation)	17		17		17		17		17		17	

** $p < 0.01$　* $p < 0.05$　† $p < 0.1$

Multilevel model regression results are shown in Table 4. There is a significant variance between nations (Model 1); for instance, in husbands' housework hours, the slope is 0.371 and the nation-level variance is 0.212. In Models 2 through 6, we examine the various national-level variables to see which makes this national-level variance smaller. For that purpose, we introduce the interaction of husbands' housework and national-level variables to the models.

Unlike in previous studies, GEM and GDI did not explain the national-level variance between husbands' and wives' housework times (Model 2 and 3). Figure 2 shows the predicted values of wives' housework time by Model 2 for Sweden (with relatively higher GEM) and Japan (lower GEM). Though GEM explains the nation-level variance of intercepts, it does not reduce the slope variance. The effect seems rather modest and interaction term is not statistically significant.

Figure 2: Predicted wives' housework hours in Sweden and Japan by Model 2
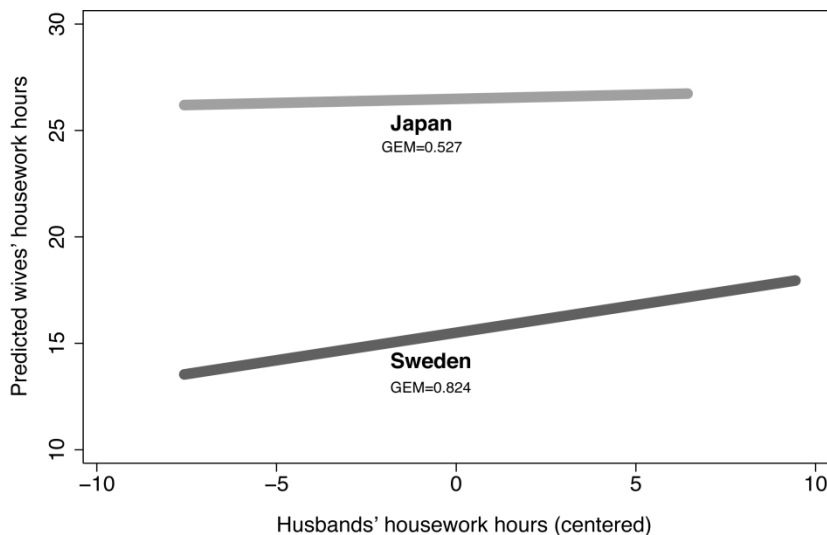
In contrast, the gender gap in the employment and labor participation rates had some explanatory power over the variance. The marginal effect of husbands' housework times on their wives' times is 0.52 (min), 0.37 (mean), and 0.04 (max) with the employment gap variable, and is 0.48 (min), 0.36 (mean), and 0.08 (max) with the labor participation variable; in other words, the marginal effect of husbands' housework time on that of their wives increases as the relative share of women in the labor or employment market increases (Model 4 and 5). Figure 3 shows the predicted values of wives' housework time by Model 4 for USA (with small gap) and Japan (large gap). For countries with small gender employment gap, husbands' contributions to housework reduce wives' housework hours.

**Figure 3: Predicted wives' housework hours in USA and Japan by Model 4**
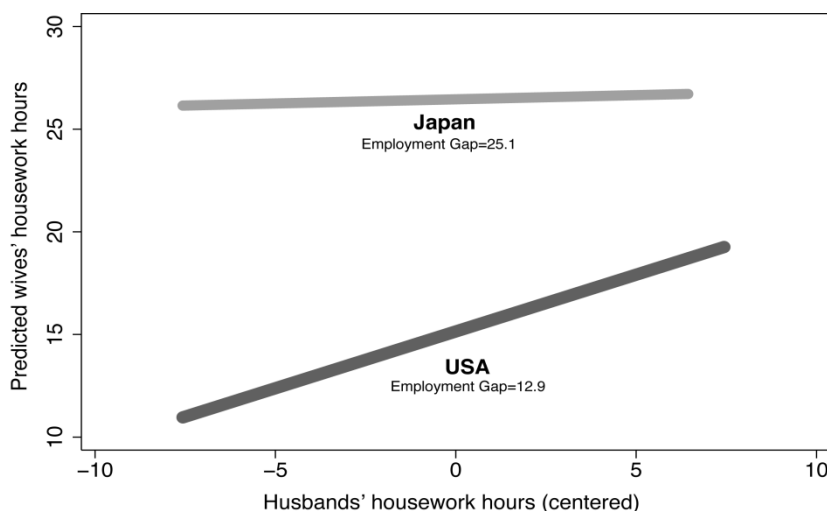
We also found that the relative income of the two genders (Model 6) could explain nation-level variance: when the gender gap in income gets smaller, the effect of husbands' housework on wives' housework is increased (the marginal effect is 0.16 (min), 0.36 (mean), and 0.53 (max)). This indicates that husbands increase their time for housework when there are fair labor market opportunities for women because it is economically efficient to do so.

Discussion

The national-level variation in the effect of the housework hours of husbands on those of wives cannot be explained by gender-egalitarian related variables such as GEM and GDI. These explain the reduction in wives' housework share as compared to that in husbands' (Fuwa 2004), but are not effective in explaining the variance of domestic housework time allocation. Instead, variables such as the gender gap in employment rates and labor force participation rates explain a substantive part of the national-level differences. We find that the marginal effect of husbands' housework hours on those of wives increases as the relative share of women in the labor market or employment increases; husbands help their wives with more housework in a gender-egalitarian context because it is economically efficient to do so, and the opportunity cost for wives spending their time doing housework is higher in a gender-egalitarian labor market. Further, the national average of relative income by gender explains the national-level difference. These findings reveal the relevance of the economic efficiency theory in explaining husbands' and wives' housework time allocations. This study suggests that increases in labor market opportunity for women might allow husbands to do more

housework and help wives reduce the time they spend doing the same; the more equality in the labor market the more equality at home (Figure 4).

Figure 4: Proposed model of couple's housework division
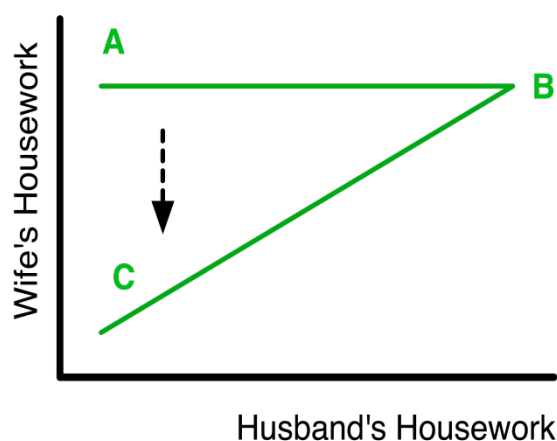
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