# The Second Shift Reflected in the Second Generation: Do Parents' Gender Roles at Home Predict Children's Aspirations?

Alyssa Croft, Toni Schmader, Katharina Block and Andrew Scott Baron

*Psychological Science* published online 2 June 2014
DOI: 10.1177/0956797614533968

Psychological Science OnlineFirst, published on June 2, 2014 as doi:10.1177/0956797614533968

*Research Article*

Psychological Science
1–11

DOI: 10.1177/0956797614533968
pss.sagepub.com

# The Second Shift Reflected in the Second Generation: Do Parents' Gender Roles at Home Predict Children's Aspirations?

**Alyssa Croft, Toni Schmader, Katharina Block, and Andrew Scott Baron**
University of British Columbia

**Abstract**

Gender inequality at home continues to constrain gender equality at work. How do the gender disparities in domestic labor that children observe between their parents predict those children's visions for their future roles? The present research examined how parents' behaviors and implicit associations concerning domestic roles, over and above their explicit beliefs, predict their children's future aspirations. Data from 326 children aged 7 to 13 years revealed that mothers' explicit beliefs about domestic gender roles predicted the beliefs held by their children. In addition, when fathers enacted or espoused a more egalitarian distribution of household labor, their daughters in particular expressed a greater interest in working outside the home and having a less stereotypical occupation. Fathers' implicit gender-role associations also uniquely predicted daughters' (but not sons') occupational preferences. These findings suggest that a more balanced division of household labor between parents might promote greater workforce equality in future generations.

**Keywords**

child development, sex-role attitudes, role taking, social cognition

Received 7/1/13; Revision accepted 3/29/14

Despite progress toward gender equality, women still lag behind men in career advancement, a disparity that becomes most pronounced once women become mothers (Stone, 2007). One factor that blocks women's achievement in the paid labor force is inequality in unpaid domestic labor. Even in heterosexual families in which both partners work full time, wives report doing twice as much housework and child care as their husbands (e.g., Coltrane, 2000), a phenomenon known as the *second shift* (Hochschild & Machung, 2012). Not only does this discrepancy at home pose a barrier to women's professional advancement, it can also model gender roles to children. In the present research, we tested whether children's professional and family aspirations are predicted by the domestic roles they see their parents enact, as distinct from the explicit beliefs and implicit gender-role associations endorsed by their parents.

Role models have been shown to be effective at enabling young women to envision themselves in counterstereotypical roles in leadership (Beaman, Duflo, Pande, & Topalova, 2012) and science (Stout, Dasgupta, Hunsinger, & McManus, 2011). Moreover, parents provide the earliest models of appropriate behavior for their offspring (Bandura & Bussey, 2004). Indeed, mothers' employment outside of the home predicts their children's attitudes and aspirations (Barak, Feldman, & Noy, 1991; Fulcher & Coyle, 2011; Goldberg, Prause, Lucas-Thompson, & Himsel, 2008; Riggio & Desrochers, 2006). But even if mothers are role models for their daughters' perceptions of women at work, children can more directly observe the tasks parents perform in the home. Consequently, efforts to model women's success at work might have limited effectiveness in changing young girls' aspirations if they still observe and come to assume inequality at home. Although fathers presumably also

**Corresponding Author:**
Alyssa Croft, University of British Columbia, 2136 West Mall, Vancouver, British Columbia, V6T 1Z4, Canada
E-mail: acroft@psych.ubc.ca

serve as gender-role models, less is known about whether fathers' contributions to or attitudes about domestic labor also predicts their children's aspirations (but see Fulcher, Sutfin, & Patterson, 2008).

Much of the research documenting the transmission of gender-role beliefs from parents to children has used self-reported measures, which have revealed a moderate but significant relationship between the beliefs of parents and children (Tenenbaum & Leaper, 2002). However, parents' explicitly reported gender-role beliefs are only weakly predictive of children's self-views and aspirations (Fulcher, 2011; Fulcher et al., 2008; Tenenbaum & Leaper, 2002). One reason for these relatively weak effects could be that children receive conflicting information about gender roles. Given evidence that normative pressures and egalitarian values can lead to self-reported beliefs about gender equality that are distinct from implicit associations and actual behavior (Devos, Blanco, Rico, & Dunn, 2008; Nosek, 2005; Rudman, Greenwald, & McGhee, 2001), parents might report more egalitarian beliefs about domestic labor than their actual behavior or implicit associations support. For example, even couples who are motivated to divide domestic labor equally still report a distribution of household tasks along traditional gender lines (Doucet, 2001; Wiesmann, Boeije, van Doorne-Huiskes, & den Dulk, 2008).

Furthermore, research on implicit cognition has revealed that implicit stereotypical associations between social groups can predict biased behavior even among egalitarian-minded individuals (Greenwald, Poehlman, Uhlmann, & Banaji, 2009). For example, undergraduates' implicit associations of "dad" with "work" and "mom" with "home" predict how they expect to resolve work-family conflict (Park, Smith, & Correll, 2010). On the basis of such findings, we hypothesized that parents' implicit gender-role associations and observable behaviors would independently predict children's developing aspirations, irrespective of parents' explicit gender beliefs.

To test these hypotheses, we measured parents' explicit beliefs and implicit associations about gender roles, their implicit and explicit self-stereotypes, and their self-reported work and domestic contributions. We tested these as predictors of their children's beliefs about domestic gender roles, self-stereotyping, and self-reported occupational aspirations. Replicating past research (Tenenbaum & Leaper, 2002), we expected children's gender-role beliefs to be predicted by their parents' explicit gender-role beliefs. In contrast, we expected that children's future aspirations would be predicted by parents' implicit gender-role associations, self-stereotyping, and contribution to domestic labor, independently of parents' work hours and explicit gender-role beliefs.

We also tested child gender as a moderator of how mothers' and fathers' implicit and explicit beliefs and associations, as well as their behaviors, predict their children's outcomes. Although we had no clear a priori hypothesis based on the current literature, we considered several theoretically derived alternatives. For example, if children model themselves after their same-sex parent, we might observe a higher correspondence of beliefs between mothers and daughters and between fathers and sons than between children and their opposite-sex parent (Bandura, Ross, & Ross, 1961; Fulcher & Coyle, 2011). Alternatively, if women are the power brokers at home (Williams & Chen, 2013), then women's beliefs and behaviors might best predict both sons' and daughters' beliefs when it comes to domestic stereotypes. A third prediction, however, is that men's higher status in society (e.g., Conway, Pizzamiglio, & Mount, 1996; Ridgeway, 1991) gives fathers a gatekeeping role that could accord their beliefs, implicit associations, and behaviors a unique power in shaping their children's aspirations.

## Method

### *Participants and procedure*

We recruited 326 children between the ages of 7 and 13 years (172 boys, 154 girls; mean age = 9.34 years, *SD* = 1.72) and at least one of their parents—204 mothers (mean age = 42.30 years, *SD* = 11.17; 52% Caucasian) and 140 fathers (mean age = 43.64 years, *SD* = 5.97; 66% Caucasian). Participants were recruited at a local science center. Our initial goal was to collect usable data from 300 to 400 children. Data collection took place from December 2011 to August 2012, and was stopped when our sample was within the desired range and because a turnover in research staff during the summer would have required substantial training of new staff.

Degrees of freedom for some analyses are reduced because data were missing for one or more parent or child measures. Further, data from 38 additional children were excluded from analyses because neither parent participated in the study. Because we had data from both parents for only 27% of the children ($n$ = 87), data were analyzed as two distinct samples of parent-child dyads: a sample of 140 fathers with 170 children (83 daughters, 87 sons) and a sample of 204 mothers with 243 children (115 daughters, 128 sons). Note that distinguishability tests (Kenny, Kashy, & Cook, 2006) confirmed assumptions that predictor variables had significantly distinct patterns of covariation among male and female parents, which justified our approach to divide our parent sample on the basis of gender (see "Tests of Distinguishability" and Table S1 in the Supplemental Material available online). Also, each sample included some children who were siblings: 35% in the father sample and 32% in the mother sample. See Table 1 for sample information, and

**Table 1.** Raw Cell Counts (*n*s) of Child Participants by Sibling Status, Parent Participation, and Child Sex

| | Mothers only | | Fathers only | | Both parents | | |
|---|---|---|---|---|---|---|---|
| Sibling status | Boys | Girls | Boys | Girls | Boys | Girls | Total |
| Single child | 65 | 53 | 32 | 31 | 21 | 26 | 228 |
| First sibling | 10 | 9 | 6 | 4 | 11 | 9 | 49 |
| Second sibling | 10 | 9 | 5 | 4 | 10 | 7 | 45 |
| Third sibling | 0 | 0 | 1 | 0 | 1 | 2 | 4 |
| Total | 85 | 71 | 44 | 39 | 43 | 44 | 326 |
| Percentage of sample | 26 | 22 | 13 | 12 | 13 | 13 | — |

see Tables S2 through S4 and "Testing for Non-Independence in the Data" in the Supplemental Material for additional results suggesting that these sibling dependencies in the data did not affect any of the conclusions of the study.

Families were recruited from a free-play area at the science center and brought to a soundproof testing room. After obtaining consent to participate in the study, a research assistant described all tasks to the child participants individually to ensure comprehension. Parents completed computerized measures in an adjacent room or online at home. The measures relevant to the focal hypotheses are summarized in the following section; an expanded method section is provided in the Supplemental Material.

## Measures

***Explicit gender-role beliefs.*** To assess explicit gender-role beliefs, we asked parents and children to answer five items asking which person in a heterosexual couple would do more of a given household task (dishes, cleaning, child care, cooking, and laundry; see Appendix A in the Supplemental Material for example screenshots). For each item, participants heard or read (depending on whether they were children or parents, respectively) about a couple and the specific household task, and they indicated their response by sliding a scale toward either the person on the left (−100) or on the right (+100), with 0 representing 50/50 sharing between the couple (the gender of the person depicted on each side of the scale was randomly counterbalanced). Participants' scores were averaged and recoded so that positive numbers indicated a belief that women do more housework than men.

***Parents' explicit self-stereotypes.*** Parents' explicit self-stereotypes were assessed with two items, on which parents rated their relative similarity to two targets, matched to their own gender (see Appendix B in the Supplemental Material for example screenshots). Both items contrasted a person who works full time with someone who stays home caring for the children. For each item, participants rated, "Who are you more similar to?" using the same slider scale as for gender-role beliefs. Scores on the two items were averaged ($r$ = .56, $p$ < .001) and recoded so that higher numbers reflected greater self-stereotyping (i.e., greater work orientation in males; greater family orientation in females).

***Parents' implicit gender-role associations and self-stereotypes.*** Two Implicit Association Tests (IATs; Greenwald, McGhee, & Schwartz, 1998) were used to assess parents' automatic associations of gender categories (gender-role IAT) and the self (self-stereotype IAT) with work versus home roles. In the gender-role IAT, the target categories (male or female) consisted of pictures of male and female faces (see Stout et al., 2011), and the attribute categories ("home" or "work") consisted of pictures of household items (e.g., a laundry basket) and office-related items (e.g., an office desk).

In the self-stereotype IAT, the target categories were represented by the words "self" (e.g., "me") and "other" (e.g., "they"), while the attribute categories were "work" images (e.g., a person giving a business presentation) and "home" images (e.g., a person doing laundry; see Appendix C in the Supplemental Material for example screenshots). The self-stereotyping stimuli were always gender-matched to participants. Participants completed 20 stereotype congruent (e.g., female = home) and 20 stereotype incongruent (e.g., male = home) trials, and data were coded following standard procedures (Greenwald, Nosek, & Banaji, 2003). Higher scores on these measures represent more stereotypical gender-role associations (women = home; men = work) and self-stereotypes (self = home among women; self = work among men).

***Parents' work and domestic labor.*** Parents reported the number of paid hours they work per week and indicated their relative contribution to housework and

**Table 2.** Descriptive Statistics and Correlations Among Parents

| Variable | Mean for mothers | Mean for fathers | Correlations | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | EGB | IGA | ESS | ISS | Domestic contribution | Work hours |
| EGB | $27.10_a$ (31.87) | $11.39_b$ (27.17) | .35** | −.01 | .30** | .08 | .45*** | −.17* |
| IGA | $.42_a$ (.45) | $.42_a$ (.54) | .09 | .18 | .11 | .27*** | .09 | −.12† |
| ESS | $29.49_a$ (63.89) | $20.33_a$ (53.42) | .09 | .00 | −.05 | .10 | .45*** | −.74*** |
| ISS | $.35_a$ (.50) | $-.07_b$ (.50) | .13 | .24** | .08 | −.08 | .12 | −.05 |
| Domestic contribution | $68.21_a$ (15.69) | $42.16_b$ (15.08) | −.25** | .03 | −.29** | −.02 | −.31* | −.40*** |
| Work hours | $21.45_a$ (17.35) | $42.01_b$ (12.32) | −.05 | −.04 | .40** | .26** | −.26** | −.12 |

Note: Standard deviations are given in parentheses. Bivariate correlations for mothers are above the diagonal, for fathers are below the diagonal, and for married couples are along the diagonal. Means in the same row with different subscripts are significantly different from each other ($p < .05$). EGB = explicit gender-role beliefs, IGA = implicit gender-role associations, ESS = explicit self-stereotypes, ISS = implicit self-stereotypes.
†$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

child-care tasks on scales from −100 (*spouse does it all*) to +100 (*I do it all*). Responses to housework and child-care items were converted to a scale ranging from 0% to 100% and combined ($r = .58$, $p < .001$) to form a measure of parents' *domestic contribution* ($M = 57.57\%$, $SD = 20.04\%$, range = 3.25%–100%).

***Children's aspirations.*** We assessed children's aspirations in two ways. First, each child completed the same two-item measure of explicit self-stereotyping completed by his or her parents. Notably, children were asked which of two adults (matched to the child's gender) they believed they would be more like when they grow up. The questions used the same slider scales ranging from −100 (*more like the career-focused adult*) to +100 (*more like the family-focused adult*), $r = .25$, $p < .001$ (see Appendix D in the Supplemental Material for example screenshots). In addition, children were asked what they wanted to be when they grow up (occupational aspirations). Children's free response to this question was coded as being stereotypically feminine (a rating of 1), gender neutral (2), or stereotypically masculine (3) based on ratings by two independent coders (Krippendorff's $\alpha = .70$). Both measures were recoded such that higher numbers indicated more stereotypical aspirations given the child's gender. Children's self-stereotypes and future occupations were uncorrelated, $r = -.01$.

## Results

### *Descriptive statistics*

***Parent data.*** Parents exhibited a traditional division of domestic labor (means for key parent variables are shown in Table 2). Fathers reported twice as many hours of paid work as did mothers, $t(341) = 12.07$, $p < .001$, Cohen's $d = 1.31$, while mothers reported doing significantly more domestic labor than did fathers, $t(342) = -15.36$, $p < .001$, Cohen's $d = 1.66$, a difference that was significant even when we controlled for gender differences in paid work, $F(1, 341) = 97.81$, $p < .001$, Cohen's $d = 1.06$. Additionally, mothers exhibited stronger explicit gender-role beliefs than did fathers, which indicates that they assume that women do more of the domestic workload, $t(334) = -4.70$, $p < .001$, Cohen's $d = 0.51$; however, implicit gender-role associations were not different by gender, $F = 0$. Furthermore, whereas there were no overall gender differences in parents' tendency to explicitly self-stereotype, women implicitly self-stereotyped more strongly than did men, which means that they automatically associated "self" with "home" more strongly than men automatically associated "self" with "work," $t(293) = -7.08$, $p < .001$, Cohen's $d = 0.83$.[1] These patterns were largely similar among parents who participated in dyads versus those who participated alone (see Table S2 in the Supplemental Material).

Finally, correlations among parent variables pointed to the convergent and divergent validity of the measures (see Table 2). For example, parents' self-reported behaviors correlated positively with their explicit gender-role beliefs (among mothers) and self-stereotypes (among mothers and fathers) in intuitive ways. Additionally, parents' implicit gender-role associations were significantly correlated with their implicit self-stereotypes, and fathers' implicit self-stereotypes correlated with their reported number of work hours.

***Child data.*** Descriptive data for children are provided in Table 3. Similar to their parents, girls showed more stereotypical gender-role beliefs, which means they were more likely than boys to believe that women do more domestic work, $t(315) = -3.86$, $p < .001$, Cohen's $d = 0.43$, and girls

**Table 3.** Descriptive Statistics and Correlations Between Main Variables Among Children

| Variable | Mean for girls | Mean for boys | Correlations | | |
|---|---|---|---|---|---|
| | | | EGB | ESS | Occupational aspiration |
| EGB | $29.96_a$ (27.73) | $18.28_b$ (26.17) | — | .02 | .09 |
| ESS | $16.95_a$ (48.01) | $1.53_b$ (42.25) | .10 | — | .05 |
| Occupational aspiration | $2.33_a$ (.60) | $2.72_b$ (.50) | –.06 | .08 | — |

Note: Standard deviations are given in parentheses. Bivariate correlations for girls are above the diagonal, and those for boys are below the diagonal. Means in the same row with different subscripts are significantly different from each other. None of the reported correlations were significant. EGB = explicit gender-role beliefs, ESS = explicit self-stereotypes.

self-stereotyped more than boys, reporting greater similarity to a family-focused female than boys did to a work-focused male, $t(315) = -3.04$, $p = .003$, Cohen's $d = 0.34$. However, when it came to nominating a future occupation, boys' responses were more male-stereotypical than girls' responses were female-stereotypical, $t(283) = 5.84$, $p < .001$, Cohen's $d = 0.69$. Note that among children, measures of gender-role beliefs, self-stereotypes, and future occupations were not correlated with one another (see Table 3), which suggests that each might operate independently from the others.[2]

## *Primary analyses*

***Analytic strategy.*** Our primary objective was to test whether parents' implicit associations and behaviors predicted children's gender-role beliefs and aspirations, above and beyond any predictive effects of parents' explicit gender-role beliefs. Thus, in a series of hierarchical regression analyses controlling for child gender, we tested parents' explicit gender-role beliefs and self-stereotypes (in Step 1), implicit gender-role associations and self-stereotypes (in Step 2), and reported work hours and domestic contribution (in Step 3) as predictors of three outcomes: (a) children's explicit gender-role beliefs, (b) children's explicit self-stereotypes, and (c) stereotypicality of children's occupational aspirations. Additional analyses tested whether any individual predictor was moderated by child's gender (Step 4). Significant interactions were followed by simple-slopes analyses. One set of analyses examined mothers' variables as predictors, and a second set of analyses examined fathers' variables as predictors. Results are summarized in Tables 4 through 6, and significant effects are described in the following sections.

***Children's gender-role beliefs.*** In the first set of analyses, children's gender-role beliefs were predicted only by child gender and mothers' explicit gender-role beliefs. Mothers' implicit gender-role beliefs and behaviors were not significant predictors of children's gender-role beliefs, and no effects were significantly moderated by child gender (see Table 4). In contrast, fathers' explicit gender-role beliefs did not predict children's explicit gender-role beliefs. However, the more fathers explicitly self-stereotyped (i.e., identified as work oriented), the stronger their children's gender-role beliefs. No other predictors for fathers were significant. In sum, when mothers explicitly believed that women are more likely than men to handle domestic tasks, and when fathers explicitly self-stereotyped as work oriented, boys and girls both reported stereotypical beliefs about the gender distribution of domestic labor. These findings replicate existing evidence of stereotype transmission from parents to children (Tenenbaum & Leaper, 2002) but are the first to focus on domestic gender-role beliefs.

***Children's self-stereotypes.*** Analyses of children's tendency to self-stereotype yielded evidence that parents' gender-role beliefs and behaviors independently predicted how children (especially daughters) envision their futures (see Table 5). When asked to choose whom they would be more similar to when they grow up, children were more likely to select the gender-typical exemplar (for daughters, the adult female who is the primary caregiver) to the degree that their mothers reported doing more domestic tasks. This effect of mothers' domestic behavior was not moderated by child gender. In addition, a significant interaction between mothers' explicit self-stereotyping and child gender (see Fig. 1) suggested that mothers' self-stereotyping was marginally positively related to self-stereotyping for girls, $\beta = 0.25$, $p = .089$, but not for boys, $\beta = -0.06$, $p = .623$. Examined differently, when mothers explicitly self-stereotyped as more family oriented (1 *SD* above the mean), girls tended to self-stereotype more than boys did ($\beta = 0.18$, $p = .081$). But when mothers were low in self-stereotyping (1 *SD* below the mean), this gender difference was not significant ($\beta = -0.10$, $p = .30$). No other main effects or interactions were significant, all $p$s > .12.

Analyses of the father sample revealed a significant interaction between fathers' explicit gender-role beliefs and child gender (see Fig. 2). Simple-slopes analyses

**Table 4.** Results of Regression Analyses Predicting Children's Explicit Gender-Role Beliefs From Parents' Implicit and Explicit Beliefs and Associations

| | Mothers' variables | | | | | Fathers' variables | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Step and predictor | β | *t* | *p* | $\Delta R^2$ | *df* | β | *t* | *p* | $\Delta R^2$ | *df* |
| Step 1[a] | | | | .07 | | | | | .10 | |
| Child gender | 0.19 | 2.78 | .006 | — | 192 | 0.24 | 2.86 | .005 | — | 126 |
| Parent EGB | 0.18 | 2.44 | .015 | — | 192 | 0.09 | 1.04 | .30 | — | 126 |
| Parent ESS | 0.01 | 0.10 | .92 | — | 192 | 0.19 | 2.28 | .024 | — | 126 |
| Step 2 | | | | .01 | | | | | .01 | |
| Parent IGA | 0.09 | 1.21 | .23 | — | 190 | –0.10 | –1.09 | .28 | — | 124 |
| Parent ISS | 0.04 | .58 | .56 | — | 190 | –0.03 | –0.30 | .77 | — | 124 |
| Step 3 | | | | .003 | | | | | .02 | |
| Parent domestic contribution | 0.06 | .72 | .47 | — | 188 | –0.04 | –0.37 | .71 | — | 122 |
| Parent work hours | –0.02 | –0.14 | .89 | — | 188 | 0.15 | 1.54 | .13 | — | 122 |
| Step 4[b] | | | | | | | | | | |
| Parent EGB × Child Gender | –0.10 | –1.03 | .30 | .01 | 187 | 0.07 | 0.63 | .53 | .003 | 121 |
| Parent ESS × Child Gender | 0.12 | 1.19 | .24 | .01 | 187 | –0.21 | –1.64 | .11 | .02 | 121 |
| Parent IGA × Child Gender | 0.21 | 1.81 | .069 | .02 | 187 | 0.17 | 1.35 | .18 | .01 | 121 |
| Parent ISS × Child Gender | –0.01 | –0.10 | .92 | < .001 | 187 | 0.11 | 0.92 | .36 | .01 | 121 |
| Parent Domestic Contribution × Child Gender | –0.07 | –0.70 | .48 | .002 | 187 | 0.02 | 0.18 | .86 | < .001 | 121 |
| Parent Work Hours × Child Gender | –0.08 | –0.77 | .44 | .003 | 187 | –0.01 | –0.10 | .92 | < .001 | 121 |

Note: For both parents, explicit gender-role beliefs (EGB), implicit gender-role associations (IGA), explicit self-stereotypes (ESS), and implicit self-stereotypes (ISS) were assessed.
[a]For Step 1, $\Delta R^2$ is calculated relative to the baseline of 0. [b]To conserve degrees of freedom, we tested each interaction term in a separate model in which only that term was entered in Step 4. Results were similar when all interaction terms were included together in the same model.

**Table 5.** Results of Regression Analyses Predicting Children's Explicit Self-Stereotypes From Parents' Implicit and Explicit Beliefs and Associations

| | Mothers' variables | | | | | Fathers' variables | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Step and predictor | β | *t* | *p* | $\Delta R^2$ | *df* | β | *t* | *p* | $\Delta R^2$ | *df* |
| Step 1[a] | | | | .01 | | | | | .04 | |
| Child gender | 0.05 | 0.72 | .47 | — | 192 | 0.15 | 1.75 | .083 | — | 126 |
| Parent EGB | –0.04 | –0.47 | .64 | — | 192 | 0.07 | 0.85 | .40 | — | 126 |
| Parent ESS | 0.06 | 0.84 | .41 | — | 192 | 0.09 | 1.01 | .32 | — | 126 |
| Step 2 | | | | .004 | | | | | .01 | |
| Parent IGA | 0.05 | 0.62 | .54 | — | 190 | 0.01 | 0.09 | .93 | — | 124 |
| Parent ISS | –0.06 | –0.75 | .46 | — | 190 | –0.08 | –0.84 | .40 | — | 124 |
| Step 3 | | | | .02 | | | | | .001 | |
| Parent domestic contribution | 0.17 | 1.97 | .051 | — | 188 | –0.02 | –0.24 | .81 | — | 122 |
| Parent work hours | 0.07 | 0.66 | .51 | — | 188 | –0.02 | –0.21 | .83 | — | 122 |
| Step 4[b] | | | | | | | | | | |
| Parent EGB × Child Gender | –0.05 | –0.54 | .59 | .001 | 187 | 0.24 | 1.99 | .049 | .03 | 121 |
| Parent ESS × Child Gender | 0.21 | 2.11 | .036 | .02 | 187 | 0.08 | 0.60 | .55 | .003 | 121 |
| Parent IGA × Child Gender | 0.08 | 0.70 | .49 | .003 | 187 | 0.14 | 1.12 | .27 | .01 | 121 |
| Parent ISS × Child Gender | –0.05 | –0.49 | .63 | .001 | 187 | –0.18 | –1.45 | .15 | .02 | 121 |
| Parent Domestic Contribution × Child Gender | 0.03 | 0.30 | .77 | < .001 | 187 | 0.15 | 1.39 | .17 | .02 | 121 |
| Parent Work Hours × Child Gender | –0.17 | –1.64 | .10 | .01 | 187 | –0.15 | –1.06 | .29 | .01 | 121 |

Note: For both parents, explicit gender-role beliefs (EGB), implicit gender-role associations (IGA), explicit self-stereotypes (ESS), and implicit self-stereotypes (ISS) were assessed.
[a]For Step 1, $\Delta R^2$ is calculated relative to the baseline of 0. [b]To conserve degrees of freedom, we tested each interaction term in a separate model in which only that term was entered in Step 4. Results were similar when all interaction terms were included together in the same model.

**Table 6.** Results of Regression Analyses Predicting Children's Occupational Aspirations From Parents' Implicit and Explicit Beliefs and Associations

| | Mothers' variables | | | | | Fathers' variables | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Step and predictor | β | *t* | *p* | $\Delta R^2$ | *df* | β | *t* | *p* | $\Delta R^2$ | *df* |
| Step 1[a] | | | | .13 | | | | | .19 | |
| Child gender | –0.36 | –5.09 | < .001 | — | 176 | –0.42 | –4.89 | < .001 | | 113 |
| Parent EGB | –0.08 | –1.07 | .28 | — | 176 | 0.17 | 1.96 | .053 | — | 113 |
| Parent ESS | 0.08 | 1.04 | .30 | — | 176 | –0.06 | –0.70 | .49 | — | 113 |
| Step 2 | | | | .02 | | | | | .03 | |
| Parent IGA | 0.09 | 1.19 | .24 | — | 174 | 0.08 | 0.98 | .33 | — | 111 |
| Parent ISS | 0.08 | 1.02 | .31 | — | 174 | 0.14 | 1.66 | .10 | — | 111 |
| Step 3 | | | | .002 | | | | | .02 | |
| Parent domestic contribution | 0.05 | 0.54 | .59 | — | 172 | –0.06 | –0.59 | .56 | — | 109 |
| Parent work hours | 0.03 | 0.30 | .76 | — | 172 | 0.12 | 1.22 | .23 | — | 109 |
| Step 4[b] | | | | | | | | | | |
| Parent EGB × Child Gender | 0.09 | 0.95 | .35 | .004 | 171 | 0.28 | 2.55 | .012 | .04 | 108 |
| Parent ESS × Child Gender | 0.11 | 1.11 | .27 | .01 | 171 | 0.07 | 0.57 | .57 | .002 | 108 |
| Parent IGA × Child Gender | 0.02 | 0.15 | .88 | < .001 | 171 | 0.29 | 2.34 | .021 | .04 | 108 |
| Parent ISS × Child Gender | –0.11 | –1.11 | .27 | .01 | 171 | 0.10 | 0.80 | .43 | .004 | 108 |
| Parent Domestic Contribution × Child Gender | 0.18 | 1.76 | .081 | .02 | 171 | –0.26 | –2.51 | .014 | .04 | 108 |
| Parent Work Hours × Child Gender | –0.12 | –1.17 | .24 | .01 | 171 | 0.06 | 0.47 | .64 | .002 | 108 |

Note: For both parents, explicit gender-role beliefs (EGB), implicit gender-role associations (IGA), explicit self-stereotypes (ESS), and implicit self-stereotypes (ISS) were assessed.
[a]For Step 1, $\Delta R^2$ is calculated relative to the baseline of 0. [b]To conserve degrees of freedom, we tested each interaction term in a separate model in which only that term was entered in Step 4. Results were similar when all interaction terms were included together in the same model.


**Fig. 1.** Interaction between mothers' explicit self-stereotypes and child gender in predicting children's explicit self-stereotypes. Higher numbers on the *y*-axis indicate greater identification with a gender-stereotypical same-sex adult. *Low* and *high* refer to 1 *SD* below and above the mean, respectively.

revealed that daughters self-stereotyped as more family oriented and less work oriented to the degree that their fathers had more traditional gender-role beliefs (β = 0.30, $p$ = .046). Similar to the effect with mothers, fathers' explicit gender-role beliefs did not predict boys' self-stereotyping (β = –0.07, $p$ = .56). Examined differently, when fathers reported more traditional gender-role beliefs (1 *SD* above the mean), daughters were significantly more likely than sons to self-stereotype (β = 0.38, $p$ = .01). In contrast, when fathers reported less traditional gender-role beliefs (1 *SD* below the mean), daughters and sons were equally and relatively unlikely to self-stereotype (β = –0.01, $p$ = .94).

In sum, the more mothers enacted and identified with traditional roles at home, the more their children (especially daughters) envisioned themselves fulfilling gender-stereotypical roles in the future. In addition, fathers with more egalitarian gender-role beliefs had daughters and sons who were equally likely to imagine balancing work and family in the future (i.e., child self-stereotyping

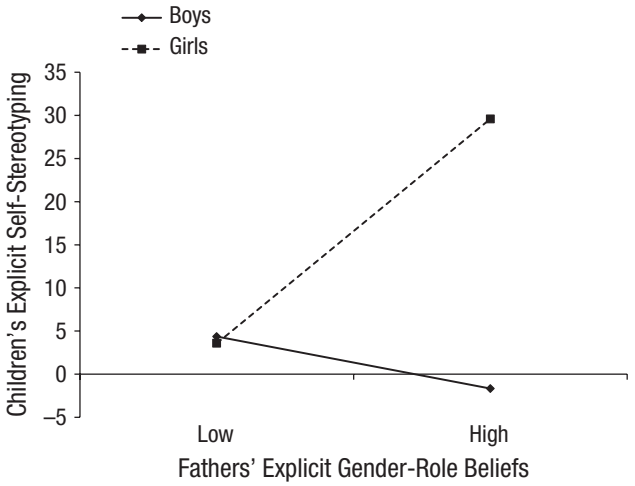


**Fig. 2.** Interaction between fathers' explicit gender-role beliefs and child gender in predicting children's explicit self-stereotypes. Higher numbers on the *y*-axis indicate greater identification with a gender-stereotypical same-sex adult. *Low* and *high* refer to 1 *SD* below and above the mean, respectively.

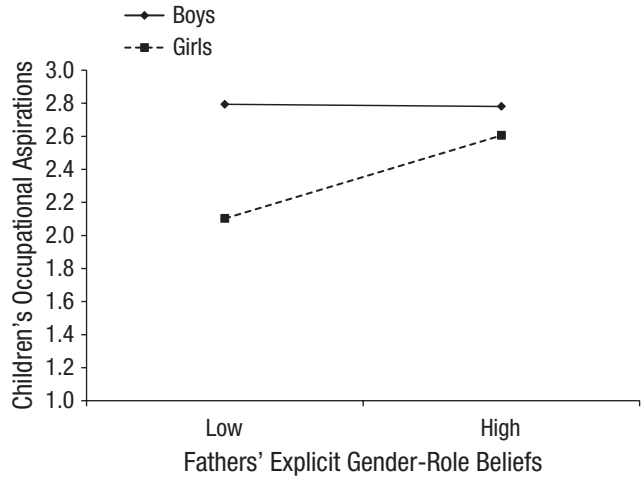


**Fig. 3.** Interaction between fathers' explicit gender-role beliefs and child gender in predicting children's occupational aspirations (3 = *stereotypical of own gender*, 2 = *stereotype neutral*, 1 = *stereotypical of other gender*). *Low* and *high* refer to 1 *SD* below and above the mean, respectively.

means were near zero). In contrast, fathers with more traditional beliefs about women's domestic responsibilities had daughters who imagined a future focused more on family than on work. This is some of the first evidence suggesting that mothers' and fathers' domestic-labor beliefs and behaviors predict how stereotypically children envision their own futures.

***Children's occupational aspirations.*** Distinct from children's tendency to identify with work or family is their tendency to aspire to a given career. In both the mother-child and the father-child analyses, boys nominated more gender-stereotypical careers than did girls, both *p*s < .001 (see Table 6). Although no other effects were significant in the mother-child analysis, within the father-child analysis, several effects pointed to the unique role that fathers might play in predicting daughters' occupational aspirations. Specifically, child gender interacted significantly with fathers' explicit gender-role beliefs (see Fig. 3), fathers' implicit gender-role associations (see Fig. 4), and fathers' domestic contribution (see Fig. 5).

In each case, only daughters' and not sons' aspirations were predicted by their fathers' behaviors and implicit and explicit beliefs and associations. Daughters reported aspiring toward more stereotypical future occupations to the degree that their fathers (a) explicitly endorsed a more traditional division of household tasks, $\beta = 0.43$, $p = .003$, (b) had stronger implicit associations of women with home and men with work, $\beta = 0.30$, $p = .016$, and (c) reported contributing less to household tasks and child care, $\beta = -0.41$, $p = .017$. Supplemental analyses revealed that when all three interaction terms were tested simultaneously, the interactions between child gender and fathers' implicit gender-role associations, $\beta_{interaction} = 0.30$, $p = .017$, and between child gender and fathers' domestic contribution, $\beta_{interaction} = -0.24$, $p = .040$, remained significant in predicting more stereotypical occupational aspirations for girls but not for boys. The interaction between child gender and fathers' explicit gender-role beliefs decreased in magnitude and became nonsignificant, $\beta_{interaction} = 0.12$, $p = .33$, which suggests that fathers' implicit associations and behaviors directly predicted daughters' preferences, over and above their explicitly

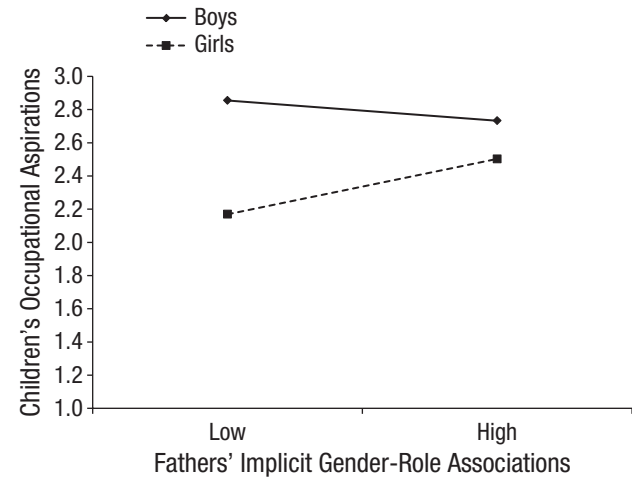


**Fig. 4.** Interaction between fathers' implicit gender-role associations and child gender in predicting children's occupational aspirations (3 = *stereotypical of own gender*, 2 = *stereotype neutral*, 1 = *stereotypical of other gender*). *Low* and *high* refer to 1 *SD* below and above the mean, respectively.

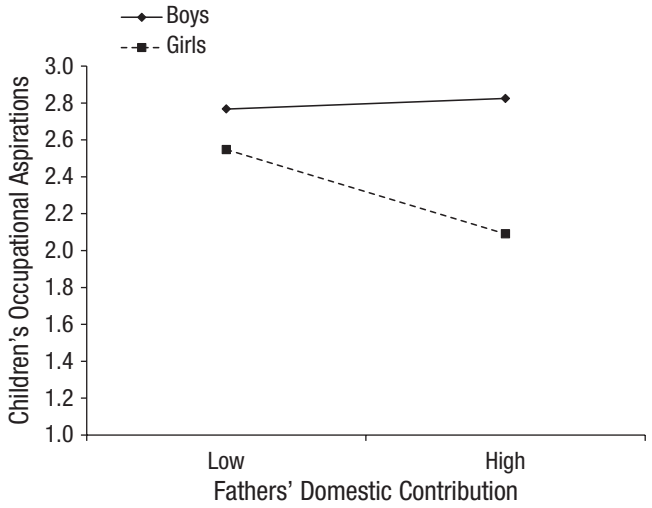


**Fig. 5.** Interaction between fathers' domestic contribution and child gender in predicting children's occupational aspirations (3 = *stereotypical of own gender*, 2 = *stereotype neutral*, 1 = *stereotypical of other gender*). *Low* and *high* refer to 1 *SD* below and above the mean, respectively.

held gender-role beliefs. These findings provide the first evidence that fathers' behaviors and implicit associations about domestic tasks play a unique role in predicting their daughter's emerging aspirations.[3]

## Discussion

This study examined how children's developing gender-role beliefs and occupational aspirations are predicted by their parents' own beliefs, implicit associations, and reported contribution to domestic labor. Several notable findings emerged. Extending previous research (Tenenbaum & Leaper, 2002), our results showed that children's explicit beliefs about gender differences in domestic labor were predicted by the same beliefs held by their mothers, as well as by their fathers' tendency to self-stereotype as more work oriented than family oriented. But for daughters, in particular, a tendency to self-stereotype as more family than work oriented in the future was uniquely predicted by their parents' beliefs and behaviors. Specifically, girls were more likely to envision themselves as working outside the home when their fathers reported more gender-egalitarian beliefs about domestic labor, but also when their mothers reported doing relatively less domestic work and self-stereotyped as more work oriented.

Over and above explicit gender-role beliefs, however, fathers' actual division of labor and implicit gender-role associations played a key role in predicting daughters' occupational aspirations. Girls nominated less stereotypical occupations to the extent that their (a) fathers reported more egalitarian gender-role beliefs about domestic labor, (b) had a weaker implicit association of women with home, and (c) performed more domestic tasks at home. Notably, when testing these relationships simultaneously, fathers' implicit associations and reported domestic contributions significantly predicted daughters' occupational aspirations over and above the role played by fathers' explicit beliefs. Such findings suggest that even when parents explicitly endorse gender equality at home, a traditional division of labor in daily life and implicitly held stereotypical attitudes can send a less egalitarian message to young girls.

It is noteworthy that mothers and fathers both appear to convey stereotype-relevant information to their sons and daughters. We considered several hypotheses regarding the ways in which gender could moderate the transmission of gender roles. Children could model their aspirations on the behavior of their same-sex parent (Bandura et al., 1961; Fulcher & Coyle, 2011) or on the behavior of their primary caregivers, with whom they have most contact. Our data suggest that neither of these possibilities can explain the entire process of gender-role transmission. First, although sons' gender-role beliefs were predicted by their fathers' tendency to self-stereotype, there was little evidence that boys develop a personal interest in a more family-oriented future from their fathers' domestic beliefs and behaviors. Instead, we observed that fathers' gender-role beliefs, self-stereotypes, and domestic behaviors were particularly predictive of their daughters' occupational aspirations, despite fathers being of a different gender and mothers more often serving as the primary caregiver and having control over the domestic sphere (Williams & Chen, 2013). There are several possible explanations for these findings between fathers and their daughters. Fathers could be modeling future potential mates, signaling to their daughters that they can expect men to help at home, thereby allowing women more time for work. Alternatively, those fathers who contribute more at home might have more opportunities to suggest masculine pursuits that their daughters then adopt. This enables them to be gatekeepers to their daughters' interest in counter-stereotypical roles.

One open question is why boys' self-identification with gendered roles and career aspirations were not similarly predicted by parents' beliefs or behaviors. More specifically, when fathers enact and espouse more egalitarian gender roles at home, why is it that their sons do not internalize these roles? One possibility is that by being more attuned to social information (Blakemore, Berenbaum, & Liben, 2009), girls are simply more likely to internalize any social norm cues. Alternatively, boys' gender roles might be less malleable than girls'. Because stereotypes governing men's behavior are more rigid than those for women (Eagly, Wood, & Diekman, 2000),

boys' occupational options might simply be more constrained. Efforts to encourage girls to enter into traditionally male-dominated careers have not been matched by similar efforts to encourage boys to enter female-dominated careers. As a result, boys' occupational aspirations in particular might be less flexible. In our data, for example, the stereotypicality ratings for boys' occupations were nearly at ceiling. Future research could examine this possibility by investigating whether parents may exert an influence on boys much earlier in development than in the present sample.

We acknowledge that these data are correlational, and although our analyses have assumed a causal model whereby parents shape their children's gender cognitions, it is possible that parents adapt some of their own beliefs to the preferences their children exhibit. Another plausible alternative is the existence of third variables, such as one's surrounding community or social class, which could underlie the observed associations between parents and children. Furthermore, although we have reason to believe that mean levels of education and income in our sample are representative of national averages (based on socioeconomic status measured in other research samples from the same site), recruitment from a science center could have led to some restriction of range in these variables and in gender-stereotypical biases that could have plausibly reduced our estimates of true effect sizes.

Finally, it is worth mentioning that the most relevant third-variable explanation for the relationships observed between fathers and their daughters is the beliefs and behaviors of mothers in these families. For example, fathers who engage in more household work may be married to women who work more outside the home or who endorse more counterstereotypical beliefs about gender roles. Although we were unable to collect enough data from both parents to properly examine these possibilities, analysis of the subsample of 68 parent dyads in our data set revealed only modest covariation among gender-role variables (see Tables S1 and S2 in the Supplemental Material) and mothers' variables did not strongly predict daughters' occupational aspirations. While future research is surely needed, these aspects of our data speak against the possibility that the findings among our father sample are better explained by the beliefs or behaviors of their wives.

In conclusion, the present findings suggest that even in our current, progressive society in which explicit (verbal) messages of gender equality are encouraged, young girls' developing beliefs about gender roles may very well be shaped by more subtle and indirect cues from their mothers and fathers' behaviors. Although researchers often consider how women and girls are constrained by gender stereotypes about women and work, the present study reveals the importance of considering gender stereotypes regarding domestic tasks. If our assumed causal model is accurate, fathers likely play an important role in modeling a more egalitarian future for their daughters by their contributions at home. Our results suggest that when fathers espouse and enact a more equal distribution of domestic work, their daughters more easily envision balancing work with family and having a less gender-stereotypical career.

## Author Contributions

All authors contributed to the study design. Testing and data collection were performed by K. Block and A. Croft in A. S. Baron's satellite lab at Vancouver's Telus World of Science. A. Croft analyzed and interpreted the data under the supervision of T. Schmader. A. Croft drafted the manuscript, and T. Schmader, K. Block, and A. S. Baron provided critical revisions. All authors approved the final version of the manuscript for submission.

## Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

## Supplemental Material

Additional supporting information may be found at http://pss.sagepub.com/content/by/supplemental-data

## Notes

1. Degrees of freedom vary because data were missing for some measures (e.g., the implicit tasks).
2. Additional analyses confirmed that mean levels on all variables (for both parents and children) were unaffected by whether data collection occurred with one or both parents present, all $ps > .20$. The only exception was that parents who participated alone reported doing more domestic work ($M$ = 14.38%) than those who participated with their spouse ($M$ = 5.05%), $F(1, 344) = 7.32$, $p < .01$.
3. As reported in the Supplemental Material (see Tables S5–S7), analyses were repeated using multilevel modeling in which participants were nested within families (to control for dependencies of sibling data). Notably, the effects remained largely unchanged across all analyses, with the exception that the main effect of fathers' explicit self-stereotypes on children's explicit gender-role beliefs became nonsignificant.

## References

Bandura, A., & Bussey, K. (2004). On broadening the cognitive, motivational, and sociostructural scope of theorizing about gender development and functioning: Comment on Martin, Ruble, and Szkrybalo (2002). *Psychological Bulletin*, *130*, 691–701. doi:10.1037/0033-2909.130.5.691

Bandura, A., Ross, D., & Ross, S. A. (1961). Transmission of aggression through imitation of aggressive models. *The Journal of Abnormal and Social Psychology*, *63*, 575–582. doi:10.1037/h0045925

Barak, A., Feldman, S., & Noy, A. (1991). Traditionality of children's interests as related to their parents' gender stereotypes and traditionality of occupations. *Sex Roles*, *24*, 511–524. doi:10.1007/BF00289336

Beaman, L., Duflo, E., Pande, R., & Topalova, P. (2012). Female leadership raises aspirations and educational attainment for girls: A policy experiment in India. *Science*, *335*, 582–586. doi:10.1126/science.1212382

Blakemore, J., Berenbaum, S. A., & Liben, L. S. (2009). *Gender development*. New York, NY: Psychology Press.

Coltrane, S. (2000). Research on household labor: Modeling and measuring the social embeddedness of routine family work. *Journal of Marriage and the Family*, *62*, 1208–1233. doi:10.1111/j.1741-3737.2000.01208.x

Conway, M., Pizzamiglio, M., & Mount, L. (1996). Status, communality, and agency: Implications for stereotypes of gender and other groups. *Journal of Personality and Social Psychology*, *71*, 25–38. doi:10.1037/0022-3514.71.1.25

Devos, T., Blanco, K., Rico, F., & Dunn, R. (2008). The role of parenthood and college education in the self-concept of college students: Explicit and implicit assessments of gendered aspirations. *Sex Roles*, *59*, 214–228. doi:10.1007/s11199-008-9430-6

Doucet, A. (2001). "You see the need perhaps more clearly than I have": Exploring gendered processes of domestic responsibility. *Journal of Family Issues*, *22*, 328–357. doi:10.1177/019251301022003004

Eagly, A. H., Wood, W., & Diekman, A. B. (2000). Social role theory of sex differences and similarities: A current appraisal. In T. Eckes & H. M. Trautner (Eds.), *The developmental social psychology of gender* (pp. 123–174). Mahwah, NJ: Erlbaum.

Fulcher, M. (2011). Individual differences in children's occupational aspirations as a function of parental traditionality. *Sex Roles*, *64*, 117–131. doi:10.1007/s11199-010-9854-7

Fulcher, M., & Coyle, E. F. (2011). Breadwinner and caregiver: A cross-sectional analysis of children's and emerging adults' visions of their future family roles. *British Journal of Developmental Psychology*, *29*, 330–346. doi:10.1111/j.2044-835X.2011.02026.x

Fulcher, M., Sutfin, E. L., & Patterson, C. J. (2008). Individual differences in gender development: Associations with parental sexual orientation, attitudes, and division of labor. *Sex Roles*, *58*, 330–341. doi:10.1007/s11199-007-9348-4

Goldberg, W. A., Prause, J., Lucas-Thompson, R., & Himsel, A. (2008). Maternal employment and children's achievement in context: A meta-analysis of four decades of research. *Psychological Bulletin*, *134*, 77–108. doi:10.1037/0033-2909.134.1.77

Greenwald, A. G., McGhee, D. E., & Schwartz, J. K. (1998). Measuring individual differences in implicit cognition: The Implicit Association Test. *Journal of Personality and Social Psychology*, *74*, 1464–1480. doi:10.1037/0022-3514.74.6.1464

Greenwald, A. G., Nosek, B. A., & Banaji, M. R. (2003). Understanding and using the Implicit Association Test: I. An improved scoring algorithm. *Journal of Personality and Social Psychology*, *85*, 197–216. doi:10.1037/0022-3514.85.2.197

Greenwald, A. G., Poehlman, T., Uhlmann, E., & Banaji, M. R. (2009). Understanding and using the Implicit Association Test: III. Meta-analysis of predictive validity. *Journal of Personality and Social Psychology*, *97*, 17–41. doi:10.1037/a0015575

Hochschild, A. R., & Machung, A. (2012). *The second shift: Working parents and the revolution at home* (Rev. ed.). London, England: Penguin Books.

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York, NY: Guilford Press.

Nosek, B. A. (2005). Moderators of the relationship between implicit and explicit evaluation. *Journal of Experimental Psychology: General*, *134*, 565–584. doi:10.1037/0096-3445.134.4.565

Park, B., Smith, J., & Correll, J. (2010). The persistence of implicit behavioral associations for moms and dads. *Journal of Experimental Social Psychology*, *46*, 809–815. doi:10.1016/j.jesp.2010.04.009

Ridgeway, C. (1991). The social construction of status value: Gender and other nominal characteristics. *Social Forces*, *70*, 367–386. doi:10.2307/2580244

Riggio, H. R., & Desrochers, S. J. (2006). Maternal employment: Relations with young adults' work and family expectations and self-efficacy. *American Behavioral Scientist*, *49*, 1328–1353. doi:10.1177/0002764206286558

Rudman, L. A., Greenwald, A. G., & McGhee, D. E. (2001). Implicit self-concept and evaluative implicit gender stereotypes: Self and ingroup share desirable traits. *Personality and Social Psychology Bulletin*, *27*, 1164–1178. doi:10.1177/0146167201279009

Stone, P. (2007). *Opting out? Why women really quit careers and head home*. Berkeley: University of California Press.

Stout, J. G., Dasgupta, N., Hunsinger, M., & McManus, M. A. (2011). STEMing the tide: Using ingroup experts to inoculate women's self-concept in science, technology, engineering, and mathematics (STEM). *Journal of Personality and Social Psychology*, *100*, 255–270. doi:10.1037/a0021385

Tenenbaum, H. R., & Leaper, C. (2002). Are parents' gender schemas related to their children's gender-related cognitions? A meta-analysis. *Developmental Psychology*, *38*, 615–630. doi:10.1037/0012-1649.38.4.615

Wiesmann, S., Boeije, H., van Doorne-Huiskes, A., & den Dulk, A. (2008). Not worth mentioning: The implicit and explicit nature of decision-making about the division of paid and domestic work. *Community, Work & Family*, *11*, 341–363. doi:10.1080/13668800802361781

Williams, M. J., & Chen, S. (2013). When "mom's the boss": Control over domestic decision making reduces women's interest in workplace power. *Group Processes & Intergroup Relations*. Advanced online publication. doi:10.1177/1368430213497065