

**Original Article**

**GENDER ROLES AND INFANT/TODDLER CARE:  
MALE AND FEMALE PROFESSORS ON THE TENURE  
TRACK**

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**Abstract**

This study seeks to determine the association between gender role attitudes about childcare, utilization of parental leave policies and parental/infant preferences, on the one hand, and the distribution of childcare in the families of assistant professors with children under two on the other. Both utilization of paid parental leave policies by men and men's belief in non-traditional gender roles are associated with higher levels of participation in parenting tasks. However, even those male professors who take leave and believe in non-traditional gender roles do much less childcare relative to their spouses than female professors do. This result holds even when the male professor's wife works full time. Our results suggest that one reason why female professors do more childcare may be that they like it more than men do. The association of enjoyment of childcare with gender role attitudes or leave-taking status is not statistically significant, which suggests that sex differences in the enjoyment of childcare will not be easily changed by changes in policies or gender role ideology. Accordingly, when exploring the stickiness of gender roles with respect to infant and toddler care, it would seem prudent to consider biological and evolutionary explanations as well as those focusing on institutions and gender ideology.

**Keywords:** Sex and gender differences, gender roles, infant care, parental leave, women in academia

**Introduction**

Having more women in the workforce has not eradicated traditional gender roles because men have not contributed in the domestic realm to the extent that women have contributed to family income through paid labor. Bianchi, Milkie, Sayer, and Robinson (2000) found that although having children under 12 increases housework for both

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parents, it increases “wives’ hours of housework more than three times more than for husbands” (p. 215). Optimistic that this gap will close, they note that from 1965 to 1998, fathers’ time spent in primary childcare went from 25 to 56 percent of mothers’ time. Robinson and Godbey (1997), however, still found women doing 80 percent of childcare and Sutor, Mecom, and Feld (2001) found that female faculty at one major university spend 113 percent more time than male faculty on childcare.

In most social science, explanations for the gendered division of childcare and housework emphasize either institutional and policy structures or gender ideology. For example, Andrushko (2003) argued that basic structural changes are necessary to end gender inequality. Specifically, many believe public policies granting paid post-birth leave from work to both fathers and mothers will help bring about substantial equality in childcare. As Andrushko (2003) explained, if both men and women take time away from work to care for children, women will no longer uniquely suffer “severe restrictions on their career development” (p. 32). Some advocates who hope to increase the involvement of fathers in childrearing would go so far as to make leave for fathers mandatory (Bergmann, 1997; Selmi, 2000).

There is little literature on whether parental leave encourages paternal involvement in childcare. Existing studies focus on leave policies in Europe for the most part, and they show that male usage rates are low (*The Economist*, 2004; Haas, 1992). Other studies focus solely on the impact of the policies on the employment of women (Kammerman, 2000). Huws, et al. (1996) studied male and female freelance translators who worked exclusively out of their homes, submitting their work electronically. Even though half of the men had been working at home for over five years, role segregation persisted. Hakim (2000) concluded more generally that “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” (p.148).

Adopting a personal rather than a structural perspective, some commentators have argued that male attitudes about gender roles must change. Ross (1987) held 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” (p. 816). Crosby, Williams, and Biernat (2004) argued that changing stereotypes can change realities.

The argument that changing gender role attitudes may 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 found a positive association between the egalitarian attitudes of fathers and those fathers’ participation in childcare, and Ross (1987) found a similar association between less traditional sex-role beliefs in husbands and a greater level of performance of household tasks. Other studies, however, find that changing attitudes does not have a substantial impact on the division of labor within the family. Thompson and Walker (1989) discovered little relationship between gender role attitudes and the division of household work. Similarly, Hakim (2000) cited numerous examples of weak association between social attitudes and behavior.

Biological and evolutionary explanations for patterns of childcare may be as important as structural or ideological explanations, especially when considering the care of infants and toddlers. Among both monkeys and humans, young females persist in seeking contact with infants even when the mother tries to keep them away (Maccoby, 1998; Maestripieri & Pelka, 2002; Maestripieri & Roney, 2006;; Rossi, 1987). Compared

with males, female preadolescent rhesus monkeys raised in complete social isolation and therefore immune to the pressures of socialization are less aggressive and more nurturing toward infants presented to them for the first time (Popenoe, 1996).

Males have more testosterone which inhibits nurturing and women more oxytocin which enhances it. There is evidence of “an inverse relationship between free testosterone and nurturance—both within and between the sexes” (Hausman, 1999, p. 53). For example, a 2002 study of male responses to infant cries found that fathers and non-fathers with lower testosterone levels had higher sympathy and/or need to respond to the cries when compared to fathers with higher testosterone levels (Fleming, Corter, Stallings, & Steiner, 2002). Udry and colleagues find that women with high testosterone are less likely to have characteristically feminine interests such as liking baby care (Udry, Morris, & Kovenock, 1995). Van Honk and colleagues (2011) have found that females on average outperform males on measures of cognitive empathy which is thought to be one explanation for their greater attraction to infants; they also find that administering testosterone impairs cognitive empathy and that the effect is powerfully predicted by a proxy of fetal testosterone: the right hand second digit to fourth digit ratio (also see Chapman (2006 et. al.)

In virgin female monkeys injection of oxytocin produces maternal behavior (Angier, 1999). In humans oxytocin promotes bonding and a calm, relaxed emotional state (Uvnas-Moberg, 1996). In women oxytocin is released in large quantities during pregnancy and breastfeeding. Breast feeding mothers—more than bottle feeders or “thwarted breastfeeders,” who planned to breastfeed but were unable to—feel worse and are quicker to respond when their babies cry (Entwisle & Doering, 1981; Rhoads, 2004).

Hormonal variables may be proximate causes of parenting differences, and evolutionary processes more fundamental causes. Paternity is not as certain as maternity and men can sire far more offspring than women. Decades ago, Trivers demonstrated that the minimum biological costs of reproduction are far greater for women than for men (Campbell, 2002; Trivers, 1972). Through evolutionary time, women who channeled energy into parenting would be helping genetic survival, but many men might have promoted gene survival more successfully by gaining sexual access to additional mates. The inherited psychological makeups that led to successful genetic reproduction for each sex in the environment of evolutionary adaptedness may still influence males’ and females’ psychology today.

Women do more childcare in every society. This is especially true for infant and toddler care. Despite the general gender equality found in a tribe such as the !Kung San, fathers in that community provide less than 7 percent of the care for children under two (Geary, 2010). In the United States, cohabiting couples, compared with married couples, have a less traditional division of household labor with one notable exception: the care of infants (Nock, 1999). Studies of the mathematically and scientifically gifted find that, especially after having children, women value time with family more than men (Ferriman, Lubinski, & Benbow, 2009). In a very recent study, female college seniors say they want to work substantially less than their partners when they have young children; male college students say that they want to work much more than their partners when they have young children (Bleske-Rechek, Fuerstenberg, Harris, & Ryan (2011).

To our knowledge, longitudinal data pertaining to trends in the gendered division of care-giving for young children does not exist. It is suggestive, however, to see whether communities with strong egalitarian ideologies have gendered patterns of childcare. In this regard, scholars have been drawn to the Israeli kibbutzim. The kibbutzim aimed quite

explicitly to break down historic, stereotypical sex roles. Children were placed in houses apart from their parents. Communal kitchens and laundries were created to further emancipate women from domestic obligations and allow them to work outside the home as men did (Browne, 2002). But the idea that children should be raised in common proved to be a major stumbling block. Over time, more and more kibbutzim revisited the question of where children should live and decided they should stay with their families. Today the family is “the basic unit of kibbutz social structure” (Browne, 2002, p.107; Smith, 2000; Tiger, 1987). The movement back toward family-centered child care was led by young mothers whose adamant lobbying convinced their husbands to vote in favor of the change (Fuchs, 1988; Tiger, 1987). The mothers’ desire to devote more time to maternal activities violated the principles of the kibbutz and contravened the wishes of the men in their community. But the women’s will prevailed (Eular, 2010). Although both parents continue to work outside the home while nurseries care for their young children, at the end of the day, when mothers get back home, they “are still far more frequently involved in child-care duties and in spontaneous interaction with the child” (Campbell, 2002, p. 57) than fathers are.

Similar results have been found in Sweden. Even in families where fathers took leave and expressed a desire to be the primary caretaker of their new baby, the traditional parenting differences emerged. For example, the “mothers displayed affectionate behavior, vocalized, smiled, tended, held, disciplined and soothed the infant more than the fathers” (Campbell, 2002, pp. 57-58)

This study is an attempt to assess the “stickiness” of gender roles. We focus on baby and toddler care exclusively looking at all tasks that must be performed by those caring for young children. We report results from a survey of 181 married, heterosexual, tenure track professors all of whom have children under two and are teaching at schools with paid parental leave policies.

Tenure track female professors have a particularly strong incentive to achieve an equal division of childcare responsibilities in their households given the pressure to publish research. Zhang and Farley (1995) stated, “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” (p. 197). Still, recognition of a problem does not constitute a solution: a 1995 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” (Finkel & Olswang, 1995, p.131) posed a serious threat to achieving tenure.

Most studies of the gendered division of childcare examine couples in a variety of occupations with varying time and travel demands (Nock & Kingston, 1988; Renk et al., 2003). Our study has the advantage of comparing men and women who have the same occupation, each of whom is at a crucial stage of his or her career and each of whom has a child under the age of two.

This study avoids some other limitations of existing studies. The literature tends to examine the sex-based division of household labor generally without focusing on childcare specifically (Ross, 1987; Shelton & John, 1996; Zhang & Farley, 1995). Even those studies that give special attention to childcare or even to parents working for one company (Hill, Hawkins, Martinson & Ferris, 2003) usually examine families with children of varying ages (Nock & Kingston, 1988; Sutor et al., 2001; Yogev, 1981), or if they do restrict attention to families with younger children, they look at all families with

pre-school aged children, not just infants and toddlers (Aldous, et al., 1998; Finkel & Olswang, 1995).

The granting of parental leave to fathers is unlikely to increase paternal participation in childcare in the absence of egalitarian gender role attitudes about childcare. By restricting attention to university professors, we study a group likely to have gender role attitudes especially conducive to testing whether 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 previous studies on housework/childcare issues is their focus on gender role attitudes and structural constraints, without concern for parental preference (Hakim, 2000). Shelton and John (1996) noted that the relative resources structural explanation “assumes that housework is viewed negatively by both women and men and that they are therefore motivated to reduce their share of it” (p. 304). Some explicitly discount the potential role that personal preferences play as an explanation of gendered outcomes (Crosby et al., 2004). We explore the idea that differences in parental preferences may help explain why gender differences in the performance of childcare persist despite social forces and policies that encourage equality.

The preferences of infants and toddlers may also be relevant. Previous research has shown that young children prefer to play with their fathers but to be comforted by their mothers (Lamb, 2002; Pruett, 2000). Perhaps when parents make decisions about how to divide childcare duties, they respond in part to cues from their children. If infants consistently convey a preference for mothers over fathers, then any continuing dichotomy in the performance of infant care could be partially a response to the perceived needs of infants.

In sum, the current study seeks to determine, in this sample of university professors, the association between gender role attitudes about childcare, utilization of parental leave policies, and parental/infant preferences, on the one hand, and the distribution of childcare on the other.

## Method

### *Data*

The sample of university professors used in this study comes from a larger study on leave policies in colleges and universities. This leave study used a multi-stage stratified sampling design. The sampling frame drew from *Peterson's Guide to Four-Year Colleges*, with *Peterson's* categorization of the competitiveness of the institution defining the strata. Within strata, schools were selected with probabilities proportionate to the size of each school's full-time faculty.

A sample of 168 schools was drawn from the sampling frame. Human resources and other departments at these schools provided information on leave policies. Because the nature of the leave policies varied greatly, the following criteria were developed for the purpose of categorizing a school as offering “paid leave”: (a) more than six weeks of full relief of teaching duties with full pay; or (b) half relief of teaching for one full semester or quarter with full pay; or (c) full relief of teaching for a full semester or a quarter 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 offering paid leave. Of these 40 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. To make initial contact with surveyed professors, the sampling frame at the university level relied on published university listings of e-mail addresses, as well as university department websites when a listing of e-mail addresses for the whole university was unavailable. This process produced a list of 6,534 assistant professors. In the fall of 2001, each received a web-based qualifying survey determining eligibility for the study, and 3,029 responded, yielding a putative response rate of 46 percent. It is likely that a significant number of the non-respondents screened themselves out of the survey because they were no longer assistant professors, were not tenure track, or did not have children. Of the 3,029 responses received, 319 were from tenure-track assistant professors with a child under the age of two.

### *Sample*

Phone contact information was accessible for 289 of the 319 professors of interest in this paper. Of the 289 professors with available phone contact information, 163 were males who had not taken parental leave. For budget reasons, once telephone surveys had been completed by 96 of these 163 males, our research team no longer attempted to acquire completed telephone surveys from males who had not taken leave. Thus non-leave-taking males had a lower probability of inclusion in the final sample than other individuals. The analyses in this paper use appropriate weights to compensate for this unequal probability of selection. Our research team administered telephone surveys in the spring of 2002 to a total of 184 professors, for a response rate at this stage of the survey of 70 percent. Out of the 184 assistant professors who completed the telephone survey, 181 were married heterosexuals, and these tenure-track, married, heterosexual assistant professors with children under two are the subject of the current paper.

In our analysis sample, 40.4 percent of the respondents (unweighted  $n = 68$ ) were males who had never taken leave despite being eligible for the paid leave policy at their school; 16.2 percent (unweighted  $n=27$ ) were males who had never taken paid or unpaid leave but were not eligible for paid leave at their university; 11.1 percent (unweighted  $n=22$ ) were females who had never taken leave despite being eligible for a paid leave benefit; 5.5 percent (unweighted  $n=11$ ) were males who had taken paid or unpaid leave in the past two years; 24.7 percent (unweighted  $n=49$ ) were females who had taken leave in the past two years. 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 percent of the weighted sample.

### *Measures*

**Performance of childcare.** Performance of childcare was measured for 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 how often he or she performed the task compared to how often his or her spouse

performed the task. Childcare performance 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 and Kingston, 1988). We attempted to ask questions about every important infant/toddler care task. The tasks encompassed items that assess the division of parental responsibility for basic care (e.g., changing diapers, care when sick), logistics (e.g., transportation to paid day care, buying food or toys), consulting and planning care (e.g., seeking and implementing advice, managing the division of labor), recreation (e.g., playing with the child), and emotional involvement (e.g., comforting the child when upset). These categories follow closely the categories used by Deutsch et al. (1993). Response options used a five point Likert scale ranging from 1=spouse always performs task to 5=respondent always performs task. The simple average of all 25 responses is reported as a summary measure of relative performance of childcare. Since the reliability coefficient for this scale is quite high (Cronbach's  $\alpha = 0.95$ ), it was deemed acceptable to use the simple average rather than more complex combinations of the data deriving from a factor analysis.

**Breastfeeding.** Since breastfeeding is a particularly time-consuming activity for new mothers and can only be performed by females, a separate set of questions dealt with information about this topic. Respondents were asked whether their child was breastfed for any length of time, and if the response was affirmative, they were asked for how many months the child was breastfed. Since some respondents (or spouses of male respondents) were still breastfeeding at the time of data collection, standard survival analysis methods were used to analyze this data. Female respondents who had breastfed were asked how much they enjoyed breastfeeding. Responses were measured on a three point scale with responses ranging from 1=didn't enjoy to 3=enjoyed very much.

**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 create an aggregate measure of enjoyment of childcare the data for all 25 responses were again averaged. Cronbach's alpha for the enjoyment scale was estimated as 0.88.

**Gender role attitude about sharing childcare.** Gender role attitude about sharing childcare is 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 (as reported by respondent).** Each respondent was asked by which parent the child preferred to be comforted and with which parent the child preferred to play. Responses ranged from 1=always prefers spouse to 5=always prefers respondent. We note 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. This measure may be inaccurate as regards children's preferences; however, the measure can be an accurate measure of a parent's perception of his or her child's preference. This information is 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 the mother will probably 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 post-birth leave in the recent past to form the category of leave-takers for all analyses involving a leave-taking variable. Another issue touching on the construct validity of the

leave variable is that the 27 men from schools that did not grant leave to men were counted together with the 69 males who did not take leave despite teaching at a school that granted leave to men as non-leave takers. The grouping was deemed appropriate since these two groups did not differ significantly with regard to any of the variables considered in this article. Thus, leave taking was constructed as a dichotomous variable with the values, “took leave at some point” and “never took leave.”

**Use of paid childcare.** Respondents were asked how many hours, if any, their youngest child spent in childcare in a typical week.

**Spousal employment.** Respondents were asked whether their spouse worked or not, what their spouse’s occupation was, and the number of hours per week that their spouse worked. 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 the measures that are considered independent variables in all regression analyses are presented in Table 1. Results pertaining to participation in and enjoyment of childcare, stratified by gender, are presented in Table 2. Since some variables contained censored data, the Kaplan-Meier method was used to estimate medians for these variables and the logrank test was used to compare males and females. The other variables were analyzed using either t-tests or chi-square tests, whichever was appropriate for the variable. Eta correlation coefficients are reported in Table 2.

**Table 1.** Descriptive Statistics for Independent Variables

	Male		Female	
	<i>M</i>	<i>n</i> (unweighted)	<i>M</i>	<i>n</i> (unweighted)
Belief that “Families usually do best if the husband and wife share equally in childcare, household work and paid work”	3.33	106	3.97***	72
Leave taker (% taking leave when available)	0.12	79	0.69***	71
Respondent’s report: by whom the child preferred to be comforted	2.59	108	3.88***	73
Respondent’s report: with whom the child preferred to play	3.14	103	3.10	72
Median spouse hours of job related work (weekly)	7.5	105	35.5***	72
Median hours youngest child in day care (weekly)	0	107	35.5***	73
Enjoyment of breastfeeding (females) (1=didn’t enjoy, 3=enjoyed very much)			2.62	71
Child ever breast-fed (%)	0.91	107	0.97	73
Child being breast-fed at time of data collection (%)	0.44	108	0.44	73
Median number of months youngest child breastfed	11	97	11	97
Respondent’s field in natural sciences (%)	.68**	108	.44	73
Respondent’s spouse is a professor (%)	.15	108	.37**	73
Number of children under 18 in household	1.77	108	1.59	73
Sex of youngest child (1=female, 0=male)	0.51	106	0.50	72

*Note:* T-tests for significant differences were two-tailed. <sup>†</sup>*p*<.10, \* *p*<.05, \*\* *p*<.01, \*\*\* *p*<.001. Significance is noted on the higher mean. Estimates of Number of months youngest child breastfed, spouse hours of job related work and number of months youngest child was breastfed were obtained using the Kaplan-Meier method. Significance for these variables is with regard to the logrank test.



Gender roles

**Table 2.** Participation in and Enjoyment of Childcare Tasks: Descriptive Statistics

Childcare task	Participation					Enjoyment				
	Male		Female		Eta	Male		Female		Eta
	M	n	M	n		M	n	M	n	
Buying clothes for child	2.029	103	4.125***	72	0.800	2.89	98	4.19***	73	0.517
Selecting clothes for child	2.000	108	4.068***	73	0.811	3.24	104	4.30***	73	0.472
Comforting the child	2.380	108	3.699***	73	0.762	4.19	108	4.66***	73	0.299
Picking child up from paid care	2.477	44	3.167**	42	0.324	3.80	55	4.34**	44	0.285
Discussing child with relative or care provider	2.532	94	3.768***	69	0.636	3.46	95	4.03***	69	0.278
Taking care of child when sick	2.429	98	3.448***	67	0.613	3.16	98	3.81***	68	0.279
Giving child a bath	2.676	108	3.753***	73	0.461	4.15	104	4.71***	73	0.299
Changing child's clothes	2.306	108	3.507***	73	0.695	3.23	108	3.82***	72	0.277
Seeking and implementing advice on childcare	2.520	102	3.681***	72	0.647	3.47	102	3.94**	71	0.243
Getting up at night to care for child	2.486	105	3.696***	69	0.531	2.12	103	2.64**	70	0.245
Buying food for child	2.548	93	3.190***	63	0.305	3.48	89	3.89**	61	0.228
Changing child's diapers	2.417	108	3.233***	73	0.549	2.79	108	3.22**	73	0.196
Taking child to doctor	2.407	108	3.562***	73	0.584	2.95	102	3.36*	73	0.185
Staying home from work to care for child	2.376	85	3.448***	58	0.454	2.59	97	3.00*	66	0.177
Feeding the child	2.701	108	3.137***	73	0.712	4.31	100	4.56*	73	0.180
Buy toys or books for child	2.762	105	3.384***	73	0.391	4.55	106	4.75*	73	0.152
Talking to the child	2.324	107	3.795***	73	0.409	4.92	106	4.97 <sup>+</sup>	73	0.118
Taking child visiting	2.779	104	3.205***	73	0.375	4.40	104	4.58	72	0.112
Take child for walk in stroller	2.709	103	3.314***	70	0.396	4.72	106	4.86	70	0.139
Take child to paid childcare	2.864	44	3.500*	42	0.262	3.19	58	3.36	47	0.087
Managing division of labor of parenting tasks	2.728	103	3.676***	68	0.626	2.98	103	2.79	72	0.089
Washing or repairing child's clothes	2.074	108	3.848***	66	0.695	2.80	87	2.88	68	0.045
Limiting social activities to care for child	2.922	102	3.268***	71	0.353	2.88	106	2.96	72	0.044
Thinking about tasks to do with child	2.505	107	3.806***	72	0.673	3.50	103	3.59	73	0.044
Playing with the child	2.731	108	3.082***	73	0.289	4.94	108	4.95	73	0.002
Summary Measure (AVG DO)	2.484	108	3.568***	73	0.827					
Summary Measure (AVG LIKE)						3.57	108	3.94***	73	0.394

Note: T-tests for significant differences were two-tailed. <sup>+</sup> $p < .10$ , \*  $p < .05$ , \*\*  $p < .01$ , \*\*\*  $p < .001$ . *ns* are unweighted.

### *Participation in Childcare Tasks*

We note that for all 25 of the participation 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 percent=2.8) have scores above 3.0 for the summary measure of performance. In contrast, 70 out of the 73 women in our sample (weighted percent=95.9) have scores above 3.0.

We are interested in how the utilization of parental leave affects the distribution of childcare. 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. Although there was a significant difference between male leave takers and male non-leave takers  $t(104)=2.92, p=0.004$  no such difference was discovered for women  $t(69)=1.65, p=0.10$ . However, even though male leave takers do more than other men, they still do significantly less childcare than female leave takers. Moreover, male leave takers also do much less than female *non-leave* takers  $t(31)=5.53, p<0.001$ .

### *Independent Variables and Relation to Participation in Childcare Activities*

Table 1 shows that only 12 percent of men take advantage of available paid leave (as compared to 69 percent of women). Also, the spouses of the male professors worked far less (median 7.5 per week) than the spouses of the female professors (median 35.5); moreover, many more male than female professors had non-working homemaker spouses (36.3 percent vs. 2.8 percent).

Assistant professors with homemaker spouses are, not surprisingly, likely to do less childcare than others. Males with homemaker spouses do significantly less childcare than males without  $t(106)=5.25, p<0.001$ , homemaker wife mean = 2.32, without homemaker wife mean = 2.62. Nevertheless, those without a homemaker wife still had mean scores significantly less than 3.0  $t(71)=11.27, p<0.001$ .

We find that respondents are more likely to say their youngest child prefers to be comforted by his/her mother than by his/her father. The average male response to the comforting question was significantly lower than 3.0 ( $M=2.38$ ),  $t(107)=-11.53, p<0.001$ , while the average female response was significantly higher than 3.0 ( $M=3.70$ ),  $t(72)=-10.96, p<0.001$ . We did not find evidence that children preferred to play with their fathers.

Female professors were significantly more likely to agree that: "Families usually do best if the husband and wife share equally in childcare, household work and paid work." 75 percent of women agreed or strongly agreed with this statement compared to 54.7 percent of men  $\chi^2(1, N = 178) = 7.56, p = .006$ . Men who agreed with this statement performed more childcare than other men,  $t(104)=3.14, p=.002$ . However, these men still performed less childcare than women who didn't take leave, i.e., the women who do the least childcare  $t(78)=10.95, p<.001$ . Similarly, men who agreed with the above statement

did much less childcare than their wives, and the women who agreed with it did much more childcare than their husbands (male  $M = 2.58$ , female  $M = 3.52$ ).

*Relative Enjoyment of Childcare*

Most of the academics in our study said they believe that husbands and wives should share childcare equally, but almost none did so. One possible explanation is the difference in the extent to which men and women enjoy childcare.

Female academics had higher mean enjoyment scores than males on 24 of the 25 tasks. The sole exception was for “managing the division of labor for parenting tasks,” which men disliked less 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. For the set of 25 questions measuring enjoyment of childcare tasks, only 2 percent of the total female responses indicated a strong dislike for the task, and only 14 percent of the women indicated a moderate dislike for the task. None of the 73 women surveyed had scores on the summary variable below three. In contrast, 9.5 percent (unweighted  $n=10$ ) of the men had summary scores below three. In addition, 70 of the 71 women who breastfed their child said they enjoyed it.

*Linear Regression Analysis of Factors Impacting Performance of Childcare*

To further explore the impact that the variables in our study have on professors’ childcare, we constructed a linear model with the summary performance variable as the dependent variable. We initially examined the bivariate relationship between our control variables and the outcome in Model 1. We then added gender as an explanatory variable in Model 2. Model 3 added all other explanatory variables. Finally, we added interaction effects to Model 4. The results are presented in Table 3. The interaction between gender and belief in non-traditional gender roles is included in Model 3 because one would expect that a strong belief in non-traditional gender roles would encourage males to do more child care but females to do less child care. The same logic led us to include a term for the interaction between the gender and breastfeeding at time of data collection variables, since female professors were breastfeeding their child while for male professors it is the spouse who is doing the breastfeeding.

**Table 3.** Regression Analysis of Factors Impacting Amount of Childcare Performed

Variable	Model 1 (standardized $B$ )	Model 2 (standardized $B$ )	Model 3 (standardized $B$ )	Model 4 (standardized $B$ )
Gender of youngest child (1=male)	0.080	0.040	0.047	0.045
Number of children under age 18 in household	-0.133	-0.063	0.025	0.025
Respondent’s field is natural science (1=true)	-0.151*	0.022	0.020	0.026
Respondent’s spouse is Professor (1=true)	0.202**	0.017	-0.022	-0.007
Youngest child breastfeeding when data collected (1=true)	-0.078	0.039	0.018	0.291

Gender roles

Gender (1=male)		-0.763***	-0.897***	-1.156***
Took leave (1=leave taker)			0.141**	0.924*
Enjoyment summary measure (1=dislike a lot, 5=like a lot)			0.033	0.115*
Belief in non-traditional gender roles (1=low belief, 5=high belief)			-0.156*	-0.157*
Child's pref for respondent/spouse when upset (1=always spouse, 5=always respondent)			0.155**	0.070
Child's pref for respondent/spouse for playing (1=always spouse, 5=always respondent)			-0.017	-0.020
Spouse homemaker (1=true)			-0.267***	-0.219**
Spouse works part-time (1=true)			-0.161**	-0.159**
Time youngest child in daycare (weekly)			-0.087	-0.261**
Gender X Youngest child breastfeeding		-0.133	-0.096	0.000
Gender X Time in daycare				0.254**
Gender X Non-traditional beliefs				0.358*
Leave X Enjoyment				-1.176**
Gender X Leave				0.021
Leave X Child's preference when upset				0.354 <sup>+</sup>
<i>N</i>	178	178	166	166
Adjusted R <sup>2</sup>	0.07	0.68	0.74	0.77
Model Significance F(df)	3.67(5,172)**	55.12(7,170)***	30.59(16,149)***	28.73(20,145)***

Note: All models control for children under 18, sex of youngest child, age of respondent, <sup>+</sup>*p*<.10, \**p*<.05, \*\**p*<.01, \*\*\**p*<.001.

Model 2 serves to underscore the very strong relationship between gender and amount of childcare performed. Including gender in Model 2 causes the adjusted R<sup>2</sup> to increase from virtually nothing to 0.68. It is interesting to note that the additional explanatory variables that are added in Models 3 and 4 do not mitigate the effect of gender on the response. In fact, the coefficient of the gender variable increases in size as we move from Model 2 to Model 4.

Models 3 and 4 show that, in addition to gender, many of the other independent variables under consideration have a strong association with performance of childcare. An egalitarian attitude about *sharing childcare*, together with its interaction with gender, is a significant predictor of more childcare performance by male professors and of less childcare performance by female professors. However, the size of the associated regression coefficients compared to the coefficient of gender suggests that

gender differences in the performance of childcare would persist even if egalitarian beliefs were generally held.

Leave-taking is a significant predictor in Models 3, although the size of its associated standardized regression coefficient is not large compared to the coefficient associated with gender. Model 4 continues to show leave-takers doing more childcare than non-leave takers, however, the model predicts that a male who takes leave will still do less childcare than a female who does not, given the assumption that their values on other variables of interest are the same. Although the use of paid childcare is not on average significantly associated with performance of childcare, Model 4 shows us that once its interaction with gender is taken into account it does have a significant effect. As noted above, this effect is positive for men but negative for women, thus indicating that use of childcare is associated with a more egalitarian division of childcare labor.

Parental perception of a child’s preferences for comforting is significantly associated with childcare performance in Model 3 and through its interaction with the leave-taking variable in Model 4. Thus, to the extent that parental perception may be taken as a good proxy for the feelings of the child, child preferences may help explain gendered childcare.

Enjoyment of childcare does not appear as a significant predictor in Model 3, but Model 4 reveals that its true significance was being masked by the omission of its interaction with leave from the model. In Model 4 we find that for those who take leave, doing more childcare is associated with liking childcare less. For those who do not take leave, doing more childcare is associated with liking childcare more.

*Regression Analysis of Factors Impacting Enjoyment of Childcare*

We also examined the relationship between independent variables and parental enjoyment of childcare using linear regression with the summary enjoyment variable as the response. Four models were fit in the same fashion as for performance. Results are in Table 4.

**Table 4.** Regression Analysis of Factors Impacting Enjoyment of Childcare

Variable	Model 1 (standardized <i>B</i> )	Model 2 (standardized <i>B</i> )	Model 3 (standardized <i>B</i> )	Model 4 (standardized <i>B</i> )
Gender of youngest child (1=male)	0.29	0.010	0.074	0.074
Number of children under age 18 in household	-0.118	-0.092	-0.050	-0.050
Respondent’s field is natural science (1=true)	0.024	0.101	0.143	0.147 <sup>+</sup>
Respondent’s spouse is Professor (1=true)	0.239**	0.156	0.191*	0.200*
Youngest child breastfeeding when data collected (1=true)	-0.070	-0.051	-0.077	-0.103
Gender (1=male)		-0.361***	-0.574 <sup>+</sup>	-0.693 <sup>+</sup>
Took leave (1=leave taker)			0.086	-0.276

*Gender roles*

Belief in non-traditional gender roles (1=low belief, 5=high belief)			-0.045	-0.043
Child's pref for respondent/spouse when upset (1=always prefers spouse, 5=always prefers respondent)			0.038	-0.039
Child's pref for respondent/spouse for playing (1=always prefers spouse, 5=always prefers respondent)			0.031	0.032
Spouse homemaker (1=true)			0.007	0.034
Spouse works part-time (1=true)			0.061	0.072
Time youngest child in daycare (weekly)			-0.094	-0.131
Gender X Youngest child breastfeeding	0.000		-0.042	-0.019
Gender X Time in daycare				0.072
Gender X Non-traditional beliefs				0.218
Gender X Leave				0.072
Leave X Child's preference when upset				0.333
<i>N</i>	178	178	166	166
Adjusted R <sup>2</sup>	0.048	0.157	0.170	0.159
Model Significance F(df)	2.80(5,172)*	5.72(7,170)***	3.25(15,150)***	2.73(18,147)***

*Note:* All models control for children under 18, sex of youngest child, and age of respondent <sup>+</sup>*p*<.10,  
\* *p*<.05, \*\* *p*<.01, \*\*\* *p*<.001.

In all models that include gender, it is at least marginally significant as a predictor of enjoyment. The key fact to notice from Table 4 is that the association of enjoyment of childcare with gender role attitudes or leave-taking status is not statistically significant, which suggests that sex differences in the enjoyment of childcare will not be easily changed by changes in policies or gender role ideology. Furthermore, although the regression model does show a positive correlation between greater enjoyment of childcare and less traditional beliefs about gender roles in males, this correlation is much weaker than the correlation between gender and enjoyment. Thus, even if societal attitudes towards gender roles were to continue to change, it seems unlikely that the average enjoyment of child care tasks by men would be equal to the enjoyment women get from childcare. If it is indeed enjoyment, rather than gender role attitudes, that drives childcare participation, then we can expect females to continue to perform a substantial majority of childcare work.

### Discussion

This study demonstrates that male tenure-track professors with a young child do significantly less childcare relative to their spouses than their female colleagues. It also suggests that neither changing the attitudes of men and women about appropriate gender

roles nor offering paternal leave to male professors will bring about equality between the sexes in the division of childcare, at least when children are infants or toddlers. Six men in our study took paid leave, had an egalitarian ideology about the division of household labor, and were married to women with full time jobs. By their own reports, none of these men did as much as half of the childcare.

Our results suggest that one reason why female professors do more childcare may be that they like it more than men do. This conclusion is possible even though the vast majority of female respondents and a clear majority of male respondents believe that husbands and wives should share childcare equally. Gender ideology about care may be less important than feelings on these matters.

Of course, the validity of our study conclusions is limited by the fact that performance of childcare is measured by self-report. It would be useful if future studies validated the current results by measuring time on tasks by other commonly used measures such as outside observation or random sampling of tasks done in a day via the use of beepers.

Some would argue that because of societal expectations or social desirability, women believe that they should report enjoying childcare more than they actually do. To report otherwise might make them feel like bad mothers (Haas, 1992; Wilson, 2002). This is quite possible, and yet mothers in our sample apparently did not believe that they needed to report that they liked all tasks. Most reported, for example, disliking getting up at night to care for their child and washing and repairing their child's clothes. Moreover, mothers reported that they liked changing diapers (summary score 3.22; male summary score 2.79), and it does not seem obvious that most of society would expect good mothers to do so.

Though perceived social expectations may have affected some female respondents' answers, it may also have caused some of our male respondents to inflate their reports of their childcare duties. Most of the men in our sample believe that men and women should share equally in childcare. When we debriefed our phone interviewers, they reported that the men surveyed often seemed embarrassed by their own responses to the effect that their wives always or usually did the specific child care tasks we enumerated. For example, halfway through the list, one respondent joked, "I don't sound too good here, do I?" Another admitted, "If I were completely honest, I would look like a bad parent." Some men even interrupted their string of "she does it more" answers with editorials to the effect that their wives were more emotionally suited to baby care. As with the surveys about doing childcare, the interviewers on the survey came to believe that many of the men were similarly defensive when responding to the questions about enjoying baby care and likewise inflated their responses in this area.

Sex differences in behavior and feelings among parents may be less stark as the children age. Our study also collected and analyzed information from assistant professors with children between two and five. Though female assistant professors continued to do more of the care and to like it more than their male peers, male professors of older children did more and liked it more than male professors of infants and toddlers. Those designing female-friendly policies for academia thus face a dilemma. Mothers typically need the most help in the period after birth, but this is not the period when husbands are likely to pitch in the most with childcare.

Designing female-friendly policies in academia while remaining bound to a philosophy of gender neutrality is especially difficult because college teaching may be the only profession where one can advance in his or her career by spending no time at the

office. We found that the top universities were much more likely to have paid parental leave policies, but at these universities research is more important for advancement than is teaching. During the course of our research on institutional policies, we heard stories of male academics who took paid post-birth leave in order to advance their publishing agendas. One top university had to change its rules in an effort to minimize this behavior. Some assistant professors were taking leave even though their wives didn't have jobs. Another had taken leave while his child was in full-time day care. One woman gave this answer to an open-ended request for further thoughts about tenure-track professors facing parenthood: "If women and men are both granted parental leaves and women recover/nurse/do primary care and men do some care and finish articles, there's a problem, though a problem with no clear solution."

It would be useful to have future research available to see if the conclusions of the current study hold up in different settings. However, based on the current study, it appears that we should seriously consider restricting paid post-birth leaves in academia to women. Almost none of our male faculty did half the baby/toddler care. Even the three men (out of 109) who said they *did* perform half the work were not simultaneously recovering from pregnancy and delivery as their female counterparts were. Moreover, none of them was breastfeeding, a task more time-consuming and perhaps physically draining than any of the other tasks in the survey.

In this area, refusal to take sex differences seriously, rather than helping women, leads to a policy that could injure females seeking tenure by giving their male counterparts an unfair advantage. If men should begin to take leave in much larger numbers, far from leveling the playing field, gender-neutral post-birth leaves are likely to tilt the field further in favor of men.

Among this population where almost every female breastfeeds and no male does, and where most females need months to regain full strength (Rhoads, 2004) and few males do, it might not seem unreasonable to grant only female professors four months of paid post-birth leave. If this movement away from gender neutrality should seem too radical, it would seem prudent to require all would-be leave takers to sign a formal document declaring that they intend to do at least 50% of care for their newborn. Yet, if even those who believe in 50/50 sharing in childcare ignore this belief in their day-to-day behavior, such a document may have little effect.

At the very least, when researchers explore the stickiness of gender roles with respect to infant and toddler care, it would seem prudent to allow for the possibility of biological and evolutionary explanations as well as those focusing on institutions, policies and gender ideology.

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