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An Analysis of Individual Leisure Time in Couple
Households**

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ABSTRACT

Institutions, Social Norms, and Bargaining Power: An Analysis of Individual Leisure Time in Couple Households^{*}

We exploit time use data from Denmark and the United States to examine the impact institutions and social norms have on individuals' bargaining power within a household, hypothesizing that the more generous social welfare system and more egalitarian social norms in Denmark will mitigate the impact standard economic power measures have upon couples' time use. Further we posit that leisure time will be more sensitive to power considerations than housework time which may be more influenced by preferences regarding household public goods, to gendered notions of time use, and to censoring. Our results are generally supportive of these hypotheses, with leisure time on non-work days in the US being particularly responsive to economic power. In addition, we find some evidence that institutions matter as women in the US who are more likely to receive welfare benefits enjoy more leisure time than would be suggested by their economic power alone.

JEL Classification: J22

Keywords: time use, power, leisure, institutions, norms

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Institutions, Social Norms, and Bargaining Power:
An Analysis of Individual Leisure Time in Couple Households

Couples allocate their time with reference to a complex function of household needs and individual abilities, preferences, and bargaining power. We examine the impact different institutions, in particular different social welfare systems, and different social norms have on individual's bargaining power within a household, hypothesizing that more generous social welfare systems and more egalitarian social norms will tend to mitigate the impact standard power measures have upon couples' time use decisions. Further we posit that leisure time is likely more sensitive to power considerations than housework time which may be more subject to gendered notions of time use as well as to preferences regarding household public goods. We empirically investigate this hypothesis using US and Danish time diary data to estimate OLS models of leisure time. These models include a readily available measure of bargaining power based upon education in addition to standard controls for such factors as age, household composition, and marital status. The US social welfare system is generally less supportive than that observed in Denmark, which follows the more egalitarian Scandinavian model, thus we expect relative bargaining power to have a greater impact on individuals' leisure time in the United States than in Denmark.

LITERATURE REVIEW

As the study of the allocation of resources, economics has a lot to say about individuals' allocations of time and money. Modeling household allocation decisions is substantially more complicated. One class of models posits that when individuals unite to

form multiperson households each individual essentially gives up his/her utility function in exchange for a new household utility function. This is the theoretical approach pursued by Becker (1991). Individual income constraints are then replaced by household income constraints. Earnings are pooled to buy goods for household consumption and wage changes have not only the usual own income and substitution effects but also income and cross-substitution effects upon one's partner's time use. Empirical work such as Solberg and Wong (1992) has employed this framework, but often rejects the theoretical predictions that expenditures are not dependent upon who in the household receives the income (that income is pooled) and that compensated cross-wage effects are symmetric (see Lundberg and Pollak 1996 for a review of the literature and an empirical critique).

Apps and Rees (2007) expand upon Becker's model by introducing individual wages and nonlabor income as arguments in the household utility model. This generalized household welfare function allows each individual's contributions to the household to have a differential impact on outcomes, thus bringing the model's predictions more in line with empirical findings.

Alternative approaches to modeling household decisions assert that individuals maintain their individual utility functions (likely modified to incorporate the utility of other persons) and bargain either cooperatively or non-cooperatively to determine outcomes. Some early articles include McElroy and Horney (1981) and Manser and Brown (1980). More recent work in this vein includes Lundberg and Pollak (1994, 1996).

Another branch of the literature has focused upon collective models of household decision making (Chiappori 1992). These models recognize that individuals have distinct utility functions (U_1 and U_2) but suggest that individuals cooperate when coming together to

form a joint household by adopting a sharing rule (θ) that determines the relative weight each individual's preferences will receive in the joint household. Thus, the household's utility function is a weighted sum of the utility functions of the individuals in the household:

$$(1) \quad U_H = \theta U_1 + (1-\theta) U_2$$

The sharing rule has many possible components. It may be based upon individual beliefs, social norms, or the relative power of each household member. Economists have tended to place greater emphasis on power, while sociologists have been more open to recognizing individual beliefs and social norms. There is, however, much overlap.

Economic 'power' can be captured along several dimensions. Relative earnings ability may be important because individuals with higher earnings potential have the capability of bringing more resources to the household. This ability may give them the power to allocate a greater share of household resources. Similarly, from the bargaining literature, individuals with greater earnings potential may have more power because they are likely to have a higher utility operating as independent units. Such individuals may need additional incentives (such as a higher θ) to induce them to enter into and remain in a joint household. Sociologists similarly view the unequal division of power within the household as reflecting the 'dependency' of women on their husbands (Sørensen and McLanahan 1987, Bittman et al 2003).

Several approaches to the empirical measurement of such power have developed. A number of studies compare annual earnings (for example Geist 2005, Fuwa 2004, Bittman et al 2003) typically with controls for time employed by both partners. Others use wages (for example Chiappori, Fortin, LaCroix 2002; Van Der Lippe and Siegers 1994). Pollak (2005)

makes a strong argument that wages rather than actual earnings should be used because hours worked during marriage are likely to differ from hours worked at the threat point.

All of these approaches, however, require that wage or income information be available for both partners. This requirement effectively restricts the sample to dual earner couples or to those who both contributed to earnings within the last year, often excluding large numbers of more traditionally focused households (Couprie 2007; Geist 2005; Solberg and Wong 1992; van Klaveren, van Praag, and van den Brink 2008). Such restrictions may introduce a sample selection bias. While there has been little effort to address this problem, one approach has been to work with potential rather than actual earnings (for example, Kan 2008).

Conditions in the marriage market may also influence power and hence θ . Chiappori, Fortin, and LaCroix (2002) discuss marriage market conditions and divorce law considerations as “distributional factors” that influence bargaining power but not preferences or the budget constraint. The ratio of men to women in a market may be important because if there are many men for every woman, then women will likely have more bargaining power because they are relatively scarce. Grossbard and Amuedo-Dorantes (2007) demonstrate the importance of sex ratios as a determinant of women’s labor force participation rates in the US. Likewise the ease with which relationships can be ended and the rules employed to divide up household resources in the event of a breakup may influence θ . For this reason, married partners and cohabiting partners may allocate time in different ways. It is certainly more ‘expensive’ to formally end a marriage than to end a cohabitation, particularly in the United States where cohabitation is only marginally recognized by law. If these costs fall disproportionately on the higher earner in the household, then his/her bargaining power may

be reduced, thus influencing time allocation. Both Batalova and Cohen (2002) in cross-section analysis and Gupta (1999) in panel analysis find different patterns of time use for married and cohabiting couples.

Other government-regulated conditions may have a similar effect. For example, just as divorce laws may favor one party over the other, welfare regulations may favor one parent over the other or be more generous in one jurisdiction than in another. While no specific controls for generosity of welfare have been incorporated in time allocation models, controls for the type of welfare state have been found to alter the gender distribution of housework tasks. Both Fuwa (2004) and Geist (2005) find that women perform a greater share of housework in countries with a conservative welfare state as compared to a liberal or socio-democratic regime. Fuwa but not Geist found significantly more gendered housework in liberal versus socio-democratic regimes as well.

Individual ideology and social norms also influence time allocation decisions. Such are regularly considered in the sociology literature (see for example Brines 1993) but could also be introduced in a rational decision making model if there are costs associated with diverging from social norms and utility associated with behaving according to individual beliefs (as discussed briefly in Bittman et al 2003). Empirical work introducing gender ideology at the individual level includes Greenstein (2000), Parkman (2004), and Kan (2008). Others using cross-country data introduce this measure at both the individual and the national level in order to distinguish between social and individual norms (Batalova and Cohen 2002, Fuwa 2004). Of course, individual ideology is often shaped by social norms and social norms often shape government policy. Thus, it may be difficult to disentangle the separate effects of norms and government policy.

Our study expands upon the literature in several ways. First, we use data on the US and Denmark to examine cross-country differences in intrahousehold time allocation. Comparing the US and Denmark is meaningful in this context. Both are very flexible market economies which have achieved the same levels of economic growth and prosperity. Yet substantial differences exist in terms of culture and institutions. Scandinavia in general is noted for having a more egalitarian culture than the US (Fuwa 2004). In a more egalitarian culture, power may be distributed more evenly than in a less egalitarian culture, suggesting that power may not be as significant a determinant of time use in Denmark as in the US. In addition, the US is clearly a country with a 'liberal' welfare system that places the emphasis upon equal opportunities at the individual level whereas Denmark is a country with a 'socio-democratic' welfare system that places a greater emphasis on egalitarianism not just for opportunities but also for outcomes. These differences are reflected in actual economic outcomes. The Gini index measure of income inequality for the US is 40.8, whereas in Denmark it is only 24.7 (Human Development Report 2005). Comparisons of the welfare systems in place in the US and Denmark (see Polakow 1997) further document the substantially better safety net provided in the Danish as opposed to American system. Individuals with little economic power in a relationship may in a country such as Denmark with a more supportive social welfare system have a higher threat point in negotiating with their partner over the allocation of time and goods. Thus, the less fortunate may not suffer both in the labor market and the home. Finally, the estimated impact of divorce on each partner's income is quite different between the US and Denmark. Numerous studies in the US have found that income falls following a divorce for the female partner. Bianchi, Subaiya, and Kahn (1999) estimate that mothers have a needs adjusted income of only 56% that of

their former husbands following divorce, somewhat less if they were working full-time before the breakup. By contrast, a Norwegian study (Bratberg and Tjøtta 2008) indicates that with the child support system in place there, divorce has an almost income-neutral effect. Denmark's system is much more similar to that in place in Norway than to the US system, suggesting again that Danish individuals with less economic power may have more negotiating power than US individuals with less economic power.¹

Second, we use information on relative education rather than relative earnings or relative wages to reflect individuals' 'power' within the household. Education level is, along with work experience, clearly a major determinant of earnings so these measures are likely highly correlated. Unlike work experience, however, individuals typically invest in education when they are young. Thus, relative education levels are likely known or foreseen clearly at the time of union and so more likely to have a greater influence on power early in a relationship before specialization occurs and tasks are divided. While tasks may be reallocated over time (and there is evidence this does happen with the arrival of children in a household - see Lundberg and Rose (1999)), it is unlikely that they are reallocated as often as work experience and wages change. Thus, education is likely a more reliable measure of relative earnings power. Of course another advantage associated with relative education versus relative earnings is that it is observed for every individual and not subject to selection bias. We are not the first to use this yardstick for power. Evertsson and Neramo (2004) control for relative education, as well as relative earnings and relative occupation, in their analysis of time use.

Third, the vast majority of the literature on intrahousehold time allocation and power is focused on an analysis of housework time. However, as has been emphasized repeatedly by

sociologists, housework may be a ‘gendered’ activity. It is ‘expected’ in many cultures that women perform certain types of housework (like laundry and cooking) while men perform others (like home repair). There is a rapidly growing literature now (Bittman et al (2003) was one of the first, Evertsson and Nermo (2004) is a more recent example) that provides evidence that individuals ‘do gender’. We avoid this complication by focusing more on leisure time, estimating housework time equations only for comparison. Leisure is not a gender-specific activity.

TIME USE

The type of time use data employed in this empirical literature on intrahousehold allocation varies considerably. Some use questionnaire data intended to identify only the individual primarily responsible for the activity (see for example Fuwa 2004), some have questionnaire-based information on usual time spent per week (see for example Evertsson and Nermo 2004), and some use time diary reports (for example Bittman et al 2003). There are advantages and disadvantages to each type.

Though time diary data are generally held to be more accurate than questionnaire data on time use (Robinson 1985), time diary reports suffer because they provide a ‘thin’ sample. Typical time diary surveys provide information on only one 24 hour period. That period may be unrepresentative of ‘usual’ time use for any of a number of reasons – sickness, vacation... . Further, diary-based time use reports are likely sensitive to the day of the week and the time of year, not to mention possibly also the weather on the diary day. The housework data usually examined are particularly susceptible to ‘thinness’ because many housework chores need not be performed daily nor are the different chores readily substitutable (doing laundry

does not substitute for preparing dinner). So a single 24 hour period will not be truly representative of time spent during a week. Furthermore, in many studies there is a not insignificant chance that men in particular will report no time spent on housework.² Thus, corner solutions become a problem that can introduce selectivity and bias results.

Time spent on one activity also constrains the time available for other activities. Market time is clearly endogenous but the timing of market activity is not solely at the discretion of the individual or household. Market time is also subject to demand side constraints. However, when more time is spent in the market, there is less time available for any other activity. To control for market hours, some studies of intrahousehold time allocation focus exclusively on dual earner couples. Others control for own and partner's employment status and/or work hours. Using time use data can complicate this analysis as the diary day may or may not be a work day for either partner.

We address these concerns by using time use data for their accuracy, by removing at least the most obvious cases of unrepresentative days, by focusing on leisure time rather than housework time, and by running sensitivity tests by employment status. As will be shown shortly, very few respondents report no time in leisure, thus reducing the problems inherent in limited dependent variables analysis. By distinguishing between work and non-work days as well as examining samples of dual earner versus single earner couples, we can test to see if there are substantial differences in the timing of leisure for individuals with more power and with more market responsibilities.

MODEL

Following the collective utility approach, we model household utility as a weighted average of the utility of the two partners in the household (denoted by the subscripts M for male and F for female). Individual utility is modeled as a function of individual consumption levels (c), individual leisure (L), and the level of the household public good that is produced. This household good is produced by combining labor inputs from each partner (H) according to a production function P .

$$(2) \quad U_{HH} = \theta U_F(c_F, P(H_F, H_M), L_F) + (1-\theta) U_M(c_M, P(H_F, H_M), L_M)$$

The weights (θ) are a function of the earnings ability of each partner (w) and other distributional factors (S). As in Chiappori, Fortin, and Lacroix (1998), these distributional factors influence the weights but do not themselves influence utility.

$$(3) \quad \theta = \theta(w_F, w_M, S)$$

Households act to maximize their utility subject to income and time constraints.

$$\text{Income Constraint:} \quad c_F + c_M + w_F H_F + w_M H_M + w_F L_F + w_M L_M \leq Y + Tw_F + Tw_M$$

$$\text{Time Constraint:} \quad H_a + L_a + E_a = T \quad \text{where } a = M \text{ for men and } F \text{ for women}$$

where goods' prices are normalized to one, T is the total amount of time available, and E is the time employed in the market.

A higher θ means that the preferences of the woman receive greater weight when resources are allocated within the household. Our focus in this analysis is upon the role of cross-country differences in social norms and welfare systems acting as a distributional factor (S) influencing θ . Specifically we focus on comparing how partners in couple households allocate their time in American as compared to Danish households. In general there is evidence that the factors driving time use are quite similar across countries (Geist 2005). Our

hypothesis is that power considerations will be of less importance in Denmark as compared to the US, in part because the Danish system has a more egalitarian focus and in part because the Danish welfare system provides a much better safety net than the American system. If the safety net is a concern, then this association is also likely to differ across households within a country. For example, welfare is a safety net primarily for those with low earnings potential, thus, relative earnings power may be less highly associated with time use for lower income households than for higher income households. In the US, welfare is primarily a safety net for households with children and so the impact of the welfare system may be felt more strongly in the US in households with children. Even so, the benefits accruing to households with children are greater in Denmark than in the US (Bradshaw and Finch 2002) so Danes with children may also respond less to power considerations than Danes without children.

In the case of a higher θ , c_F and L_F should both increase or at least should jointly act to increase utility as both consumption and leisure enter directly into the household utility function. Although there are numerous studies looking at the impact bargaining power has upon time spent on and share of household chores, the theoretical impact of an increase in θ on H_F is not clear (Pollak 2005). If the woman cares more for the household good than the man, total household production should increase with θ . To do so, at least one of the inputs, H_F or H_M , must increase. However, if the man cares more for the household good, then total household production may decrease with θ . Thus, despite the focus of most of the literature on housework time, the effect of θ on the time spent on household chores is not clearly predicted by the theory unless housework time is fixed and not enjoyable so that the only issue to be negotiated is who will do the work. In general, we believe an analysis of leisure

time will provide clearer feedback on the role of power in intrahousehold decision making than an analysis of housework time.³

Given the substantially different time constraints observed between work days and non-work days and between men and women in terms of time use, we model time use separately by gender and day of week, and of course by country. Following Burda, Hamermesh, and Weil (2007), we distinguish between time spent in activities that are necessary for life (henceforth designated tertiary activities) such as sleep and eating, and time spent in more discretionary leisure activities (henceforth designated leisure) like reading, watching TV, socializing, and volunteering. We expect that such discretionary leisure time is likely to be more responsive to power considerations than the more typical measure of ‘all time not spent in the market or on housework’ and therefore base our empirical analysis on this definition of leisure. We also look at a similar specification for housework time. Our chief hypotheses are: (1) power will be more consistently positively associated with leisure time than it is negatively associated with housework time and (2) power will have a larger effect in the US than in Denmark. Further analysis is conducted to determine how each partner’s employment status, welfare eligibility, and individual and social norms affect the results.

DATA

We use data from the 2001 Danish Time Use Survey (DTUS) and the 2003-2006 waves of the American Time Use Survey (ATUS) to investigate these hypotheses. The Danish sample consists of a representative sample of the entire Danish adult population (16-74 years) drawn from the administrative registers at Statistics Denmark. The American

sample derives from the Current Population Survey. We restrict our analysis to heterosexual couples, between the ages of 20 and 60 inclusive, who live in households that do not include children other than their own. The age restriction is imposed in order to remove the majority of individuals in retirement or still actively pursuing their studies as these activities (particularly educational activities which are classified as tertiary) are not well modeled in our analysis. The restriction on household composition is imposed because it is not clear who is chiefly responsible for non-own children. A small number of individuals missing information on key demographic variables (age, education, gender) are excluded. These restrictions yield samples of 1,143 households in Denmark and 23,877 households in the US.

Both surveys asked respondents to complete time diaries in which they identify in their own words what they were doing over the course of a 24 hour period. One household member was chosen at random to complete a single diary in the US with half the diaries completed for a weekend and half for a weekday day. In Denmark each partner was asked to complete two diaries, one for a weekday and one for a weekend day. These diaries were completed orally using a fully flexible time frame in the case of the US survey, while the Danish respondents were asked to provide a written record of their activities in ten minute intervals. In both cases we restrict our analysis to those diaries missing no more than one hour's worth of activity and including at least five distinct activity spells. Incomplete diaries and diaries with few activity reports are believed to be of low quality (Juster 1985). Our goal here is to obtain 'good' data on time use and, in fact, fewer than five percent of all the diaries fail to meet these conditions.

In an effort to limit the analysis to reasonably 'normal' days, we have also excluded diaries indicating more than four hours of 'sickness' or over twenty hours of sickness or

sleep-related activities. This restriction is binding for less than one percent of the sample. Rather than rely on the weekend/weekday designation to distinguish between work days and non-work days, we define work days as days on which an individual spends no more than two hours on employment and non-work days as days on which an individual spends over two hours on employment.⁴ Our concern is that there is a substantial amount of employment in the US on weekends and failure to control for this could muddle the analysis. We have also excluded those persons who are classified as not employed yet report more than two hours of employment and households that report neither partner is employed. Disagreements between the questionnaire and the diary are possible in the US because of the classification of income generating activities as employment, but are not reasonable for Denmark. The end result is a sample of 21,979 diaries from the US and 3,780 diaries from Denmark.

The focus of our analysis is leisure time. By our measure, leisure time includes time engaged in socializing, entertaining or being entertained, playing sports, hobbies and games, and volunteer activities as well as time spent on pet care. For comparison purposes, we also conduct an analysis of housework time. Housework includes time spent preparing food; cleaning house, yard, and clothes; doing projects around the home; shopping; and arranging such services.⁵

Sample means of both leisure time and housework time are presented by country, gender, and type of day at the top of Table 1. Comparisons indicate that on average Danes enjoy more leisure time than Americans while they perform more housework on work days and less on nonwork days than Americans. The housework differential is likely in part due to the fact that Danes report less time on the job on work days than Americans and so have more time available for other tasks. The second set of rows in Table 1 provides information on the

relative frequency with which individuals report no time on leisure or housework. Between 0% and 5% report no time on leisure. This is more likely to occur on work days than on non-work days. However, the fraction reporting no time on housework ranges from 2% to 32%, again with higher fractions reporting no such activity on work days when they are more constrained for time. This finding confirms our supposition that an analysis of leisure time will be less subject to bias from corner solutions than an analysis of housework time.

In our analysis of intrahousehold time allocations, a key explanatory variable is relative power (θ) within the household. We report results based on own share of couple's education ($\text{Own}/(\text{Own} + \text{Partner's})$ years of education). Share-based measures are more common in the literature, in part because they correspond more closely to the notion of θ being bounded between zero and one.⁶ Results using a simple difference in education measure were very similar and are reported as one of our sensitivity tests.

The set of control variables used in this analysis includes demographic, household, seasonal, and locality-based measures. The marital status of the couple, the education of the respondent, and a quadratic in his/her age are included for both samples. We further incorporate dummy variables to identify African American, Asian, and Hispanic respondents in the United States and immigrants in Denmark. As household size is likely to influence time use, we control in both countries for the number of other adults present and for the number of children of various ages. Those aged 15-17, aged 10-14, and aged 0-2 are identified with comparable dummy variables in both countries. We employ somewhat different indicators for children between the ages of 3 and 9. Since children begin school full-time at age 6 in the US and at age 7 in Denmark, we control for the presence of children age 3-5 and 6-9 in the US and 3-6 and 7-9 in Denmark. Activities also vary by day of week and

time of year. A dummy variable is included to identify weekends and holidays in each country as time use on these days may differ even if the respondent is not working in the market. Seasonal dummies are included in both samples; year dummies are included to distinguish between ATUS data collected in 2003, 2004, 2005, and 2006. Unemployment rates are included as an indicator of local economic conditions. Finally, residence in Copenhagen is indicated by a dummy variable in Denmark as is residence in an SMSA in the United States.⁷ Three regional dummies are also included in the US model.

Sample means for the common set of explanatory variables by country, gender, and day of the week are presented at the bottom of Table 1. Further details are available from the authors upon request. The sample wide power measure has a mean value of 0.5 in both the US and Denmark. This is not surprising given the high degree of marital homogamy typically observed in terms of education. However, values do range widely within the population at large, from 0.36 to 0.64 in Denmark and from 0.14 to 0.84 in the US.

A few other cross-country differences are noticeable. Households in general are smaller in Denmark as they are less likely to include children or other adults. Only about 70% of Danish households are married as compared to 94% in the US, documenting the higher rate of cohabitation in Denmark. The unemployment rate is also somewhat lower in Denmark. While observations in the US are evenly spread across the seasons, most of the Danish data were collected in the fall and the spring. Both samples include about as many holiday/weekend dates as weekday dates. In the US this is the case because half the diaries were collected on weekends. In Denmark this is the case because each respondent completed both a weekday and a weekend survey. However the data do indicate that Americans are more likely to work on weekends and holidays than Danes as the fraction of work days that

are weekends/holidays is about 6 percent points higher for Americans than for the Danes (20% versus 14% for women, 23% versus 16% for men).

RESULTS

Results from our baseline specification of leisure time are presented in Table 2 separately by country, gender, and type of day for the common set of explanatory variables.⁸ Looking first at the peripheral variables, we find marriage is associated with less leisure time in the US, though the effect is only statistically significant for men on non-work days. Point estimates suggest a positive association between marriage and leisure time in Denmark, except for Danish women on work days. These cross-country differences may reflect cross-country differences in the legal and social status accorded married as compared to cohabiting persons. Students experience significantly less leisure in both countries. More education reduces leisure time in both countries, significantly so in the US. Except for Danes on work days, people tend to report leisure time falling with age, but at a decreasing rate. These results indicate that leisure time reaches a minimum around age 38 for women in the US, age 41-42 for men in the US, and closer to age 50 for Danes. Individuals with children in both countries obtain less leisure time, with younger children having a larger effect, particularly on non-work days. In households with children age 0-2 the effect is substantial. Individuals with such young children report between 30 and 50 minutes less leisure time on work days and between 60 and 90 minutes less leisure time on non-work days. Other adults do not have much effect on reported leisure time, nor does the unemployment rate. Seasonal effects differ by country. And finally, over thirty more minutes of leisure are typically enjoyed on weekends and holidays by all persons, even on work days. Overall, except where geography

or social institutions suggest differences, the determinants of leisure time are quite similar between countries.

Of course, the variable of particular interest here and for which we predict a differential effect is power. We find that power as measured by relative education level is positively associated with leisure time in all cases in the US, significantly so for both men and women on non-work days. While power is positively associated with leisure time on non-work days in Denmark, the relation is significant only for women and there is a negative association on work days. These power measures are jointly significant in the US at the 1% level. In Denmark, they are not jointly significant at even the 25% level. This result is as we hypothesized: ‘power’ has a greater impact on the allocation of leisure time in the US than it does in the more egalitarian welfare state of Denmark. It is of some note, furthermore, that the effect of power is greatest on non-work days. This may be because there is less time over which to negotiate on work days.

We further explore this result by examining the impact of power as measured by relative education on both leisure time and housework time for different subsamples of the data. Only the estimated coefficients to power from these runs are reported in Table 3. Full sample results are available on request. The initial row repeats the results for the power variable reported in Table 2.

The full sample results for housework time indicate a negative association with power in three out of four cases from each country. The relation is consistently negative only for men and significant only for Danish men on non-work days. It may be that women prefer household goods more than men and that this preference results in more powerful women spending more time on housework. These results support our hypothesis that power has a

‘cleaner’ predicted impact on leisure time than on housework time where preferences for the public good may obscure the relation.

Also possibly obscuring the results may be differential relations by employment status or household composition. The baseline specification reported in Table 2 controls for own work status on the diary day but not for own labor force participation or for the employment status of the partner. The effect of our power measure which is based on education may differ depending on each partners’ employment status. For example, a partner with higher earnings power (higher education) who is not employed may not have as much power as a partner with higher earnings power who is employed. Already, we observed that the impact of power on leisure time seemed to be centered on non-work days. We distinguish here between dual earner, single self-earner, and single partner-earner households, continuing to distinguish between work and non-work days (though there are necessarily no work days for respondents in single partner-earner households). Results for the leisure time equations are presented first, then those for the housework time equations. Sample sizes are reported below. Results are presented only for samples of more than 100 persons. Small sample sizes pose a particular problem for the Danish sample.

Results controlling for employment status from the US continue to show a positive association between power and leisure time, with only one of ten estimated coefficients slightly negative and that one being statistically insignificant. Interestingly, the relation is particularly significant for women who rely on their husbands for income, belying our expectations that a power measure based on education may not be as important for such individuals. The relation is also large for men who rely on their wives’ income in the US, though not statistically significant. Instead it is US men who are sole earners who are able to

enjoy more leisure on work days. In the Danish samples, power and leisure time remain positively associated for all individuals on non-work days but the relation is significant only for women in single partner earner households. On work days, the sign of the effect is inconsistent across samples. Thus, we continue to see a stronger positive association between this measure of power and leisure time in the US than in Denmark.

The relation between power and housework time is no clearer when the samples are more narrowly defined by employment status. There are numerous instances in which the relation is estimated to be positive rather than negative and it is only statistically significant for men in dual earner households on non-work days in Denmark.

In addition to testing for differential effects by couples' employment status, we also test for differential effects by the presence of children. The results from Table 2 indicated that children have a significant association with leisure time. They also have a significant (positive) effect on housework time. However the presence of children may also alter each partner's threat point. In the US, it is the presence of children that typically makes low income individuals/households eligible for income support. In the Danish system, family income support is universal and largely independent of household income, employment status, and family structure. In both countries women are the usual recipients of child-oriented aid. Less educated women with lower earnings power are likely to find such income support particularly attractive. Thus welfare may provide an alternative threat point to mothers, reducing the association between power and leisure time. Focusing on non-work days where we found significant results before, the point estimates do indicate that power has a larger impact on leisure time for women without children than for women with children. In Denmark this relation is statistically significant. In the US it is not, indeed it is the power

relation for childless women that is significant. Overall the separate analysis by presence of children yields at best mixed results.

Table 4 presents additional sensitivity tests using alternative measures of power. Sample means for these alternative measures are presented at the top of the table, followed by parameter estimates below. We first experiment with different education-related measures. One such is own less partner's years of education. This power measure yields essentially the same results as our baseline relative education measure. Next we posit that one explanation for the weak Danish results could be that the smaller earnings spread in Denmark makes relative education a weak measure of relative power. Using the extremely detailed information available on educational achievement in Denmark, information that essentially includes field of study, we construct a measure reflecting each respondent's expected share of household lifetime earnings (Danish Economic Council, 2001). This alternative power measure, however, while clearly magnifying gender differences in earnings power (see the gender-specific means), has no significant impact on time use in Denmark.

Next we exploit further cross-country differences in welfare support. If the effect of power in the US is driven primarily by the threat of divorce and the alternatives each partner faces in the event of the dissolution of the union, then the impact of power may be smaller for those more likely to receive governmental support. Such support is more likely for women with low earnings power, hence low levels of education. To identify such women, we interact a dummy variable identifying individuals with less than twelve years of education with our baseline power measure. Women but not men with low education, particularly in the US, should be at less of a disadvantage in negotiating leisure time as they have a higher threat point. Our results indicate that this interaction term is not a significant determinant of leisure

time for Danes or for men in the US. In the case of US women on non-work days, however, having less education mitigates the impact of our power measure on leisure time use. This suggests that the safety net in the US may indeed be having some effect on power considerations within the family.

Finally, we introduce alternative power measures based on marriage market characteristics and norms. As discussed earlier, an alternative measure of marital power is the ratio of men to women around the age at which partnerships are formed. For the US, we use sex ratios for five year birth cohorts calculated for four geographic regions from Grossbard and Amuedo-Dorantes (2007) updated with population estimates for the youngest cohorts. For Denmark we use similar measures calculated separately for each birth year by region, with the oldest five year cohort data calculated off somewhat more aggregated data. A higher sex ratio implies there are more men than women in the respondent's cohort. This implies that women should have more and men less power, all else equal. Thus, Sex Ratio should be positively associated with leisure time for women and negatively associated with leisure time for men. In fact, Sex Ratio has a negative effect on leisure time for all but women on non-work days in the US and is never statistically significant. Interestingly, Sex Ratio is generally larger in Denmark (1.07 versus 1.01), which may help explain the weak Danish education-based power measure as the higher sex ratio in Denmark suggests that women have more power in Denmark than in the US.

None of these results allow us to distinguish between the impact of different institutions versus the impact of different social norms in explaining the observed impact of power on leisure time. To do so, we construct measures of social and individual norms. We would like to have information on each respondent's perception of the gendered nature of

tasks, but such information is unavailable in either data set. Instead we use information on women's labor force participation rates over time and by geographical area. Social norms are captured by using current year labor force participation rates of women with children age 3-9 in Denmark and age 0-5 in the US in the municipality/state of current residence. Our hypothesis is that there is a more egalitarian, less gendered notion of tasks in areas where mothers have a higher labor force participation rate. This more egalitarian outlook may dampen the impact of any earnings-based power considerations. Our measure of individual norms is calculated as the national labor force participation rate of women age 25-34 when the respondent was age 0-10. Our goal was to construct a measure of the likely labor force participation of the respondent's mother during his/her impressionable youth. As respondents may have moved since birth, we match these measures at the national rather than local level.

Sample means, as expected, indicate a higher female labor force participation rate in Denmark both currently (the social norms measure) and historically (the individual norms measure), confirming our supposition that there is a less gendered notion of behavior in Denmark than in the US. However, controls for these variables were not individually significant in the leisure time equations except in the case of individual norms for Danish men on non-work days. These results suggest that men whose mothers were more likely to be working when they were young receive more leisure on non-work days, but education share (baseline power) is a less significant determinant of leisure time for them as well. Further analysis breaking down the samples as in Table 3 by employment status and presence of children (results not reported here) did not reveal any clear patterns. Either norms are not important within these samples or these variables are not good measures of norms.

CONCLUSION

We hypothesized that more egalitarian values and a more generous social welfare system would weaken the influence of individual ‘power’ as measured by potential economic contributions to the household within Danish as compared to American couple households. We employ a measure of relative education to capture power. This measure is available for everyone in the sample rather than just for labor force participants, does not change dramatically over the course of the lifetime, and does not already subsume a particular level of labor supply – unlike the measures of relative earnings or relative wages that have typically been used in this literature. While most research on intrahousehold power focuses on the allocation of housework time, we also hypothesized that power considerations would have a more clear-cut impact on the allocation of discretionary leisure time. Time spent on housework is more likely to be influenced by preferences regarding household goods and by gender-based notions of activities. Housework time is also more likely to be censored below at zero, which could bias estimation results.

We estimate separate OLS models of leisure and housework time by country, gender, and work day type. We find substantial evidence to support our hypothesis that economic power is more closely associated with leisure time allocation than with housework time allocation. Power is individually significant in only one of eight baseline specifications of our housework time model as compared with three of eight of our leisure time models and power is never a statistically significant determinant of housework in our larger (and less egalitarian) US samples. The sign of the estimated impact also differs considerably more in the housework than in the leisure time specifications. Overall, this suggests that researchers

interested in intrahousehold power concerns should focus more on how households allocate leisure time than how they allocate housework time.

Looking at leisure time, we find as hypothesized that power is more closely related to leisure time in the US than in Denmark. While power is jointly significantly associated with leisure time in the US at the 1% level, it is not significant at even the 25% level in Denmark. The relation between power and leisure time is positive in all four specifications in the US, but only two in Denmark. The relation is individually highly statistically significant in two specifications in the US and marginally significant in one case in Denmark – all on non-work days.

That the impact of economic power on leisure time is particularly strong on non-work days suggests some avenues for further research. Time constraints may limit opportunities for leisure on work days. Further, the leisure classification itself warrants some attention. We have assumed that all leisure time is equivalent. That is not necessarily true. Some activities classified as leisure are more like responsibilities than others –attending a child’s sporting event versus settling down to read a good book. In addition, leisure time spent with others may have a different value than leisure time spent alone and may be more difficult to arrange as it requires coordination. Unfortunately information on who else was present during an activity is often missing in the DTUS, precluding further joint analysis of this issue. Preliminary analysis of leisure time spent alone from the ATUS did not suggest a stronger association with economic power.

Our results were fairly robust in other dimensions. We found similar effects across couples with different work arrangements. In addition, there is some evidence that economic power is less closely related to leisure time for women with very little education in the US,

the group of women most likely to be eligible for government welfare support in the event the relationship dissolves. This result suggests that it is not just egalitarian values but also institutions that matter. Our attempt to control for values or norms, both social and individual was less successful. While we did find evidence of substantial cross-country differences in norms that support our cross-country results that power matters less in Denmark, we found virtually no evidence that within country differences in norms explained within country differences in leisure time. Further work is necessary to distinguish between the role of values and that of institutions. Perhaps expanding the analysis to more countries would aid in this as a greater range of institutional differences could be examined. While we do find some cross-country differences in the determinants of couples' leisure time, it would be of substantial interest to better understand the role of governmental policy and institutions on intrahousehold decision making.

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Table 1
Sample Means
By Country, Gender, and Type of Day

	United States				Denmark			
	Women		Men		Women		Men	
	Work Days	Non-Work Days	Work Days	Non-Work Days	Work Days	Non-Work Days	Work Days	Non-Work Days
Leisure Time	187.57	368.29	204.73	465.62	215.12	393.26	245.02	466.92
Housework Time	117.44	280.46	69.67	218.92	133.80	228.88	82.03	196.50
% No Leisure	3.90%	1.20%	4.96%	1.20%	1.53%	0.17%	1.66%	0.00%
% No Housework	9.75%	3.33%	31.54%	11.31%	2.80%	1.99%	13.42%	4.91%
Power	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Married	0.95	0.96	0.96	0.96	0.75	0.69	0.74	0.69
Enrolled in School	0.06	0.06	0.03	0.04	0.00	0.08	0.00	0.03
Education (years)	14.30	13.97	14.27	14.10	12.69	12.48	12.50	12.42
Age	40.58	39.56	42.05	42.16	41.41	39.88	43.26	42.30
Age Squared/100	17.32	16.51	18.53	18.64	18.07	16.93	19.71	19.03
# Children age 0-2	0.15	0.28	0.22	0.24	0.09	0.18	0.14	0.16
# Children age 3-5 in US, 3-6 in DK	0.19	0.27	0.25	0.24	0.20	0.21	0.20	0.20
# Children age 6-9 in US, 7-9 in DK	0.28	0.36	0.33	0.34	0.16	0.14	0.14	0.13
# Children age 10-14	0.38	0.40	0.39	0.38	0.30	0.26	0.31	0.27
# Children age 15-17	0.16	0.14	0.16	0.15	0.15	0.12	0.16	0.12
Number of Other Adults	0.19	0.16	0.18	0.17	0.20	0.16	0.19	0.17
Unemployment Rate	5.37	5.40	5.38	5.41	5.07	5.15	5.11	5.15
Winter	0.27	0.26	0.26	0.27	0.05	0.03	0.04	0.02
Spring	0.25	0.24	0.26	0.24	0.46	0.47	0.46	0.47
Summer	0.24	0.25	0.24	0.24	0.04	0.03	0.05	0.02
Fall	0.24	0.25	0.24	0.25	0.45	0.48	0.45	0.49
Weekend/Holiday	0.20	0.67	0.23	0.82	0.14	0.74	0.16	0.85
Sample Size	3978	7597	5489	4915	785	1158	961	876

Table 2
Impact of Power on Leisure Time: Full Sample
By Country, Gender, and Type of Day

	United States				Denmark			
	<u>Women</u>		<u>Men</u>		<u>Women</u>		<u>Men</u>	
	Work	Non-Work	Work	Non-Work	Work	Non-Work	Work	Non-Work
	<u>Days</u>	<u>Days</u>	<u>Days</u>	<u>Days</u>	<u>Days</u>	<u>Days</u>	<u>Days</u>	<u>Days</u>
Power: Education Share	17.14	121.23 **	43.77	138.85 *	-10.19	190.46 *	-94.15	89.19
Married	-2.43	-14.39	-7.43	-30.44 **	-19.36 *	13.49	6.40	8.83
Enrolled in School	-12.83	-55.59 ***	-22.66 **	-45.86 ***		-54.91 ***		-161.84 ***
Education (years)	-2.52 ***	-2.68 ***	-1.44 *	-6.95 ***	0.23	-3.96	-2.54	-3.73
Age	-5.53 ***	-12.13 ***	-7.40 ***	-11.81 ***	2.91	-11.28 **	-2.22	-18.68 ***
Age Squared/100	7.23 ***	15.91 ***	8.79 ***	14.40 ***	-3.30	11.39 *	2.03	19.32 ***
# Children age 0-2	-46.02 ***	-70.59 ***	-32.44 ***	-60.52 ***	-45.71 ***	-82.75 ***	-49.84 ***	-92.02 ***
# Children age 3-5 in US, 3-6 in DK	-27.67 ***	-41.48 ***	-19.35 ***	-38.09 ***	-29.84 ***	-36.32 ***	-22.88 **	-37.99 **
# Children age 6-9 in US, 7-9 in DK	-9.26 **	-16.54 ***	-11.34 ***	-20.07 ***	-16.55	-27.40 **	-16.31	-45.07 **
# Children age 10-14	-11.70 ***	-18.98 ***	-3.17	-9.97 **	-16.52 **	-11.94	1.14	-2.72
# Children age 15-17	0.08	-16.06 ***	-1.89	4.37	3.77	15.68	-11.52	-7.65
Number of Other Adults	-7.65 *	-2.26	-1.76	1.64	-10.11	4.96	8.99	-14.45
Unemployment Rate	0.65	-0.09	1.40	2.70	2.65	6.73 **	-6.75 **	-1.36
Winter	-0.13	10.20 *	8.75 *	3.82	-8.87	-61.55 **	-12.46	14.60
Spring	-1.92	1.21	-1.82	-26.13 ***	-8.44	-15.76	-16.10 *	-34.80 ***
Summer	4.34	15.04 **	-2.72	9.40	23.18	-10.18	-27.84	-14.07
Weekend/Holiday	44.33 ***	39.84 ***	65.60 ***	36.29 ***	42.82 ***	56.75 ***	71.87 ***	46.07 ***
Number of Observations	3978	7597	5489	4915	785	1158	961	876
R-Squared	0.0797	0.1146	0.0846	0.0751	0.0776	0.1162	0.0894	0.1035

Asterisks indicate statistical significance: *** significance at the 1% level, ** at the 5% level, and * at the 10% level.

The Danish models also include a dummy variable to identify immigrants and a dummy variable to identify those residing in Copenhagen.

The US models also include controls for Black, Hispanic, and Asian race/ethnicity; 3 regional dummies; 3 metro status indicators; and 3 year dummies.

Table 3
Impact of Power on Time Use by Sample
By Country, Gender, and Type of Day

United States					Denmark			
	<u>Women</u>		<u>Men</u>		<u>Women</u>		<u>Men</u>	
	Work	Non-work	Work	Non-work	Work	Non-work	Work	Non-work
	<u>Days</u>	<u>Days</u>	<u>Days</u>	<u>Days</u>	<u>Days</u>	<u>Days</u>	<u>Days</u>	<u>Days</u>
Leisure Time								
Full Sample	17.14	121.23 **	43.77	138.85 *	-10.19	190.46 *	-94.15	89.19
Dual Earners	10.29	119.03	-13.01	104.74	35.16	62.61	-164.95	56.16
Single Self-Earner	70.26	98.01	120.75 *	121.35			412.59	301.30
Single Partner Earner		145.59 **		282.46		655.04 ***		
With Children	16.90	92.17 *	51.19	116.32	-32.02	-55.75	1.86	-6.51
Without Children	11.25	169.80	7.02	159.44	-0.99	329.94 **	-220.87	135.84
Housework Time								
Full Sample	-24.91	33.37	-3.56	-74.00	24.48	-3.44	-61.31	-322.00 ***
Dual Earners	-31.14	86.35	24.46	-25.27	13.07	-14.98	-46.87	-278.66 **
Single Self-Earner	163.66	-119.70	-11.73	-51.20			-82.28	-459.85
Single Partner Earner		-2.30		-281.56		-2.38		
With Children	-18.29	78.19	5.58	-81.34	63.31	12.89	-11.16	9.03
Without Children	-42.42	-125.18	-0.07	-64.57	39.27	-197.00	-96.06	-302.20 **
Sample Sizes								
Full Sample	3978	7597	5489	4915	785	1158	961	876
Dual Earners	3623	4205	3860	3021	733	831	793	642
Single Self-Earner	355	386	1629	1300	52	60	168	144
Single Partner Earner		3006		594		267		90
With Children	2587	5549	3829	3438	383	595	497	426
Without Children	1391	2048	1660	1477	402	563	464	450

Asterisks indicate statistical significance: *** significance at the 1% level, ** at the 5% level, and * at the 10% level.
Both the Danish and the US models contain the same set of explanatory variables reported on in Table 2.

Table 4
Impact of Alternative Power Measures on Leisure Time
By Country, Gender, and Type of Day

	United States				Denmark			
	<u>Women</u>		<u>Men</u>		<u>Women</u>		<u>Men</u>	
	Work <u>Days</u>	Non-work <u>Days</u>	Work <u>Days</u>	Non-work <u>Days</u>	Work <u>Days</u>	Non-work <u>Days</u>	Work <u>Days</u>	Non-work <u>Days</u>
Sample Means:								
Education Difference	0.23	-0.11	0.12	0.02	0.12	0.10	-0.06	-0.08
Relative Lifetime Earnings					0.45	0.44	0.56	0.56
Sex Ratio	1.01	1.02	1.00	1.00	1.07	1.08	1.08	1.08
Individual Norms	46.81	48.09	45.19	45.16	49.18	52.46	47.30	49.53
Social Norms	65.51	65.12	65.36	65.38	88.47	88.62	88.50	88.73
Coefficient Estimates:								
Power: Education Share	17.14	121.23 **	43.77	138.85 *	-10.19	190.46 *	-94.15	89.19
Power: Education Difference	0.69	2.22 **	1.14	3.68 **	-0.44	4.08 *	-1.76	2.40
Power: Relative Lifetime Earnings					-34.72	63.57	-65.24	-191.51
Power &	13.14	135.15 ***	38.68	138.00 *	-33.29	194.51 *	-92.23	111.76
Power*Low Education	15.20	-48.39 **	27.62	2.78	-50.90	9.76	4.75	47.49
Power &	17.50	121.09 **	43.60	138.69 *	-4.41	197.01 *	-92.82	91.48
Sex Ratio	-99.56	12.25	-20.38	-36.83	-91.01	-200.36	-75.37	-151.40
Power	640.80	1087.40	-270.95	-1245.54	2836.14	978.70	-2511.90	7287.27 *
Sex Ratio	314.04	291.60	-524.74	-324.48	728.48	-638.54	-971.67	909.30
Individual Norms	65.71	313.21	349.07	-386.43	6.82	8.92	-2.21	25.75 *
Social Norms	-273.77	-46.91	122.71	-582.93	0.90	-1.51	-0.43	-0.81
Power*Sex Ratio	-827.12	-578.48	1033.62	601.84	-1658.22	901.37	1788.72	-2192.99
Power*Individual Norms	-83.11	-770.28	-694.43	690.49	-13.21	-21.27	3.80	-56.74 **
Power*Socia Norms	563.78	241.50	-608.48	758.11	2.17	2.62	3.58	5.56

Asterisks indicate statistical significance: *** significance at the 1% level, ** at the 5% level, and * at the 10% level.
Both the Danish and the US models contain the same set of explanatory variables reported on in Table 2.

Endnotes

¹ Bianchi, Subaiya, and Kahn (1999) do note, however, that women who are the most economically dependent upon their partners during a marriage suffer the least following divorce in part because their partners tend to have relatively low income themselves.

² For example, Lahga and Moreau (2007) find that 13% of men in the German Socioeconomic Panel report spending no time on housework on weekdays.

³ The effect of power on leisure time at a given point in time is also theoretically uncertain as, if power is measured by relative wages, there is both an income and a substitution effect of own wages upon leisure. However, this problem is mitigated somewhat if one needs time to enjoy the goods that enter the utility function.

⁴ In the US, about one-third of those reporting less than two hours of market work time report less than thirty minutes of market work time.

⁵ We focus on housework chores exclusive of childcare. While some in the literature include caregiving activities as housework (Bittman et al 2003), there is evidence both from other work (Kimmel and Connelly 2007) and within our own samples that caregiving and chores are distinct activities.

⁶ Years of education is actually encoded based on the level of schooling completed in both countries.

⁷ Unfortunately the coding of SMSA status changed about half way through 2004. We use separate dummies to identify SMSA status before and after the change.

⁸ The impact of being enrolled in school is not estimated for the Danish sample on work days because no enrolled persons are observed working more than two hours in a day.