

# Couple Specialization in Multiple Equilibria

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**Abstract:** We address the issue of men's lagged adaptation to the ongoing revolution of women's roles. This article proposes a multiple equilibrium approach and shows how modes of couple specialization cluster around qualitatively distinct logics. We identify a traditional, egalitarian, and 'unstable' equilibrium. Theory posits that stable equilibria rest on strong normative abidance, and yield more equitable outcomes. In contrast, unstable equilibria are likely to exhibit inequitable behaviour. The latter, we believe, are a transitional feature in the historical shift away from traditional gender roles. Our exploration is based on time-use data for three countries that represent different stages in the revolution of women's roles: Britain, Denmark, and Spain. Our findings suggest that the consolidation of an egalitarian equilibrium, as is the case for Denmark, is associated with more homogeneity and gender equity in the division of labour. In Spain, the traditional equilibrium is still predominant. In Britain, the erosion of traditional specialization has not yet been met with a strong egalitarian alternative, as is manifested in the prevalence of 'unstable equilibrium' behaviour.

## Introduction

The post-modernism thesis has found widespread application in family demography. A core tenet is that choices are increasingly individualized, guided by the need for self-realization rather than by collectively shared normative standards. Laesthage (1995) and Van de Kaa (2001) have applied it to the Second Demographic Transition generally, and to fertility in particular. It has also influenced studies of marriage and divorce (Amato and James, 2010), and contemporary gender relations (Hakim, 2000).

Focusing on couple specialization, we question this thesis. We do, of course, witness greater couple instability, a plethora of new family forms, and also a rise in men's involvement in home production. Preferences are changing, but does this also, as the post-modernism thesis holds, mean that they are becoming normatively unanchored? Or, can we identify the emergence of a new dominant model, one premised on broad conformity with principles of gender equity and symmetry?

Adopting a multiple equilibrium approach, we argue that individualization in family life is more likely a transitory rather than permanent trend, associated with the decline of the old male breadwinner model. As such, it represents what economists term an 'unstable equilibrium', an admittedly misleading concept meant to

convey the absence of broadly shared standards of conduct. A stable equilibrium, in contrast, rests on clear expectations of others' behaviour that are endogenously reproduced over time. Multiple equilibria represent situations where, so to speak, the rules of the game are unclear or possibly contested. When a new equilibrium comes to dominate, one should expect behaviour to become increasingly convergent.

We apply this framework to a comparative analysis of how couples allocate paid and unpaid work (housework and child care). We use national time-diary surveys for Britain (2000), Denmark (2001), and Spain (2003). For lack of over-time data, we are not able to trace the dynamics of change. Our second-best strategy is to compare across three countries that well represent not only international variations in women's dedication to employment and careers, but also policies aimed at reconciling work and family welfare (Gornick and Meyer, 2003; Miranda, 2011). As the comparative welfare regime literature demonstrates, Denmark is an international frontrunner, especially in terms of universal child care provision and parental leave entitlements, and this helps explain why full-time life-long careers are now the norm among Danish women (Esping-Andersen, 2009). In both Spain and Britain, child care coverage remains comparatively incomplete, maternity leaves are quite short, and paternity leave incentives are weak. This, in

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turn, implies that a large share of women opt for part-time work (as in Britain) or exit employment (as in Spain) after births (Esping-Andersen, 1999, 2009; Gornick and Meyer, 2003). Given these welfare state differences, we should expect that Danish couples would be less constrained in terms of moving towards an egalitarian allocation of unpaid work.

Our endeavour builds on a simplification of the phenomenon of couple specialization. We identify (ideally) two orthogonal equilibria: one based on traditional couple specialization and the other on gender symmetry. We define the unstable equilibrium below.

Our empirical analyses will show that a novel ‘gender symmetric’ regime has, indeed, emerged in Denmark. However, that is far from the case in either Britain or Spain, where, instead, couple relations remain governed by traditional gender norms or by the characteristics of ‘unstable equilibria’.

We first review contemporary research on the gendered division of domestic work and then present the theoretical properties of multiple equilibria. In the empirical section, firstly, we begin by identifying equilibria distributions within the three countries; secondly, we apply the model to child care allocation; and thirdly, we test the model’s predictive powers for three hypotheses.

## The Gendered Division of Work

Research finds a persistent female bias in domestic work despite the progress towards gender parity in both education and employment. To be sure, men’s input has increased but most observed equalization has been due to a reduction in women’s housework input (Bianchi *et al.*, 2000; Coltrane, 2000; Greenstein, 2000; Bittman *et al.*, 2003; Gershuny *et al.*, 2005; Hook, 2006; Evertsson and Nermo, 2007; Gupta, 2007).<sup>1</sup> Gershuny *et al.*’s (2005) notion of ‘lagged adaptation’ offers a good depiction of long-run trends. The evidence also suggests that moves towards greater gender symmetry may come in sudden spurts. Larger comparative studies find noticeable country variations. Some nations, like the Nordic, exhibit less gender inequality than others, like Italy (Geist, 2005; Hook, 2006).

To Becker (1991), specialization is utility maximizing when partners’ earning power differs. However, if the partners are similarly productive in paid and unpaid work, gender symmetry should be the optimal arrangement. Yet, this is not what empirical research shows. Even when considering partners’ labour supply and earnings, the female bias in housework remains substantial. Blossfeld *et al.* (1996), for example, show that also women with greater earning potential than their

husbands reduce paid work after marriage and births. Moreover, some studies show that economically dependent men may be particularly averse to chipping in (Brines, 1994; Greenstein, 2000; Bittman *et al.*, 2003).

The gender display thesis highlights a qualitatively different rationality. The association of housework with traditional feminine responsibilities means that it becomes an important arena for reaffirming ‘proper’ gender identities: couples will seek to neutralize situations of deviance—such as male dependency—by adopting traditional roles (Berk, 1985; Brines, 1994; Akerlof and Kranton, 2000; Greenstein, 2000; Bittman *et al.*, 2003; Evertsson and Nermo, 2004; 2007). However, the general validity of the thesis has been questioned (Bianchi *et al.*, 2000; Davis and Greenstein, 2004; Gupta, 2007; Kan, 2008; Sullivan, 2011).

A macro-effect emerges from Breen and Cooke’s (2005) game theoretical perspective. Here the division of housework will become more symmetric as the share of autonomous women forms a critical social mass, *conditional* on whether the share of adaptive men is sufficiently large. This suggests that any shift towards gender symmetry will only occur after certain threshold points have been passed.

Gender egalitarian policies can also influence couple behaviour (Fuwa, 2004; Geist, 2005; Bonke *et al.*, 2008). However, the causality is ambiguous. It may be that child care provision or father leaves promote more equality; however, it is also likely that such policies only emerge once the revolution of women’s roles is at a mature state.

## A Multiple Equilibrium Approach to Couple Behaviour

Multiple equilibrium models are widely applied in economics. Many economists recognize the strong parallels to sociological work because stable equilibria can only exist if well-defined normative expectations are reproduced endogenously (for an overview, see Azariadis, 2008). We adopt this approach because it is well suited to the identification of competing qualitatively different regimes of couple specialization.

Equilibria refer to the societal level. The erosion of a dominant equilibrium occurs when exogenous triggers recast expectations. However, an alternative equilibrium will consolidate only if such external shocks are followed by a self-reinforcing endogenous process of adaptation—the rise of a novel normative regime. The revolution of women’s roles can be interpreted along these lines. Initially spurred by exogenous change, in particular birth control and new household technologies, women began

to invest in marketable skills (Goldin, 1990). The redefinition of roles became self-reinforcing as lifelong employment became the norm. In Scandinavia and North America, the revolution is maturing because it is universally expected that women will, indeed, prioritize economic independence. Where the revolution is less advanced, there is much more uncertainty about the proper role of women (Esping-Andersen, 2009).<sup>2</sup>

The role of policy in this process is beyond the scope of this article. Family-friendly policies, like day care, are likely to accelerate the move towards a new stable family norm. If, as is likely, lower social status couples are slower to embrace gender egalitarian practices, we would expect that the shift would occur more rapidly in welfare regimes, like the Nordic, which promote universal and comprehensive family support—child care especially. The identification of policy effects is, however, made difficult because they are probably endogenous to overall gender role change within the population. Still, normative uncertainty in unstable equilibria is likely to be greater where institutions and policy fail to adapt to changes in preferences and behaviour. The role of policy is an empirical question to be addressed in future research.

Multiple equilibria will include at least one that is unstable. This, in theory, implies the absence of any endogenously self-reproducing normative expectations, and, hence, choice is more likely guided by narrower individual or group identities. Here is a parallel to Hakim's (2000) work. She identifies three types of women based on their family and work preferences. However, while her theory assumes that modernization is associated with increased individualization of decision making, the framework we adopt would lead us to see such a manifestation of unstable equilibria. If a new—in our case, gender-symmetric—equilibrium gains ground, we should expect that behaviour will, once again, become more uniform.

### Three Ideal-Type Equilibria

Such a comprehensive theoretical framework can obviously not be put to the empirical test in one study. Our aim here is to explore its relevance in terms of explaining empirical variations in couple specialization within and across nations. We pursue a simplified 'ideal-typical' approach that contrasts a traditional, egalitarian, and unstable equilibrium. The real world is undoubtedly more complex, but we prefer to hone in on couple specialization patterns that are as qualitatively distinct as possible.

The fundamentals of the *traditional equilibrium* are well-known: the male is the breadwinner, and the female,

the homemaker; marriages are stable, and fertility is high. The equilibrium was endogenously reproduced as long as women, in anticipation of their role in life, invested primarily in homemaker skills.

*Unstable equilibria* are associated with periods of equilibrium transition and manifest the absence of broadly shared agreement of what is 'proper' behaviour. They are hypothesized to produce outcomes that (i) reflect ambiguity about gender roles and (ii) are inequitable. This is where we would expect to find a prevalence of 'double shifts' and 'doing gender'.

As men's and women's earning capacity converges, traditional specialization will appear sub-optimal. The opportunity costs in terms of the wife's foregone income can, for one, outweigh the gains of full-time dedication to housework. The rational response would therefore be to adopt a more gender-symmetric arrangement.<sup>3</sup> Thus emerges the possibility of an alternative *gender egalitarian* equilibrium. 'Ideal typically', this entails partnerships based on two full-time employed spouses who engage in a gender-symmetric allocation of child care and housework.

### Hypotheses

We propose three hypotheses to further verify whether, indeed, a dominant equilibrium is associated with distinct behavioural patterns. The first addresses the standard finding that small children lead to more traditional specialization (Bianchi *et al.*, 2004; Grunow *et al.*, 2008; Craig and Mullan, 2010). This is because young children produce, at once, an increase in the volume of unpaid work and also the need for additional earnings. We hypothesize that the effect of children depends on equilibrium status. In the egalitarian model, the presence of a young child will not be associated with more gender specialization. Where principles of equity prevail, men and women are likely to (re)partition paid and unpaid work symmetrically (Coltrane, 2000). However, within the unstable and traditional equilibria, couples with a young child will be less likely to adopt equitable modes of specialization. Here we confront a potential endogeneity problem because the decision to have a child may be influenced by equilibrium membership to begin with. Our cross-sectional data do not permit us to identify such effects.

The second hypothesis states that manifestations of gender display should be inversely related to the presence of a dominant equilibrium. We, therefore, expect a significantly lower incidence of gender display where the egalitarian equilibrium becomes dominant. Similarly, we expect that gender display is especially pronounced within the unstable equilibrium. The rationale is that

gender display is more likely to surface where there is uncertainty about proper gender roles.

Our third hypothesis is that the larger is the unstable equilibrium, the greater should be the observed heterogeneity of behaviour in one country. *Vice versa*, when one equilibrium is dominant, we should expect greater homogeneity of behaviour. One would expect individual and group attributes to explain more variation in behaviour when an unstable equilibrium is dominant. As argued, unstable equilibria are said to lack any clear normative pull.

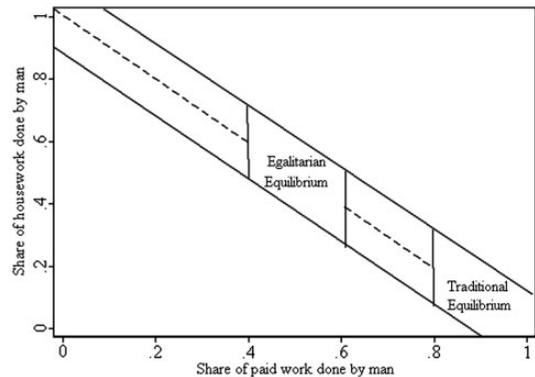
## Identification

As noted, equilibria are identified at the societal level but are, of course, the manifestation of how individuals, in the aggregate, make choices. To identify couple equilibria, we measure the degree of symmetry between the male's share of total unpaid and paid work in the couple. Paid work is defined as the daily time allocated to employment. Unpaid work represents the sum of time devoted to child care and housework. Excluding one of these two activities would produce wrong inferences if failure to contribute to one (e.g. housework) is due to a large input into the other (e.g. child care).

The measure of specialization ( $H_c$ ) is therefore the male's hours of unpaid work as a share of the couples' total sum of domestic work hours. We focus on deviations from perfect symmetry, i.e. whether values of  $H_c$  correspond symmetrically to the male's share of paid hours (conditioning on wages). We adjust for the time equivalence of external help. This symmetry criterion implies that 'optimal' specialization will fall on a diagonal slope of 45 degrees with regard to paid working hours. However, we need to allow for deviations, considering the realities of daily life (tending to a sick relative, arriving late because of traffic jams). Similarly to Nock (2001), we therefore allow for a  $\pm 0.10$  deviation from the 0.45 diagonal to identify equitable specialization.<sup>4</sup> Non-symmetrical households are, in this framework, located above or below this symmetry space. They exhibit, by definition, gender inequity. See Figure 1 for a graphical illustration.

We first identify three modal scenarios:

1. *Male under-performance*: the male's contribution to domestic work falls below the symmetry space.
2. *Male over-performance*: the male contributes more domestic work than expected, given his market work share.
3. *'Equitable' specialization*:  $H_c$  corresponds to the partners' relative paid work shares (they fall within the symmetry space).



**Figure 1** Graphical Representation of Family Equilibria and the Symmetry Space (between solid diagonal lines)

We subsequently identify our 'ideal-type' equilibria *via* the cross-distributions of regression predicted  $E(H_c)$  and predicted paid work shares  $E(P_c)$ , respectively (conditioning on wages). By definition, both the traditional and the egalitarian equilibrium must fall within the symmetry space, whereas the unstable equilibrium will fall either below or above it. We adopt the following criteria:

1. *The egalitarian equilibrium* refers to households where  $E(H_c)$  falls within the symmetry space *and* where  $E(P_c)$  falls between 0.40 and 0.60.
2. *The traditional equilibrium* refers to households where  $E(H_c)$  falls within the symmetry space *and* where  $E(P_c) > 0.80$ .
3. *Unstable equilibria* include all households that fall outside the symmetry space.<sup>5</sup>

The advantage of our symmetry approach lies in its simplicity, but it can be questioned if people's preferences for specific activities differ.<sup>6</sup> In our analyses, we add a test that captures the per cent of time that each spouse devotes to the most routine child care over the total caring time. This allows us to test how couple specialization varies within specific domestic activities and across our three equilibrium groups.

Our sample includes couples with and without children. It is likely that the presence of children, in particular small children, influences domestic work in general and specialization in particular. Our analyses, therefore, include a dummy for whether a small child (<6 years old) is present.

## Methodology

### Surveys and Sample

For lack of data, we cannot identify the dynamics of multiple equilibria over time. There exist a few

longitudinal studies, such as Gershuny *et al.* (2005), Evertsson and Neremo (2007), and Grunow *et al.* (2008), but they rely on rough time-use information, usually for one partner only—which is likely to introduce substantial bias (Shelton and John, 1996). An over-time comparison with cross-sectional data is also precluded because time diaries for both spouses are only available from very recent studies.

The British (2000), Danish (2001), and Spanish (2003) time-use surveys, included in the harmonized Multinational Time Use Study, furnish time-use diaries for both partners. We restrict the original samples to couples where both adults are between 25 and 60 years of age. We exclude those who report that the given day was ‘unusual’, those who reported no domestic work on the observed day, and cases with incomplete information. This leaves us with 878 couples for Britain, 847 for Denmark, and 2,713 for Spain.<sup>7</sup>

## Variables

Our unit of analysis is couples, both married and cohabitating.<sup>8</sup> To identify specialization, we need to consider both paid and unpaid work. This we measure as the husband’s share of total paid work, on one side, and of total child care and housework, on the other side. Because unpaid work is measured over 24 h, and because we must avoid overlaps between child care and housework, we only include unpaid work reported as the primary activity (e.g. we exclude child care if the main activity is doing the dishes). We exclude do-it-yourself activities (e.g. gardening) because they are often perceived as hobbies; we also exclude housework done for other households than one’s own.<sup>9</sup> We must also exclude shopping because it is impossible to differentiate between types of shopping in the Danish and Spanish data.

In our analyses of childcare, ‘non-routine’ activities include reading, playing, teaching, and talking with the child. Routine activities refer to supervision, physical care, feeding children, and the like. Our fairness measure

is based on the proportion of total child care that is non-routine.<sup>10</sup>

Our independent variables and controls are log wage for both partners, presence of any child aged less than 6 years (dummy), number of dependent children, outside help (dummy), a long workday (a dummy for whether respondent’s workday, including travel, exceeds 12 h), whether the person is ill on the given day (dummy), years of education of the male, age of both partners, and the difference in years of education between the partners. We also include social class membership, distinguishing between self-employed, unskilled manual, skilled manual, managerial occupations (defined as having subordinates), and a broad ‘white-collar employee’ group that includes all from professionals to clerks. In addition, we include a residual group (‘other’), which includes unreported and unclassifiable occupations. The unskilled will be used as reference category. We would have preferred to use the standard EGP-based seven-level social class scheme, but this could not be constructed from the Danish data.<sup>11</sup> In the interest of comparability, we therefore use the rougher Danish classification. Variable descriptives are presented in Table A1.

## Analytical Strategy and Statistical Techniques

We follow two basic analytical steps. In the first stage of equilibrium identification, we ignore possible effects of individual attributes (such as education and age) and group membership (such as social class). This stage is essentially descriptive. In Tables 1–4, we identify types of couple specialization. To identify equilibria, we use predicted men’s housework and paid work shares separately based on an OLS regression for each of the two variables as the dependent variable.<sup>12</sup> For Table 4, separate regressions were run for men and women, with the share of non-routine care as the dependent variable. The exclusion of censored cases means that OLS is the most efficient estimator. The independent variables

**Table 1** Men’s mean share of domestic work in couples (weekday diaries)

	Mean	Husband’s share of husband’s and wife’s housework			
		Zero	<10 per cent	<20 per cent	≥40 per cent
Denmark	41	8	16	27	43
Britain	32	12	20	33	35
Spain	18	32	49	65	14

Note: These percentages represent raw values.

Sources: Danish 2001 Time Use Survey (N=847); Spanish 2003 Time Use Survey (N=2,713); British 2000 Time Use Survey (N=878), ‘Multinational Time Use Study Database’.

included in these two regressions are one respondent being ill, long workday, partner differences in (log) hourly equivalent wage rates, hours of paid work, and total amount of housework done by the couple. We also included basic household characteristics: number of children, presence of young children, and outside help. This means that the housework and paid work shares are predicted for each couple based on that couple's values for the independent variables included in the regressions. Couples are defined as symmetrical when their regression

predicted housework share is within the range (1–his regression predicted paid work share) ±0.10. Our analyses are restricted to weekdays.<sup>13</sup>

In the second stage, we test our hypotheses (Tables 5, 6, and 7). Here we estimate regression models that also include age, years of education, the difference in education between the partners, and social class membership.

For hypothesis testing, firstly, we adopt seemingly unrelated regression (SUR) estimation that allows us to identify effects for paid and unpaid work simultaneously. The models test for the influence of individual and group attributes (as described above). We first test the hypothesis whether having small children will not be associated with any substantial gendered specialization effect within the egalitarian equilibrium. The key predictors are the presence of pre-school-aged children and an interaction term for the under-6 (under 5 in Britain) child variable and equilibrium status to see whether the 'young child' effect differs by equilibrium status. Here, of course, we cannot estimate with the partners' relative shares, so paid and unpaid work is measured as the male's total time input (in minutes), which are the dependent variables in this part of the analysis.

Secondly, we test the hypothesis that gender display is less likely where the egalitarian equilibrium is dominant. We test this with SUR models that explain the male's relative share of, respectively, paid and unpaid work. Here we focus on two key predictor variables. Firstly, as in Brines (1994), we examine couples where he is jobless and she works (a dummy variable).<sup>14</sup> Secondly, we look at the squared term of the husbands wage share.

To test the third hypothesis whether the dominance of any equilibrium should produce greater homogeneity of couple behaviour, we estimate two statistics. First, we calculate the coefficient of variance for equity in

**Table 2** Incidence of Equity (predicted values for weekdays)

	Symmetric couples	Over-shooters	Under-shooters
Denmark	82	0	18
Britain	51	12	38
Spain	48	3	48

Sources: see Table 1.

**Table 3** Predicted equilibrium distributions<sup>a</sup>

	Traditional equilibrium	Egalitarian equilibrium	Unstable equilibrium
Denmark	1	52	18
Britain	6	15	49
Spain	27	0	52

<sup>a</sup>The rows do not sum to 100 because there are couples that satisfy the efficiency criterion but do not belong to any of the defined equilibria.

Sources: Multinational Time Use Study Database (Table 1).

**Table 4** The incidence of fairness in the distribution of child care tasks

	All couples	Traditional equilibrium	Egalitarian equilibrium	Unstable equilibrium
Mother's share of non-routine care relative to her total care input				
Denmark	14	15	22	17
Britain	23	18	23	24
Spain	16	17	NA	14
Father's share of non-routine care relative to his total care input				
Denmark	14	14	11	14
Britain	33	40	29	42
Spain	47	55	NA	41

Note: These analyses are limited to families with children.

Sources: Multinational Time Use Study Database (see Table 1).

**Table 5** Seemingly unrelated regressions. Men's share of unpaid and paid work time by individual and household characteristics<sup>a</sup>

	Denmark			Britain			Spain		
	Unpaid work Coefficient	Paid work Coefficient	SE	Unpaid work Coefficient	Paid work Coefficient	SE	Unpaid work Coefficient	Paid work Coefficient	SE
Number of children	0.04	0.01***	0.01*	0.01	-0.01	0.01	-0.03	0.00***	0.01
Male's age	0.00	-0.01	0.00***	-0.01	-0.00	0.02	-0.00	0.00***	-0.00
Male's education	-0.00	0.01	0.00*	-0.00	0.00	0.03	0.00	0.00	-0.00
Partners' educational difference	0.01	-0.01	0.01	-0.00	-0.01	0.04	0.00	0.00	0.00
Wage share—squared	0.07	0.13	0.12	-0.28	0.09***	0.49	-0.71	0.05***	1.68
Pre-school child	0.07	0.02***	0.00	-0.02	0.02	0.06*	0.01	0.01	0.01
He: inactive/she: active	0.15	0.04***	0.03	0.20	0.04***	0.07***	c	c	c
Social class <sup>b</sup>									
Self-employed	-0.01	0.04	0.04	-0.07	0.03*	0.03	-0.03	0.01	0.02
Skilled manual worker	-0.02	0.04	0.03	0.10	0.10**	0.03	-0.01	0.01	0.01
White collar occupation	0.01	0.03	0.03	0.00	0.02	0.02	0.05	0.01***	-0.01
Managerial occupation	0.01	0.03	0.09	-0.02	0.02	0.03	-0.02	0.01	0.03
Other class	-0.14	0.10	0.07	-0.10	0.07	0.07	0.34	0.02***	-0.73
Constant	0.36	0.10***	0.46	0.31	0.08***	0.60	0.19	0.03***	0.91
R <sup>2</sup>	0.14		0.10	0.16	0.36		0.29		0.67
n	847			878			2713		
Correlation of residuals	-0.38			-0.37			-0.38		

<sup>a</sup>Control variables not shown: male's share of couple's wage rate, illness, long workdays, total volume of household domestic work, and outside help.

<sup>b</sup>The reference category for the class variables is the group of 'unskilled workers'.

<sup>c</sup>In Spain, there are very few cases in this category.

Tests of significance: \*P < 0.05, \*\*P < 0.01, \*\*\*P < 0.001.

Sources: Multinational Time Use Study Database.

**Table 6** Seemingly unrelated regressions. Impact of small children on man's minutes of domestic and paid work by equilibrium status<sup>a</sup>

	Denmark			Britain			Spain		
	Domestic work Coefficient	Paid work Coefficient	SE	Domestic work Coefficient	Paid work Coefficient	SE	Domestic work Coefficient	Paid work Coefficient	SE
Model 1. Unstable equilibrium									
Pre-school child	7.4	-8.1	11.8	3.8	13.7	13.7	-20.4	28.1	28.1
Unstable equilibrium	-70.6	31.5	17.3	-3.1	8.0	8.0	-45.5	16.4*	16.4*
Pre-school child × unstable	-4.6	5.5	18.8	-44.7	16.0**	16.0**	106.2	32.7***	32.7***
Constant	104.8	31.0***	309.2	-79.6	31.4*	31.4*	281.2	64.3***	64.3***
R <sup>2</sup>	0.36	0.25		0.70			0.54		
Correlation of residuals	-0.35	-0.35		-0.39			-0.39		
Model 2. Egalitarian equilibrium									
Pre-school child	2.4	4.6	15.6	-39.5	9.9***	9.9***	74.0	20.9***	20.9***
Egalitarian equilibrium	67.8	8.8***	-23.2	55.2	10.3***	10.3***	-0.2	21.9	21.9
Pre-school child × egalitarian	6.7	9.4	18.4	51.1	18.2**	18.2**	-112.0	38.6**	38.6**
Constant	34.9	29.9	334.2	-92.6	29.6**	29.6**	246.2	62.6***	62.6***
R <sup>2</sup>	0.36	0.25		0.71			0.54		
Correlation of residuals	-0.35	-0.35		-0.39			-0.39		
n	847	847		878	878		878	2,713	2,713

<sup>a</sup>Controls: wage share; wage share - squared; number of children; education; occupational class; illness; long work days; Total volume of household work; outside help. Tests of significance: \*P<0.05. \*\*P<0.01. \*\*\*P<0.001. Sources: Multinational Time Use Study Database.

**Table 7** Measures of homogeneity. Testing for the relative strength of normative signals

	Denmark	Britain	Spain
Coefficient of Variance for domestic work: equity	0.30	0.35	0.30
Per cent Increase of <i>R</i> -squared with individual and group attributes <sup>a</sup>	20 per cent	64 per cent	32 per cent

<sup>a</sup>Based on *R*-squared values for domestic work from the SUR regressions in Table 5.

Sources: Multinational Time Use Study Database (see Table 1).

domestic work (the difference in leisure time in minutes between the two parts of the couple) across the three countries. Second, we calculate the per cent change in *R*-square values between a baseline SUR model explaining men's volume of domestic work (with only household characteristics) and the full SUR model that includes also individual and group characteristics. Small *R*-square changes indicate the presence of stronger normative compliance; large changes suggest the opposite.

## Results

### Equilibria Distributions

We begin with a summary description (based on raw not predicted values) of men's share of domestic work. This gives us a first glimpse of how far our cases have moved away from traditional specialization (see Table 1).

Denmark comes close to gender parity because men, on average, do 41 per cent of all domestic work; more than half of all couples exhibit an essentially egalitarian division of labour.<sup>15</sup> In Spain, traditional specialization prevails: a third of all men report zero contribution, and the majority report less than 20 per cent. We should remember that roughly 40 per cent of our Spanish households are based exclusively on the male breadwinner. Britain occupies an intermediate position, albeit tilting towards a more egalitarian scenario. A rather different picture will emerge when re-examined *via* our multiple equilibrium approach.

Based now on predicted values, Table 2 shows that the symmetry space includes a substantially higher proportion of couples in Denmark than in either Britain or Spain. Here we find very few male over-performers and only a modest (18 per cent) number of male under-performers. This contrasts sharply with Britain and Spain, where male under-performance is widespread.

Moreover, yet, there is a substantial share of couples within the symmetry space also in Britain and Spain. To illustrate, 70 per cent of Spanish households that report zero male housework are located within the symmetry space, as they are pure male breadwinner couples. In

addition, traditional male breadwinner couples are more likely to be equitable than are dual earners in Britain (52 per cent compared with 25 per cent) and in Spain (31 per cent compared with 8 per cent). In Denmark, it is the other way around.

Examining instead raw (non-predicted) values, we find more over-performers and fewer couples within the symmetry space (not shown). In Britain, for example, the share of households in the symmetry space declines to 29 per cent, and the share of over-performers almost triples, but the under-performer group remains basically stable.<sup>16</sup>

Table 3 presents estimated distributions for our three equilibria models. The results bring out very contrasting specialization profiles. In Denmark, the egalitarian equilibrium dominates, the traditional equilibrium has essentially disappeared, and the unstable equilibrium is comparatively small. Britain has not spawned any strong egalitarian equilibrium, although traditional couples represent only 6 per cent of all. In other words, Britain is dominated by the unstable equilibrium. Spain has yet to see the emergence of an egalitarian equilibrium. Here the traditional equilibrium (27 per cent of couples) remains large, albeit hardly over-dominant. In Spain, too, we find a large unstable equilibrium.<sup>17</sup>

### Fairness Test for Unpaid Work

To further explore equity, we calculate the spouses' relative contribution to routine and non-routine child care (Table 4). Here, of course, we examine only households with children (aged less than 16 years). Routine child care absorbs between two-thirds and four-fifths of total caring time—especially when children are very young. The gender bias is strong in Britain and Spain, where mothers' care is biased towards the routine activities and men's is more 'fun' biased (Craig, 2006b). In Britain, fathers' share of non-routine care is 10 percentage points greater than for mothers, and in Spain, it is 31 percentage points greater. In Denmark, however, we find no gendered bias whatsoever.

The gender bias is evident in both the traditional and unstable equilibrium. In both cases, British fathers' share

of 'fun' caring is roughly 20 percentage points greater than for the mother, but the bias is reduced to a 6-percentage-point male advantage in the British egalitarian equilibrium. In Spain, the bias is slightly smaller in the unstable equilibrium (recall that Spain has no egalitarian equilibrium whatsoever). In Denmark, we see that fairness prevails across all three equilibria. Indeed, in the Danish egalitarian equilibrium, routine care seems to be biased towards the fathers (by an 11-percentage-point margin). This suggests that the consolidation of an egalitarian equilibrium produces greater gender equity throughout society in terms of how different caring tasks are allocated.

### Testing Three Hypotheses

Table 5 reports the results for the SUR models. One notes the lack of any strong individual and class effects throughout. We see that older men are not more traditional, nor are the young more egalitarian. Similarly, education has no real effect. We tested whether this may be due to co-linearity between education and class, but the education effects remain negligible also in models that exclude class. In any case, the class effects, too, are small—the one exception being the Spanish white-collar class as well as the 'other' group (which in Spain is mainly composed of non-employed men). The surprisingly weak influence of the education and class variables can, in part, be ascribed to our modelling procedure, as both are very much captured by our wage variable.

In address to our first hypothesis, the results in Table 5 suggest that having small children *per se* does not generally influence men's contribution to either paid or unpaid work. Britain is the sole case where men significantly augment their relative labour supply, but this is not associated with any meaningful decline in their share of domestic work. In Denmark, men have evidently broken with tradition considering that having small children increases their domestic work share substantially.

When we examine interaction effects (Table 6), there are clear orthogonally opposite effects depending on equilibrium membership. In Britain, fathers (with small children) in the egalitarian equilibrium increase their domestic input by 12 min (relative to non-fathers in the same equilibrium), while sharply reducing paid hours.

For the unstable equilibrium, we find exactly the opposite logic. Compared with those without small children in the same equilibrium, British fathers reduce their domestic input by 41 min and augment paid work by 86 min. This suggests that British unstable equilibrium fathers behave according to conventional 'male breadwinner' principles. Put differently, it would seem

that the normative pull of the egalitarian alternative remains weak. In Denmark, the interaction effects are small and non-significant; in other words, Danish fathers in the unstable equilibrium appear, compared with the British, less traditional. In Spain, we recall, there exists no egalitarian equilibrium. In the equation without the interaction term, we find that Spanish men in the unstable equilibrium contribute significantly more to unpaid work than those in the traditional one.

The 'doing gender' test yields mixed results (Table 5). Our first key variable, males' share of earnings squared, produces clear support for the thesis in both Britain and Spain: strong and highly significant negative coefficients for domestic work (and the contrary for paid work). Hence, the male's contribution to domestic tasks is substantially lower among both economically dominant and dependent men. However, in Denmark, the effect is positive (but statistically insignificant). This is precisely what we expected. Where the egalitarian equilibrium dominates, gender role display should disappear. However, our second key variable (she is employed, he is not) does not produce the expected results. In such couples, both in Britain and Denmark, men's contribution to domestic tasks actually increases, both substantially and significantly. This is consistent with Sullivan's (2011) argument that gender display is becoming marginal.<sup>18</sup>

To test the third hypothesis, Table 7 presents the two 'homogeneity' tests. Our results support the expectation that the presence of a dominant equilibrium should produce more homogeneity of couple behaviour. One notes that the coefficient of variance for equity is systematically greater in Britain than in either Denmark or Spain. This is what we should have expected because the latter two countries also boast a dominant equilibrium.<sup>19</sup>

Our second test is to compare the  $R^2$  values between the baseline and full model. This test further supports our hypothesis. We note that the individual and group characteristics increase the variance explained by a full 64 per cent in Britain, compared with 32 per cent in Spain and only 20 per cent in Denmark. Pulling it all together, our multiple equilibrium approach does appear to generate strong predictive powers.

## Conclusions

In this article, we offer only a very partial exploration of family life from a multiple equilibrium perspective. We cannot trace the dynamics of change, nor can we identify the influence of norms in any direct way. Still, we believe that the approach offers new sociological insight into contemporary family life. First and foremost, it questions the validity of examining gender relations along a

continuum of more or less equality. We see that couples follow qualitatively different behavioural logics, some adhering to traditionalism, others to gender egalitarianism. Additionally, it seems clear that inequitable arrangements are particularly likely to occur in our unstable equilibria.

Our empirical strategy combined two steps. In the first, we explored how couples cluster with regard to specialization patterns. We simplify by excluding ‘atypical’ combinations (such as wives working non-standard hours) from our analyses. Indeed, particularly the case of Britain, with a high proportion of couples where the husband works full-time and the wife part-time, needs further examination.

Nevertheless, our comparisons show very different realities in couple specialization, and the three countries’ equilibrium mix corresponds closely to their position in the ongoing revolution of women’s roles. In ‘vanguard’ Denmark, the egalitarian equilibrium appears dominant on all counts, while the traditional equilibrium remains important in Spain. Moreover, in Britain and Spain, male under-performance is widespread and the unstable equilibrium is very large. We find that, overall, there is substantially more fairness in Denmark than elsewhere in terms of the gendered allocation of routine and non-routine child care. Also, in line with our predictions, equity seems far more pronounced in the egalitarian equilibrium in both Britain and Denmark. In our examination of the influence of having small children, we found virtually the same pattern.

The second step was to test the predictive powers of our approach. One surprising finding is that, overall, the presence of small children is not associated with more traditionalism. This contradicts a common finding in the literature (Bianchi *et al.*, 2004; Grunow *et al.*, 2008; Craig and Mullan, 2010). Here is one instance that indicates that a non-linear approach may have merit. We found also that fatherhood induces Spanish men to reduce household work and increase paid work, whereas we find the opposite effect in Denmark. When conditioning on equilibrium status, we found that couple arrangements in the unstable equilibrium, at least in Britain and Spain, appear closer to traditional specialization patterns. In Denmark, however, this does not seem to be the case.

Our ‘doing gender’ tests support our hypotheses additionally. In line with recent scholarship, we also find little support for the ‘gender display’ thesis in terms of one of the key variables (the male: inactive, the female: active). However, the results for the other variable (wage shares—squared) are consistent with expectations. In both Britain and Spain, we find that males who are economically more dependent *or* dominant contribute significantly less to domestic tasks than

one would expect. Moreover, once again, Denmark displays exactly the opposite pattern. This suggests that doing-gender practices are likely to wither once an egalitarian equilibrium becomes dominant.

Finally, the evidence supports our expectation that a dominance of the unstable equilibrium is associated with greater heterogeneity of behaviour, while strong equilibria produce more uniformity. Most interestingly, we find that the dominance of an egalitarian equilibrium in Denmark goes hand in hand with a significant degree of behavioural homogeneity in the division of work. This constitutes perhaps the single most persuasive evidence in favour of our core hypothesis, namely, that the ‘post-modernist’ assumption of ever-stronger individualization is questionable—at least with regard to couple specialization. Rather, our results suggest that shared norms are likely to gain ground as a gender egalitarian regime manages to consolidate.

One question that we must leave to future research has to do with the dynamics of equilibrium shifts. Are couples more likely to embrace greater gender symmetry because of equity tensions or in the interest of more efficient outcomes?

A second question for future research has to do with the conditions that will accelerate the shift towards a new equilibrium. Our findings suggest that this depends crucially on the unstable equilibrium. As we saw, in Britain, those in the unstable equilibrium seem primarily to be pulled towards traditional gender roles, while that is not the case in Denmark. To get closer to such dynamics, the ‘critical mass’ thesis that Breen and Cooke (2005) propose might offer an excellent point of departure. Additionally, it would also be interesting to re-examine the welfare state effect: are gender egalitarian policies primarily a cause or a consequence of altered gender relations?

## Notes

- 1 Regression estimation for 26 countries suggests that moving from a female employment rate of 40–50 (like Italy or Spain) to Nordic levels ( $\geq 75$  per cent) produces an increase in men’s domestic input of 50 min per day, and a steeper 100-min decline for women (Miranda, 2011).
- 2 Azariadis (2008) stresses the indeterminacy of expectations in multiple equilibria.
- 3 Alternatively, as Sevilla-Sanz (2010) suggests, women may *a priori* decide against marriage if they conclude that gender egalitarianism is unrealistic to expect, given the kind of marriage market available to them.

- 4 There are advantages and disadvantages of allowing for such ample deviation. The advantage, of course, is that we allow for a more faithful representation of the real lives of people. The disadvantage is that, in the extreme case (40:60), we conclude in favour of equity even when one partner contributes 20 percentage points more than the other. The number of such cases is, however, very small.
- 5 The unstable equilibrium equals the sum of under- and over-performers. For future research, it would be interesting to explore more in detail variations within this population.
- 6 Some activities (e.g. cooking) are more desirable than others (e.g. doing the laundry). A few studies have focused specifically on desirability (Juster, 1985; Hallberg and Klevmar, 2003). We cannot assess preferences because we have insufficient information on activity enjoyment. However, we know from previous studies that men's contribution to domestic work tends to concentrate in the more non-routine tasks (Gershuny *et al.*, 2005; Bianchi *et al.*, 2006; Craig, 2006a; Hook, 2010; Miranda, 2011). For women, the opposite is true.
- 7 We tested whether the exclusion of cases with inadequate information introduces bias. We find that non-responders are significantly different in terms of hours of paid and unpaid work. However, the magnitudes are small (3–4 per cent of the population). There is always the possible risk of social desirability bias in peoples' responses. The reason we opt for time-diary data (with 10-min time intervals) is that they are explicitly designed to minimize such bias.
- 8 We tested whether cohabitation versus marriage makes a difference but found no significant effects with regard to specialization.
- 9 Our results remain the same also when including do-it-yourself activities.
- 10 Most studies that examine housework from an equity perspective focus on partners' perceptions of fairness and on couple conflict (Thompson, 1991; Baxter, 2000; Coltrane, 2000; Ruppner, 2010).
- 11 For details, see Erikson and Goldthorpe (1992).
- 12 This means, of course, that we reduce the effect of extreme values. However, because it is vital to control for a large number of variables that can influence behaviour, regression-prediction is preferred. We shall nevertheless compare the predicted with the raw distributions. We do not use sample means for all the independent variables, which would simply yield one statistic, namely, the predicted behaviour of the average couple in any given country. The regressions used to predict values are available on request from the authors.
- 13 We decided to ignore weekends for two reasons: firstly, the Spanish data do not permit us to examine the same couples for both weekdays and weekends. Secondly, our analyses of weekend patterns for Denmark and Britain produce results that are quite consistent with those found for weekdays.
- 14 This effect cannot be identified for Spain because the data include no couples with an inactive male and active female.
- 15 In 30 per cent of Danish households, the male actually contributes in excess of 50 per cent (in Britain, 19 per cent, and in Spain, 7 per cent). These men, however, need not be hyper-egalitarian. In many cases, it turns out that the wife is ill, handicapped, or otherwise unable to contribute.
- 16 The effects for Spain are virtually identical. The differences between predicted and raw values reflect primarily that a sizable share of conventional male breadwinners contribute more to child care than predicted.
- 17 Based on raw values, one does find a small (8 per cent) egalitarian equilibrium in Spain.
- 18 This effect cannot be estimated for Spain owing to the lack of any such cases in the data.
- 19 One reviewer suggested that these results are basically driven by Britain's greater ethnic heterogeneity. We doubt this. Britain's immigrant population share (9 per cent) is not much larger than Denmark's (7 per cent) and is inferior to Spain's (11 per cent) (UN, 2006).

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## Appendix

**Table A1** Descriptive statistics for main variables used in the analysis

Variables	Denmark		Spain		United Kingdom	
	Mean	SD	Mean	SD	Mean	SD
Age of woman	40.9	9.8	39.3	7.63	40.3	9.21
Age of man	43.2	10.0	41.7	7.81	42.5	9.36
Education in years of woman	12.3	2.7	9.6	4.80	11.7	2.58
Education in years of man	12.3	2.7	9.5	4.72	11.9	2.67
Number of children	1.1	1.1	1.4	0.90	1.1	1.13
Dummy: pre-school child present?	0.2	0.38	0.4	0.49	0.2	0.42
Dummy: outside help in the household	0.4	0.48	0.2	0.43	0.1	0.29
Men's domestic work share	0.4	0.19	0.2	0.21	0.3	0.26
Men's logged hourly wage	5.1	1.2	6.7	0.49	2.8	1.37
Women's logged hourly wage	4.9	1.1	3.8	1.00	2.2	1.50
Men's paid work share	0.6	0.26	0.8	0.24	0.6	0.28
Dummy: was one in the couple ill/disabled?	0.1	0.34	0.2	0.39	0.2	0.40
Dummy: was the woman ill/disabled?	NA	NA	0.1	0.31	0.1	0.32
Dummy: was the man ill/disabled?	NA	NA	0.1	0.31	0.1	0.31
Dummy: did one work more than 12 h?	0.02	0.13	0.1	0.24	0.1	0.34
Dummy: did the man work more than 12 h?	0.02	0.12	0.1	0.23	0.1	0.32
Dummy: did the woman work more than 12 hrs?	0.01	0.05	0.01	0.08	0.02	0.14
Dummy: 1 h or more of leisure difference?	0.70	0.46	0.8	0.41	0.7	0.44

Sources: Danish Time Use Survey, 2001; Spanish Time Use Survey, 2003; British Time Use Survey 2000 (Multinational Time Use Study Database).