Gender Roles and Infant/Toddler Care: The Special Case of Tenure Track Faculty

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Abstract
The present research examines the impact of parental leave policies and gender-role attitudes on the distribution of childcare responsibilities in the families of 184 tenure-track assistant professors at U.S. institutions. Utilization of paid parental leave policies by men is associated with higher levels of participation in parenting tasks, as is a belief in non-traditional gender roles; however, even those male professors who take leave and believe in non-traditional gender roles do much less childcare than female professors.

Keywords: gender differences, gender roles, infant care, parental leave, women in academia, work/family balance.
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The revolutionary influx of women into the labor market over the past 50 years has been well documented. The Bureau of Labor Statistics projects that by the year 2008, women will form 48 percent of the labor force (Fullerton, Jr., 1999). Sociologist Suzanne Bianchi believes that, “The most revolutionary change in the American family in the twentieth century . . . has been the increase in the labor force participation of women, particularly women with young children” (Bianchi, 2000: 401).

The increased participation of females in the workforce has not led to the demise of traditional gender roles because men have not contributed in the domestic realm to the same extent that women have contributed to family income through paid labor. Among the domestic areas where men do less is the care of children, especially of young children (Rossi, 1987; Popenoe, 1996). Bianchi (2000) is optimistic about this gap closing; she notes that from 1965 to 1998 fathers’ time spent in primary childcare went from 25 to 56 percent of mothers’ time. However, Robinson and Godbey (1997) still find women doing 80 percent of childcare. Suitor (2001) finds that female faculty at one major university spend 113 percent more time than male faculty in childcare.

Various approaches have been proposed to equalize male participation in household labor. Some commentators look inward, arguing that male attitudes about gender roles must change. For instance, Ross (1987: 816) holds that, “change in the division of labor at home is set in motion by women taking jobs outside the home, but must be completed by a change in men’s values.”

Others think public policies granting post-birth leave from work to both fathers and mothers will bring about substantial equality in childcare. Leave for mothers will give them time to recover and find alternative care; leave for fathers will give them an opportunity to bond with their children and encourage them to take a more active role in performing childcare duties, thus freeing up their wives to pursue career goals. Some advocates who hope to increase the involvement of fathers in childrearing would make leave

The argument that changing gender role attitudes will eventually produce an equal division of household labor and paid work among men and women has some support in the literature. Aldous, Mulligan, and Bjarnason (1998) and Deutsch, Lussier and Servis (1993) both find a positive association between the egalitarian attitudes of fathers and the participation of fathers in childcare. Ross (1987) finds an association between less-traditional sex-role beliefs in husbands and a greater level of performance of general household tasks among these husbands. As far as female gender role attitudes are concerned, Betz and Fitzgerald (1987) find a strong association between sex-role ideology and career orientation in women.

However, other studies find that changing attitudes does not help much. Thompson and Walker (1989) find little relationship between gender role attitudes and the division of household work. Similarly, Hakim (2000:77) cites numerous examples of weak association between social attitudes and behavior.

There has been little literature on the impact that parental leave can have on encouraging paternal involvement in childcare and relieving work-family stresses for women. Existing studies have examined leave policies mainly in Europe and have tended to focus on low male usage rates of existing leave policies (Haas, 1992) or on the impact of the policies on the employment of women (Kammerman, 2000).

Little attention has been paid to what men actually do with their time when they take parental leave and afterwards. Some evidence hints that even if men were to make extensive use of parental leave policies, the result would still not be an equal or near equal division of childcare responsibilities between husband and wife. Hakim (2000:97-8) cites a study by Huws, et al., (1996) of male and female freelance translators. The nature of this work is such that the translators worked exclusively out of their homes, submitting their work electronically. Among the men in the study, even though half had been working at home for over five years, “there was almost no evidence of role segregation breaking down as a result.”
Based on this and other evidence, Hakim concludes, “The argument that paternal leave schemes would facilitate more equal parenting roles has little support in the research evidence on parenting roles among young couples in the 1990s, at least as regards children up to the age of 11 years.” (148)

The current study examines the impact of the utilization of paid leave and of gender role attitudes on the division of career and family responsibilities of 184 tenure track assistant professors at U.S. institutions. All participants had at least one child under the age of two and were professors at institutions that offered a paid parental leave policy.

There are reasons to believe that families where at least one parent is a professor are among the most likely candidates to achieve equality in the sexual division of childcare. As mentioned above, egalitarian (or non-traditional) gender role attitudes are associated with a more equal distribution of childcare in families. And there are many reasons to believe that university professors have less traditional gender role attitudes than most. First, professors were usually among the brightest students in their high schools. And a number of studies find that intellectually gifted high school students, whether measured by IQ or academic achievement, have less stereotypical personalities, interests and behaviors than others of their sex (Lippa, 1998; Lubinski & Humphreys, 1990). Another study finds that younger age, advanced degrees and mother’s labor force participation are all associated with egalitarian gender role attitudes (Harris & Firestone, 1998). Hakim (2000:187) cites the research of Betz and Fitzgerald (1987 PAGE#), who find that, “the expression of high intellectual ability is linked to the rejection of ‘traditional’ sex-role ideology” (emphasis in original). Gender role attitudes aside, other studies find a direct association between advanced degrees and professional status on the one hand and a more equal distribution of childcare and domestic labor generally on the other (Berman & Pederson, 1987; Goldscheider & Waite, 1991).

Female professors would seem to have a particularly strong incentive to achieve an equal division of childcare responsibilities in their households. If childcare gets in the way of research activities, these
women may find themselves unable to achieve tenure. Zhang and Farley (1995: 197) state, “If [there is] any occupational group in which the ideology of gender equality would be expected to develop sooner than the general population, it would be female college faculty.” Still recognition of a problem does not mean it will be solved: A 1996 study of female tenure-track professors found that over 82 percent of female assistant professors with at least one child under the age of six believed that “time required by children” posed a serious threat to achieving tenure (Finkel & Olswang, 1996: 131).

Most studies of the division of childcare among the sexes examine couples in a large variety of occupations (Nock & Kingston, 1988). Different occupations have varying time and travel demands, and this variety of demands necessarily impacts time spent in childcare. Our study has the advantage of comparing men and women who have the same occupation, who are all at the most crucial stages of their careers and who all have a child under two.

There are some other limitations of existing studies that we believe the current study avoids. The literature has tended to examine the sex-based division of household labor generally without focusing on childcare specifically (Zhang & Farley, 1995; Ross, 1987). Even those studies that do give special attention to childcare tend to examine families with children of various ages (Suitor, 2001; Nock & Kingston, 1988; Yogev, 1981), or if they do restrict attention to families with younger children, they look at all families with pre-school aged children (Aldous, et al., 1998; Finkel & Olswang, 1996).

These studies may produce misleading conclusions about how men and women divide the childcare of infants and toddlers. Studies have shown that the interest of fathers in their children is much greater when the children are older (Rossi, 1987). However, most paid leaves in academia and in many other professions are restricted to the period immediately after childbirth.

The granting of parental leave to fathers is unlikely to produce major changes in paternal participation in childcare in the absence of egalitarian gender role attitudes. In addition to having the opportunity to
participate in the care of their children, fathers need to believe that it is important for them to play a major role in the care of their children. By restricting attention to university professors, we hope to have found a group with the necessary gender role attitudes to test whether, under optimal contemporary conditions, parental leave policies can be expected to produce equality or near equality in the sexual division of childcare labor.

A final drawback of virtually all studies on gender/childcare issues is that they have tended to focus on gender role attitudes and situational constraints on behavior while ignoring preferences (Hakim, 2000). We explore the idea that preferences, both of the child and of the parent, may play a role in explaining why sex differences in the performance of childcare persist despite social forces and social policies that encourage sexual equality. For instance, previous research has shown that infants and toddlers prefer to play with their fathers but to be comforted by their mothers when upset (Lamb, 2002; Pruett, 2000). Perhaps when parents make decisions about how to divide childcare duties they are at least partially responding to cues from their children. If infants consistently convey a preference for mothers over fathers, then the continuing dichotomy in the performance of infantcare could be viewed, at least in part, as a response to the needs of infants.

The preferences of the parents may also play a role. While mothers and fathers may agree in the abstract that an equal division of childcare labor is best for the family, if mothers derive more pleasure from caring for children than fathers, it will be hard to bring fathers’ level of participation in childcare up to that of mothers’.

In sum, the goals of the current study are as follows. First, to determine the impact of gender role attitudes and utilization of parental leave policies on the distribution of childcare in this sample of university professors. In particular, we aim to see if belief in non-traditional gender role attitudes and utilization of parental leave brings male performance of childcare close to the level of female performance.
Second, to explore the idea that the preferences of mothers, fathers and infants may explain the continuing gender gap in the performance of childcare.

Methods

Data

The sample of university professors used in this study is drawn from a larger study on leave policies in universities funded by the Alfred F. Sloan Foundation and the Bankard Fund at the University of Virginia. This study was implemented using a multi-stage stratified sampling design. The sampling frame was compiled from *Peterson’s Guide to Four-Year Colleges*, with *Peterson’s* categorization of the competitiveness of the institution used to define the strata. Within strata, schools were selected with probabilities proportionate to the size of each school’s full-time faculty. Thus, the resulting sample was self-weighted at the level of the individual faculty members.

A sample of 168 schools was drawn from the sampling frame compiled from *Peterson’s Guide*. Initial contact with the university was made through the human resources department. Often this contact was sufficient to gather the necessary information about the existence and nature of a parental leave policy at that university. In other instances contact with other departments in the university was necessary.

Since the nature of the leave policies varied greatly, the following criteria was used in order for a school to be categorized as offering “paid leave”. Paid leave granting schools offered either (a) more than six weeks of full relief of teaching duties with full pay; (b) half relief of teaching for one full semester or quarter with full pay; or (c) full relief of teaching for a full semester with half pay. At the end of the institutional phase of the survey 15 of the 168 schools did not respond to the survey (response rate= 91%). Of the remaining 153 schools, 40 met our definition of paid leave. Of these forty schools, 28 offered a paid leave benefit equally to new fathers and new mothers, whereas the remaining 12 schools had a benefit for mothers only.
The study then attempted to identify all tenure-track assistant professors at each of the 40 schools. Initial contact with the professors in the survey was made via e-mail and so the sampling frame at the university level was constructed from published university listings of e-mail addresses as well as by searching university department websites when a listing of e-mail addresses for the whole university was unavailable. This process resulted in a list of 6,534 assistant professors that were sent a web-based qualifying survey that served to determine their eligibility for the study. In total, 3,029 responses were received. While this gives a putative response rate of 46%, it is likely that a significant number of the non-respondents screened themselves out of the survey because they were no longer assistant professors, or did not have children. Of the 3,029 responses received, 311 were from tenure-track assistant professors with a child under the age of two.

Sample

Phone contact information was able to be located for 289 of the 319 professors of interest in the current paper. Since a disproportionate percentage of the 289 professors in the sample were males who did not take a parental leave, our research team did not attempt to contact all professors in this category. An attempt was made to contact all professors in all other categories. The analyses in this paper use appropriate weights to compensate for this unequal probability of selection. Our research team administered telephone surveys for 184 professors, for a response rate at this stage of the survey of 70%. These 184 tenure-track assistant professors with children under two years old are the subject of the current paper.

In our analysis sample, 56.3% of the respondents (unweighted $n = 96$) were males who had never taken leave; 11.4% (unweighted $n=23$) were females who had never taken leave; 4.5% (unweighted $n=9$) were males who had taken leave in the past two years; 19.9% (unweighted $n=40$) were females who had taken leave in the past two years; 1.0% (unweighted $n=2$) were males on leave at the time interviewed and
5.0% (unweighted n=10) were females on leave at the time interviewed. Two males and two females received a leave that consisted of a reduction in teaching load of one course out of a total teaching load of 3 or more. These individuals were classified as intermediary between leave-takers and non-leave-takers and were excluded from all analyses that involved a leave taking variable. Together this group comprised 2.0% of the weighted sample.

We note that 27 of the men who did not take leave were employed by schools that offered a paid leave benefit to women but not to men. Thus, among professors eligible for paid leave, 12% of male professors and 68% of female professors took advantage of this benefit.

Measures

*Performance of childcare*. Performance of childcare was measured with regard to the youngest child in the respondent’s household, each of whom was less than 2 years old. Each participant was read a sequence of 25 tasks related to the care of a young child and asked to state how often he or she performed the task compared to how often his or her spouse performed the task. Amount of childcare performed was measured in this comparative manner because self-estimates of absolute hours spent on childcare have been found to be very inaccurate (Browne, 2002; Nock & Kingston, 1988). We attempted to ask questions about every important infant/toddler care task. The tasks asked about encompassed items that assess the division of parental responsibility for basic care (e.g., changing diapers, care when sick), logistics (e.g., taking the child to paid day care, buying food or toys), consulting and planning (e.g., seeking and implementing advice about childcare, managing the division of labor for childcare), recreation (e.g., playing with the child, taking child for walk in stroller), and emotional involvement (e.g., comforting the child when upset). The categories mentioned above follow closely the categories used by Deutsch, Lozy and Saxon (1993). Responses ranged from 1=spouse always performs task to 5=respondent always performs task. To summarize the data on the performance of childcare the average of all 25 responses was
computed. If data was missing on one or more of the questions that make up the scale, the average of the other questions in the scale was assigned. The reliability coefficient for this variable (Cronbach’s alpha) was 0.95.

*Enjoyment of childcare.* Enjoyment of childcare is also measured with regard to the 25 childcare tasks described above. Respondents were asked to rate how much they enjoyed each of the tasks on a five point Likert scale. Responses ranged from 1=dislike it a lot to 5=like it a lot. To consolidate information on enjoyment of childcare the data for all 25 responses was again averaged. As with the summary measure for participation, if data was missing on one or more of the questions that make up the scale, the average of the other questions in the scale was assigned. Cronbach’s alpha for this scale was 0.88.

*Gender role attitudes.* Gender role attitudes are measured by strength of agreement with the statement: “Families usually do best if the husband and wife share equally in childcare, household work, and paid work.” Responses ranged from 1=strongly disagree to 5=strongly agree.

*Child’s preferences.* Each respondent was asked by which parent their child preferred to be comforted and with which parent their child preferred to play. Responses ranged from 1=always prefers spouse to 5=always prefers respondent. We note that this data suffers from the fact that the preferences of the children are measured by the responses of the parent and so are confounded with the parent’s impression of the child’s preference. As a result this measure may be inaccurate as a measure of children’s preferences; however, the measure can be regarded as an accurate measure of a parent’s perception of his or her child’s preference. This information can be instructive in its own right. If a mother’s perception that her child needs her is stronger than a father’s perception that his child needs him, then it is likely that the mother will perform more childcare than the father.

*Leave-taking.* Because so few leave-takers who were currently on leave were identified in the sample, these participants were merged with participants who had taken leave in the past to form the category of
leave-takers for all analyses involving a leave-taking variable. The 27 men from schools that did not grant leave to men were merged with the 62 males who did not take leave despite teaching at a school that granted leave to men. The groups did not differ significantly with regard to any of the variables considered in this paper. Therefore, to increase the power of the analyses, these two groups were combined and together they comprise the category of male non-leave-takers in the discussion that follows. Thus, leave taking was constructed as a dichotomous variable with the values, “took leave at some point” and “never took leave”.

**Spouse hours spent at work.** The number of hours that the respondent’s spouse worked per week is included as a control variable in multivariate analyses. The number of hours that the spouse worked was estimated by the respondent and so can be expected to lack precision.

**Results**

Descriptive statistics for participation in, and enjoyment of, childcare are presented in Table 1. Descriptive statistics for the measures that are considered independent variables in all multivariate analyses are presented in Table 2. Eta correlation coefficients are reported in Table 1. Eta is used to measure the strength of the relationship between gender and a participant’s response to the question. Eta is a coefficient of non-linear association. Eta squared is the percent of variance in the response variable that is explained by gender.

[Table 1 about here] [Table 2 about here]

**Participation in childcare tasks**

We note that for all 25 of these tasks female academics had higher mean scores than male academics. All differences were significant at the 0.05 level, while all except two were significant at the 0.001 level. A mean score above 3.0 indicates that individuals of that sex tend to do more of a given task than their spouses do. Female mean scores are higher than 3.0 for each of the 25 tasks, while male mean scores are lower than 3.0 for each of the 25 tasks. Out of the 108 men in our sample only 3 (weighted %≈2.8 ) report
doing more childcare than their spouses by this measure. Only one of these three men took leave. In contrast 70 out of the 73 women in our sample (weighted % = 95.9) do more childcare than their husbands by this measure. It is clear that these academic families do not share childcare duties equally between husband and wife.

We are interested in knowing how the utilization of parental leave affects the distribution of childcare by sex in the households of the professors in our sample. In order to explore this question the summary participation scale for both the male and female populations was tested for differences between leave takers and non-leave takers. While there was a significant difference between male leave takers and male non-leave takers ($p=0.004$, $\eta=0.28$), no such difference was discovered for women ($p=0.10$, $\eta=0.20$). Whether the men who took leave were already more pre-disposed towards performing childcare tasks than their non-leave taking brethren or whether by taking leave they were encouraged to do more is not known. However, even though male leave takers do more than other men, they still fall short of the standard set by women. Not only is there a significant difference between male leave takers and female leave takers in terms of how much childcare they do, but male leave takers also do much less than female non-leave takers. This difference is also highly significant ($p < .001$, $\eta = .71$).

**Independent variables**

One number in Table 2 that deserves particular notice is the very small number of men who are taking advantage of the paid leave benefit that is available to them (12%). Even if it turns out that men who take parental leave do have families with a fairly equal distribution of paid labor and childcare labor between mother and father, the existence of parental leave policies for men cannot be expected to have a very large impact on gender roles in society unless more men actually take advantage of the parental leave benefit that is available to them.
As mentioned above, previous research has found that infants and toddlers prefer to be comforted by their mothers when upset, but they prefer to play with their fathers. In this sample the children are significantly more likely to prefer their mother when they are upset. As mentioned above, the child’s preference for mother or father is measured as reported by the parent responding to the survey, and so the child’s actual preference is confounded with the parent’s perception of that preference. However, we can be somewhat more confident of the results obtained if we look at the responses one sex at a time. The average male response to the comforting question was significantly lower than 3.0 ($p<0.001, n=108$) while the average female response was significantly higher than 3.0 ($p<0.001, n=73$). Thus, the male respondents and the female respondents both are significantly more likely to say that the child wants to be comforted by the mother rather than the father.

There is no evidence in this sample that the father is preferred when the child wants to play. The average male response to the question which probed for child preferences for respondent or spouse, was significantly higher than 3.0 ($p=0.01, n=103$), but the average female response was also higher than 3.0, although not significantly so ($p=0.11, n=72$).

Table 2 shows that while female professors were significantly more likely to hold non-traditional views about gender roles, the fact that both male and female professors had mean scores above 3.0 shows that both sexes were more likely than not to agree that: “Families usually do best if the husband and wife share equally in childcare, household work and paid work.” In fact, 54.2% of men either agreed or strongly agreed with this statement, and only 32.7% of men showed some form of disagreement. Of women 75.4% agreed or strongly agreed with the statement with only 9.6% showing some form of disagreement. The strong commitment these professors have to non-traditional gender roles is curious when viewed in conjunction with the large sex based differences in amount of childcare performed.
Not only are husbands in general doing less childcare than their wives; but even those husbands who agree with the statement “Families usually do best if the husband and wife share equally in childcare, household work and paid work” do less childcare than their wives. Men who agree with this statement perform more childcare than men who think more traditionally ($p=.002$). However, these men still fail to reach the childcare level of even those women who don’t take leave, the women who do the least childcare ($p < .001$). Similarly, if one compares the men who agree with the above statement to women who also agree with this statement, we find that these men do much less than half of the childcare on average and the women do much more than half of the childcare on average ($\text{male summary measure mean} = 2.58, \text{female summary measure mean} = 3.52, p<.001$).

We also note the large difference in the hours worked by the spouses of the male professors in this study as compared to the hours worked by the spouses of the female professors. The major reason for this discrepancy is the large number of male professors whose wives were homemakers, and thus not working at all. In 37.1% of the cases (unweighted $n=39$), a male respondent reported that his wife was a homemaker. In contrast, only 2.7% (unweighted $n=2$) of female professors reported having a husband who was a homemaker. This difference in hours worked by the spouse is by itself evidence of the persistence of traditional gender roles in this sample of professors, despite their often stated belief that families do best with an equal sharing of paid work between husband and wife.

*Relative enjoyment of childcare*

It is clear that there is a disconnect between what most academics say is a desirable division of childcare labor and the division of labor that actually exists within their households. One possible explanation for this disconnect is the difference in the extent to which men and women enjoy their childcare duties.
We note that for 24 out of these 25 tasks female academics had higher mean scores than male academics. The sole exception was for “managing the division of labor for parenting tasks,” which men enjoyed more than women. For 16 out of the 24 tasks that women enjoyed more than men, the difference between female and male enjoyment was statistically significant at the 0.05 level.

There is other evidence that women enjoy childcare tasks very much. Of the 72 women who breastfed their child, 71 indicated that they enjoyed breastfeeding. For the set of 25 questions measuring enjoyment of childcare tasks, only 2% of the total female responses indicated a strong dislike for the task. Only 14% of the time did women indicate a moderate dislike for the task. In other words, to the extent that female responses to this set of questions varied, the variation was usually between indifference and extreme liking. There was relatively little indication of actual dislike. Women often indicated liking what to most men seem disagreeable tasks, such as changing the child’s diapers (33 women indicated like for this task, with only 25 indicating a dislike for it; 29 men liked changing their child’s diapers, while 51 disliked it. For the summary enjoyment variable, a score of “3” would indicate that on average, an individual neither likes nor dislikes childcare. A score above three would indicate more like, a score below three more dislike. None of the 75 women surveyed had scores on the summary variable below three. In contrast, 9.5% (unweighted \( n = 10 \)) of the men surveyed had summary scores below three.

**Multivariate Analysis of factors impacting performance of childcare**

In order to further explore the impact that the variables in our study have on professors’ childcare, we performed a multivariate analysis with the summary performance variable as the dependent variable. The results are presented in Table 3. We initially examine the bivariate relationship between the gender of the respondent and the outcome in Model 1. We then add additional explanatory variables in Model 2. Finally, we add interaction effects in Model 3. The interaction between gender and belief in non-traditional gender roles is included in Model 2 because it is clear that the effect of a strong belief in non-traditional
gender roles on the amount of childcare performed should differ between the genders. A mother who
believes in non-traditional gender roles can be expected to do less childcare, while a father with this belief
can be expected to do more childcare.

Model 1 serves to underline the very strong relationship between gender and amount of childcare
performed. The model predicts that a male will do a full point less childcare on our 1 to 5 scale, and
gender accounts for a full 69 percent of variation in amount of childcare performed. It is interesting to
note that while adding additional explanatory variables to the model does result in a slight increase in R^2,
their addition as a whole does not mitigate the effect of gender on the response. The coefficient of the
gender variable remains virtually constant across all three models. In fact, when judged both by its level of
significance in the model and by the size of its regression coefficient, gender looks to be the most powerful
predictor of childcare performed. One explanation for this is that we may not have measured gender
differences in enjoyment of childcare and/or in gender role attitudes with precision. More precise
measurement might have led one or both of these variables to account for a greater proportion of the sex
difference in childcare performed.

A different explanation would attribute the continued gender difference in amount of childcare
performed to the high levels of guilt that mothers feel when they are apart from children. Stories of the
guilt that many working mothers feel abound. Madeleine Kunin, former governor of Vermont, says “At
least once a day I would feel a stab in my chest, thinking I should be at one place when I was at another”
(Garment, 1994, quoting Kunin). Brenda Barnes, former president and CEO of Pepsi Cola North America,
and Colonel Lois Beard, considered the odds on favorite to be the first mother ever promoted to the rank
of general, both cited guilt about their inadequate involvement in the lives of their children as reasons for
resigning from their jobs (Deogun, 1997; Becker, 1999). It seems that fathers do not experience the same
sense of guilt when away from their children. One study of sex differences in psychological stress among married couples finds that wives, but not husbands, are especially stressed when married and employed with minor children (Cleary & Mechanic, 1983).

While taken as a whole our explanatory variables do not moderate the effect of gender on childcare performed, it would be wrong to conclude that none of the candidate predictors moderates the effect of gender at all. When we added each predictor individually to the model with only gender as a predictor, each additional predictor did slightly mitigate the effect of gender. And certainly there is evidence that leave-taking, belief in non-traditional gender roles, enjoyment of childcare, and the preferences of the child as perceived by the parent are each associated with the amount of childcare performed.

Leave taking is a significant predictor in Model 2 and its significance in Model 3 is seen through its interactions with enjoyment and child’s preferences. Hence, there may be some merit to the claims of those who believe that greater male participation in leave programs will lead to more equality in the distribution of childcare. However, those men currently taking leave may be those most inclined to help with childcare and so an increase in the male participation rate may produce less equality in childcare participation than the current model predicts. Even if this is not the case, leave taking will not completely remedy the gender difference. Both Model 2 and Model 3 predict that a male who takes leave will still do less childcare than a woman who does not take leave.

Belief in non-traditional gender roles, when viewed in conjunction with its interaction with gender, is significant in both Models 2 and 3. Men with less traditional beliefs about gender roles tend to do more childcare, and women with less traditional beliefs tend to do less. However, much like with leave-taking, it is difficult to see how changing beliefs about gender roles could completely eliminate differences in performance of childcare since both Model 2 and Model 3 predict that a male with a very high belief in non-traditional gender roles will still do less childcare than a women with the same belief.
While enjoyment of childcare does not appear to be associated with performance of childcare in Model 2, it is clear from Model 3 that the reason for this seeming lack of association is that the association is in fact negative for those who take leave. For those who take leave, doing more childcare is associated with enjoying it less, whereas for those who do not take leave, doing more childcare is associated with enjoying it more. It seems likely that those who take leave are often required to do childcare even when they begin to enjoy it less. As a result, tasks that would be very enjoyable if done in moderation become less so. On the other hand, for those who do not take leave doing more activities with their child may increase their sense of connectedness with their child and so lead to greater pleasure in performing childcare tasks.

Parents’ perception of their child’s preference when upset is associated directly with amount of childcare performed in Model 2, and indirectly in Model 3, through its interaction with leave. Even if the parents’ perception is inaccurate, it may be more difficult to convince a parent to perceive his or her child differently than it is to convince him or her to take leave or that the equal sharing of parenting duties is a good thing. If this is true, then the impact of that parents’ perceptions of child preferences on the amount of childcare performed, together with the association between this perception and a parent’s gender, makes the eventual abolition of traditional gender roles less likely.

**Multivariate analysis of factors impacting enjoyment of childcare**

We also examined the relationship between the other independent variables and parental enjoyment of childcare using multivariate regression with the summary enjoyment variable as the response. Three models were fit in the same fashion as when performance was the response. Results are given in Table 4. Model 1 explores the bivariate relationship between gender and outcome. Model 2 adds additional explanatory variables and Model 3 adds interaction terms.

[Table 4 about here]
The association between gender and enjoyment of childcare is evident from the significance of gender in Model 1. We can conclude from both Model 2 and Model 3 that none of the additional predictors included serves to moderate the association between gender and enjoyment of childcare. The coefficient of the gender term remains largely unchanged, and gender remains the only significant predictor of enjoyment. In particular, enjoyment of childcare is not responsive to changes in gender role attitudes or to differences in leave-taking status. In view of this fact, it is likely that even if men began to take parental leave in great numbers and even if gender role attitudes continue to become more egalitarian, women will continue to perform more baby and toddler care than men.

Discussion

The results of this study show that male professors who have a young child in the household do significantly less childcare than their female colleagues. Our study suggests that it is unlikely that either changing the attitudes of men and women about appropriate gender roles or offering paternal leave to male professors will bring about equality between the sexes in the amount of childcare that they do, at least when the children are infants or toddlers. Neither male leave-takers, who have been given some opportunity to bond with their young child, nor men who believe that they should spend as much time on childcare as their wives are actually spending as much time on childcare as their wives. These men are not even spending as much time on childcare as women who don’t take leave, the women who do the least amount of childcare. It seems that neither opportunity nor ideology is sufficient to bring men’s time spent on infant/toddler care up to the level of women.

Even if male participation in these 25 childrearing tasks could be brought up to the level of female participation, there are other barriers that will prevent a completely equal sharing of childcare between husband and wife. There are aspects of having children that can never be made equal between the sexes. Pregnancy is a condition and breastfeeding is an activity that must be borne by women. Both can be
significant drains on time. Women in the midst of a normal pregnancy are subject to a number of maladies. One obstetrics text calls nausea and vomiting, backache and heartburn common conditions (Gabbe, Niebyl, & Simpson, 1991). Fatigue is even more common—affecting about three quarters of all pregnant women. Fatigue is equally pervasive post-partum. Backache and perineal pain are also common in substantial numbers of women who have given birth (Brown & Lumley, 1998; Kline, Martin, & Deyo, 1998).

Some studies look not just at post-partum maladies but also at post-partum functional status. Two different studies have found that at 6 months post-partum more than 75 percent of mothers have not achieved full functional status. One study specifically asked about daily activities that were limited because the mother was “tired or felt poorly.” The following are among the items where 40 to 50 percent of mothers responded affirmatively 6 months after birth: accomplishing less than usual, limiting work or other activities, and requiring extra effort to perform work and activities (Mike, McGovern, Kochevar, & Roberts, 1994). The other study found that more than 75 percent of the women who were back at work after 6 months did not feel that they were functioning at full capacity (McVeigh, 1998).

The respondents in our survey are committed to breastfeeding their babies. Over 85% of our female respondents fed their child with breast milk for some months, and 78% of the spouses of male faculty fed their child with breast milk for some months. Among female professors, the median time that a child was breastfed among those whose child was no longer breastfeeding was 7 to 9 months. Professors whose children were still being breastfed were asked to estimate how long the child would continue to breastfeed. The median time estimated was 10-12 months.

Studies have shown that children benefit greatly from being breastfed. However, the propensity of professors to breastfeed their children and the length of time that they breastfeed make an equal distribution of childcare duties hard to achieve.
Our study indicates that the greater amount of childcare that women do means that balancing work and family responsibilities is more difficult for female professors than for male professors. Women in our study feel more overwhelmed by their childcare responsibilities than men and are more likely to say that the stress of balancing work and family responsibilities has caused them to consider leaving academia.

A recent study by Mason and Goulden (2002) at UC-Berkeley also finds that the impact on a female academic of having a child early in her career is very different than the impact on a male academic. The study looks at men and women in academia who had children within the first five years after completing a Ph.D. In scientific fields, by the fourteenth year after they completed the Ph.D. almost 80% of men who had a young child early in their career had achieved tenure. In contrast, only slightly more than 50% of women who had a young child early in their career had achieved tenure.

While we cannot know why female professors with young children do so much more childcare than their male peers, we hypothesize that one reason may be that they simply like childcare more than men and are reluctant to cede many childcare duties to their husbands. This conclusion is possible even though female respondents, almost all of who think care should be shared equally, report that they think the distribution of care is unfair to them. Gender ideology may be less important than feelings on these matters. That men enjoy baby care less than women may explain why young male and female academics find themselves unable to achieve the equality in childcare that so many of them say that they want. Men may be convinced that they should spend as much time with their children as their wives, but it seems unlikely that they will spend as much time with their babies and toddlers as long as the gender gap in enjoyment of childcare exists.

Other studies have shown that a mother’s attachment to her child increases over the first few months after birth (Hrdy, 1999: 116, 316, 534, 535; Entwisle & Doering, 1981: 290; Cowan, Cowan, & Keirg, 1993:169-70; Hock, Gnezda, & McBride, 1984; Corter & Fleming, 1995). In her study of parental leave
policies in Sweden Linda Haas finds that mothers “have trouble giving up traditional authority for childcare, feel guilty about relinquishing childcare to their partners, believe that men cannot manage alone, and fear a loss of self-respect if they do not make motherhood their primary role” (Haas, 1992, as quoted in Browne, 2002: 183; see also Wilson, 2002: 188).

One explanation for findings such as Hass’ is rigid socialization into gender roles (Lips, 2001; Silverstein & Auerbach, 1999; Williams 1992). A competing explanation argues that there may be evolutionary reasons why mothers care for young children more than men. This explanation cites research that finds associations between hormone levels and nurturing behavior to argue that there may be a biological basis for persistent gender differences in the performance of childcare (Maestripieri, 2002; Crenshaw, 1996; Udry, Morris, & Koveneck, 1995; Hrdy, 1999; Angier 1999; Fisher, 1989: 123).

Whether the cause is rooted in society or biology, the finding that infants who are “fatigued, alarmed, or stressed” prefer mother to father is widely reported (Thompson, 1983: 71). This result is confirmed in our sample of assistant professors and perhaps it is the preference of the infant for mother over father that leads the female professors in our study to perform more childcare than the male professors, despite the stated belief of most male and female academics that childcare should be shared equally between husband and wife.

Our study shows that with very few exceptions female faculty do more baby and toddler care than do male faculty. Since female faculty experience fatigue during pregnancy and its aftermath and since breastfeeding eats into their time available for careers in a way it does not for male faculty, the belief that post-birth leave should be gender neutral requires re-examination. Sixty-four percent of schools surveyed offered, on the same terms, paid post-birth leaves to both mothers and fathers; moreover, our survey showed majority support of both sexes for neutrality. But respondents could not have known what we
have learned. If men should begin to take leave in far larger numbers, gender neutral paid post-birth leave could well tilt the playing field further against women rather than leveling it.

Several Scandinavian countries, thought to be in the forefront on questions of gender equity, reserve extended post-birth leaves for mothers. Moreover, the maternity leaves are often made compulsory. (Knudsen, 2002; Kamerman, 2000).

If any group of individuals could be expected to achieve equal division of childcare and paid work duties between husband and wife, university professors would have to be considered among the most likely candidates. Yet despite the belief of most professors that an equal division should exist and despite the existence of paternal leave policies, an equal division of childcare and paid work duties does not exist in this group.

Of course, longitudinal data will be the most useful in determining the actual impact of these leave policies on the careers of the male and female professors who utilize them. We hope to have this data in five years when we conduct a follow up study with our participants. Further research that captures data on the preferences, attitudes and behaviors of spouses would also be quite useful.

We also hope that future research will continue to explore the ways in which the personal preferences of men and women regarding childcare impacts gender roles. We believe that these preferences may place serious constraints on the extent to which social policy can impact gender roles.
References


### Table 1 Participation in and Enjoyment of Childcare Tasks: Descriptive Statistics

<table>
<thead>
<tr>
<th>Childcare Task</th>
<th>Participation</th>
<th></th>
<th>Enjoyment</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Male</td>
<td>Female</td>
<td>Eta</td>
<td>Male</td>
</tr>
<tr>
<td></td>
<td>M</td>
<td>n</td>
<td>M</td>
<td>n</td>
</tr>
<tr>
<td>buying clothes for child</td>
<td>2.029</td>
<td>103</td>
<td>4.125</td>
<td>72</td>
</tr>
<tr>
<td>selecting clothes for the child</td>
<td>2.000</td>
<td>108</td>
<td>4.068</td>
<td>73</td>
</tr>
<tr>
<td>comforting the child</td>
<td>2.380</td>
<td>108</td>
<td>3.699</td>
<td>73</td>
</tr>
<tr>
<td>picking child up from paid care</td>
<td>2.477</td>
<td>44</td>
<td>3.167</td>
<td>42</td>
</tr>
<tr>
<td>discuss child with relative or care provider</td>
<td>2.532</td>
<td>94</td>
<td>3.768</td>
<td>69</td>
</tr>
<tr>
<td>Taking care of child when sick</td>
<td>2.429</td>
<td>98</td>
<td>3.448</td>
<td>67</td>
</tr>
<tr>
<td>Giving child a bath</td>
<td>2.676</td>
<td>108</td>
<td>3.753</td>
<td>73</td>
</tr>
<tr>
<td>changing child's clothes</td>
<td>2.306</td>
<td>108</td>
<td>3.507</td>
<td>73</td>
</tr>
<tr>
<td>seeking and implementing advice on childcare</td>
<td>2.520</td>
<td>102</td>
<td>3.681</td>
<td>72</td>
</tr>
<tr>
<td>getting up at night to care for child</td>
<td>2.486</td>
<td>105</td>
<td>3.696</td>
<td>69</td>
</tr>
<tr>
<td>buying food for child</td>
<td>2.548</td>
<td>93</td>
<td>3.190</td>
<td>63</td>
</tr>
<tr>
<td>changing child's diapers</td>
<td>2.417</td>
<td>108</td>
<td>3.233</td>
<td>73</td>
</tr>
<tr>
<td>Activity</td>
<td>Mean (n)</td>
<td>SD</td>
<td>T</td>
<td>df</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>----------</td>
<td>-----</td>
<td>----</td>
<td>-----</td>
</tr>
<tr>
<td>taking child to doctor</td>
<td>2.407</td>
<td>108</td>
<td>3.562</td>
<td>73</td>
</tr>
<tr>
<td>staying home from work to care for child</td>
<td>2.376</td>
<td>85</td>
<td>3.448</td>
<td>58</td>
</tr>
<tr>
<td>feeding the child</td>
<td>2.701</td>
<td>108</td>
<td>3.137</td>
<td>73</td>
</tr>
<tr>
<td>buying toys or books for child</td>
<td>2.762</td>
<td>105</td>
<td>3.384</td>
<td>73</td>
</tr>
<tr>
<td>talking to the child</td>
<td>2.324</td>
<td>107</td>
<td>3.795</td>
<td>73</td>
</tr>
<tr>
<td>taking child visiting</td>
<td>2.779</td>
<td>104</td>
<td>3.205</td>
<td>73</td>
</tr>
<tr>
<td>taking child for a walk in stroller</td>
<td>2.709</td>
<td>103</td>
<td>3.314</td>
<td>70</td>
</tr>
<tr>
<td>taking child to paid childcare</td>
<td>2.864</td>
<td>44</td>
<td>3.500</td>
<td>42</td>
</tr>
<tr>
<td>managing division of labor of parenting tasks</td>
<td>2.728</td>
<td>103</td>
<td>3.676</td>
<td>68</td>
</tr>
<tr>
<td>washing or repairing child's clothes</td>
<td>2.074</td>
<td>108</td>
<td>3.848</td>
<td>66</td>
</tr>
<tr>
<td>limiting social activities to care for child</td>
<td>2.922</td>
<td>102</td>
<td>3.268</td>
<td>71</td>
</tr>
<tr>
<td>thinking about tasks to do with child</td>
<td>2.505</td>
<td>107</td>
<td>3.806</td>
<td>72</td>
</tr>
<tr>
<td>playing with the child</td>
<td>2.731</td>
<td>108</td>
<td>3.082</td>
<td>73</td>
</tr>
<tr>
<td>Summary Measure (AVG DO)</td>
<td>2.484</td>
<td>108</td>
<td>3.568</td>
<td>73</td>
</tr>
</tbody>
</table>

Summary Measure (AVG LIKE)

Note: T tests for significant differences were two-tailed. *p < .05, **p < .01, ***p < .001. ns are unweighted.
### Table 2

*Descriptive Statistics for Independent Variables*

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>n</td>
</tr>
<tr>
<td>Belief in non traditional gender roles</td>
<td>3.34</td>
<td>107</td>
</tr>
<tr>
<td>Leave taker (%)</td>
<td>0.12</td>
<td>80</td>
</tr>
<tr>
<td>Child preferred to be comforted by respondent</td>
<td>2.59</td>
<td>108</td>
</tr>
<tr>
<td>Child preferred to play with respondent</td>
<td>3.14</td>
<td>103</td>
</tr>
<tr>
<td>Spouse hours of job related work (weekly)</td>
<td>13.97</td>
<td>105</td>
</tr>
<tr>
<td>Number of children under 18 in household</td>
<td>1.76</td>
<td>109</td>
</tr>
<tr>
<td>Sex of youngest child (1=female, 0=male)</td>
<td>0.51</td>
<td>107</td>
</tr>
<tr>
<td>Age of respondent</td>
<td>36.45</td>
<td>108</td>
</tr>
</tbody>
</table>

Note: T tests for significant differences were two-tailed. *p < .05, **p < .01, ***p < .001. Significance is noted on the higher mean.
Table 3

Multivariate Analysis of Factors Impacting Amount of Childcare Performed

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>-1.053***</td>
<td>-1.067***</td>
<td>-1.095***</td>
</tr>
<tr>
<td>(1=male)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Took leave</td>
<td>0.176*</td>
<td>0.767</td>
<td></td>
</tr>
<tr>
<td>(1=leave taker)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Enjoyment summary measure</td>
<td>0.060</td>
<td>0.158*</td>
<td></td>
</tr>
<tr>
<td>(1=dislike a lot, 5=like a lot)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Belief in non-traditional gender roles</td>
<td>-0.070</td>
<td>-0.065</td>
<td></td>
</tr>
<tr>
<td>(1=low belief, 5=high belief)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s preference for respondent/spouse when upset</td>
<td>0.103*</td>
<td>0.051</td>
<td></td>
</tr>
<tr>
<td>(1=always prefers spouse, 5=always prefers respondent)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s preference for respondent/spouse for playing</td>
<td>-0.027</td>
<td>-0.031</td>
<td></td>
</tr>
<tr>
<td>(1=always prefers spouse, 5=always prefers respondent)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Spouse hours of work (weekly)</td>
<td>0.008***</td>
<td>0.007***</td>
<td></td>
</tr>
<tr>
<td>Gender X Non-traditional beliefs</td>
<td>0.118*</td>
<td>0.115*</td>
<td></td>
</tr>
<tr>
<td>Leave X Enjoyment</td>
<td>-0.291*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Leave X Child’s preference when upset</td>
<td>0.146*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender X Leave</td>
<td></td>
<td></td>
<td>0.046</td>
</tr>
</tbody>
</table>

\[\text{N} = 177, \quad \text{R}^2 = 0.69, \quad 161, \quad 0.77, \quad 0.78\]

Note: All models control for number of children under 18 in the household, sex of youngest child, and age of respondent

\(* p<.10, \quad * p<.05, \quad ** p<.01, \quad *** p<.001\)
### Table 4

*Regression Analysis of Factors Impacting Enjoyment of Childcare*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Model 1</th>
<th>Model 2</th>
<th>Model 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender (1=male)</td>
<td>-0.337***</td>
<td>-0.307**</td>
<td>-0.626*</td>
</tr>
<tr>
<td>Took leave (1=leave taker)</td>
<td></td>
<td>0.085</td>
<td>-0.072</td>
</tr>
<tr>
<td>Belief in non-traditional gender roles (1=low belief, 5=high belief)</td>
<td>0.043</td>
<td>-0.005</td>
<td></td>
</tr>
<tr>
<td>Child’s preference for respondent/spouse when upset (1=always prefers spouse, 5=always prefers respondent)</td>
<td>0.016</td>
<td>0.002</td>
<td></td>
</tr>
<tr>
<td>Child’s preference for respondent/spouse for playing (1=always prefers spouse, 5=always prefers respondent)</td>
<td>0.061</td>
<td>0.073</td>
<td></td>
</tr>
<tr>
<td>Spouse hours of work (weekly)</td>
<td>-0.001</td>
<td>-0.002</td>
<td></td>
</tr>
<tr>
<td>Gender X Non-traditional beliefs</td>
<td></td>
<td>0.071</td>
<td></td>
</tr>
<tr>
<td>Gender X Leave</td>
<td></td>
<td>0.036</td>
<td></td>
</tr>
<tr>
<td>Leave X Child’s preference when upset</td>
<td></td>
<td>0.092</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>180</td>
<td>161</td>
<td>161</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.16</td>
<td>0.21</td>
<td>0.22</td>
</tr>
</tbody>
</table>

Note: All models control for number of children under 18 in the household, sex of youngest child, and age of respondent

$^{+}p<.10$, $^{*}p<.05$, $^{**}p<.01$, $^{***}p<.001$