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Do Mothers Spend More on Daughters While Fathers Spend More on Sons?

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Do parents favor some children over others? The overwhelming majority of parents state that they treat their children equally, but parents rarely track their spending on each child. We investigate in four studies whether mothers and fathers favor specific children depending on the biological sex of the child. Evidence from the field, laboratory, and community (online panel) showed that parents exhibit systematic biases when forced to choose between spending on sons and daughters. Mothers consistently favored daughters, whereas fathers consistently favored sons. For example, parents were more likely to choose a real prize and give a real U.S. Treasury bond to the child of the same sex as themselves. These parenting biases were found in two different cultures and appear to be driven by parents identifying more strongly with children of the same sex as the parent.

Keywords Parental decision making; Family spending; Biases; Gender; Identity

Do parents favor one of their children over another? Some parents acknowledge having a favorite child, but nearly all deny acting on favoritism (Durante, Griskevicius, Redden, & Edward White, 2015; Volling, 1997; Volling & Elins, 1998). Yet, because parents typically do not consciously track investment in one child versus another, this leaves room for bias in parental spending that can have critical implications for families (Suitor & Pillemer, 2007; Volling, 1997). The current research examines favoritism in parental spending in situations where parents are forced to prioritize one child over another. We identify a factor that influences parental favoritism: the biological sex of the parent and the child. We gathered evidence from the field, laboratory, and community (online panel) across four studies to show that women spend more on daughters and men spend more on sons. These parenting tendencies were found in two different cultures (United States and India) and appear to be driven by parents identifying more strongly with children of the same sex as the parent.

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Parental Expenditures on Children

Parents today are spending more on their children than in previous generations (Kornrich & Furstenberg, 2013; Lino, Kuczynski, Rodriguez, & Schap, 2017). In 1960, the average cost of raising a child to age 17 was $25,229 for a married couple in the middle of the income distribution, whereas by 2015 that cost had risen to $233,610, not including college (Lino et al., 2017).

Most parents of multiple children report that they aim for balance when it comes to their children (Durante et al., 2015; Volling, 1997). However, lay theories abound about parental favoritism, such as parents favoring the baby of the family or the first born child (Salmon & Schumann, 2011; Shebloski, Conger, & Widaman, 2005). If parents might indeed play favorites when it comes to spending, what are the determinants of the favorite? Becker (1991) contends that parents divide their spending among their children in a way that maximizes child quality, as defined by the total of the children's future wealth (Becker, 1991; Becker & Tomes, 1976). Parents might also spend in ways to maximize the child's future reproductive success, which can be influenced by health factors (Constância, Kelsey, & Reik, 2004;

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Daly & Wilson, 1980) or by environmental factors such as resource scarcity (Durante et al., 2015).

One potentially important factor is the child's sex. Yet, the limited research is mixed on how child sex might affect parental investment. On one hand, some research suggests that parents may bias investment toward boys. For example, parents spend more on Christmas presents for boys and overall parental consumer spending is greater for boys than girls (Harris, 2005; Sayid, 2016). One possibility is that boys may receive more electronic equipment such a gaming toys that have a higher price tag than consumer products generally desired by girls (Harris, 2005; Sayid, 2016). Another possibility is that the spending-on-boys effect is driven by fathers, who may have more control over household spending. Several studies using household data collected across countries suggest a preference for investing resources (e.g., education, health care) in sons, and this is most evident in areas where the father controls most of the household decisions (Bhuiya, Wojtyniak, D'Souza, & Zimicki, 1986; Burgess & Wang, 1995; Desai, Chase-Lansdale, & Michael, 1989; King & Bellew, 1989; King & Lillard, 1987; Park & Rukumnuaykit, 2004; Song, Appleton, & Knight, 2006).

When mothers have a greater say in household spending decisions, however, more resources appear to be spent on girls than boys. For example, in household data collected in the United States, Brazil, and Ghana, there exists a positive relationship between maternal education/income level and resource investment in daughters (Thomas, 1994). As women's income and education increased since the 1970s, so did parents' expenditures on girls relative to boys (King & Bellew, 1989; Kornrich & Furstenberg, 2013; Thomas, 1990, 1994).

Recent research has found that *environmental conditions* can also influence parental spending on boys versus girls. For example, Durante et al. (2015) showed that conditions of resource scarcity led parents to spend more on daughters relative to sons. The paper argued this shift occurs because this strategy increases reproductive fitness during conditions of resource scarcity. The present research does not consider how spending on sons versus daughters is influenced by environmental conditions. Instead, it tests whether spending on a specific child might be related to the sex of the parent in a more general sense.

Sex of the Child, Sex of the Parent, and Identity

Given that past research on general parental spending has produced mixed results, we consider whether these findings might be influenced by the sex of the parent. Specifically, we propose a sex-matching hypothesis: parents should be more likely to spend more resources on a child of the same sex as the parent.

Parents might systematically (if unwittingly) invest more in the child of the same sex because they more closely identify with that child. An individual's identity is thought to derive from the social categories or roles to which a person belongs (Hogg & Abrams, 1988; Stets & Burke, 2000), and this concept often guides behavior (Burke, 1991; Burke & Reitzes, 1981). Belk (1988) expanded on this idea in his construct of the extended self to suggest that our children—much like our possessions—contribute to and are a reflection of our identity. We tend to spend money on things that align with our identity, and gift giving to one's children can be a way for parents to bolster their sense of identity and live vicariously through their children (Belk, 1988; Schwartz, 1967; Veblen, 1899). If parents identify more with a child of the same sex, this could lead parents to exhibit a sex-matching bias when investing across their children.

This idea is consistent with previous empirical findings on gender, identity, and the self in the context of the family. For instance, men reported a preference for having a son over a daughter (Dahl & Moretti, 2008), and parents showed increased affection toward children of the same sex as themselves (Belsky, 1979). Daughters are more likely to learn from mothers and help them with gender-typical household tasks and vice versa for fathers and sons (Raley & Bianchi, 2006; Thomas, 1994). Parents believe they have more in common with a child of concordant sex (Chodorow, 1978; Tucker, McHale, & Crouter, 2003), suggesting that a parent views a child of the same sex as a stronger extension of his or her own identity. Some studies have also found that fathers spend more time with sons (Harris & Morgan, 1991; Raley & Bianchi, 2006), and mothers spend more time with daughters (Suitor & Pillemer, 2006; Tucker et al., 2003).

Given that biological sex correlates strongly, but certainly not entirely, with gender—a prominent social category that influences identity—and assuming identity might influence investment in one's children, we predict that a parent–child sex-match will result in the parent identifying more strongly with that child, which will favorably bias investment toward that particular child. Across four studies, we tested this hypothesis in laboratory, field, and community (online panel) samples, including the use of two incentive compatible studies in a

sample of parents who have dependent children of each sex. In addition, we tested whether the sex-matching bias in material investment is mediated by viewing a child of concordant sex as a stronger extension of one's own identity.

Study 1

Participants and Procedure

This study examined how men and women choose to split money between children in a hypothetical scenario. Participants consisted of a community panel of 250 individuals from the United States (124 women; M_{age} = 35.86, *SD* = 12.49, ranging 18–67 years) given the chance to win a $50 gift card. Participants were asked to imagine that they have two children: one boy and one girl. They then responded to two questions: (a) "If you have enough resources to invest in only one of your children, whom would you invest your limited resources in?" (choice between Son or Daughter); and (b) "If you had to divide limited resources between your two children, how would you divide them?" (10-pt. scale; anchors: 1 = 0% Son/100% Daughter; 10 = 100% Son/0% Daughter, no option for 50%/50%). Having children had no effect or interaction with participants' sex for the binary choice (*p*s >.26) or for the continuous measure (*p*s > .26; see Appendix S1).

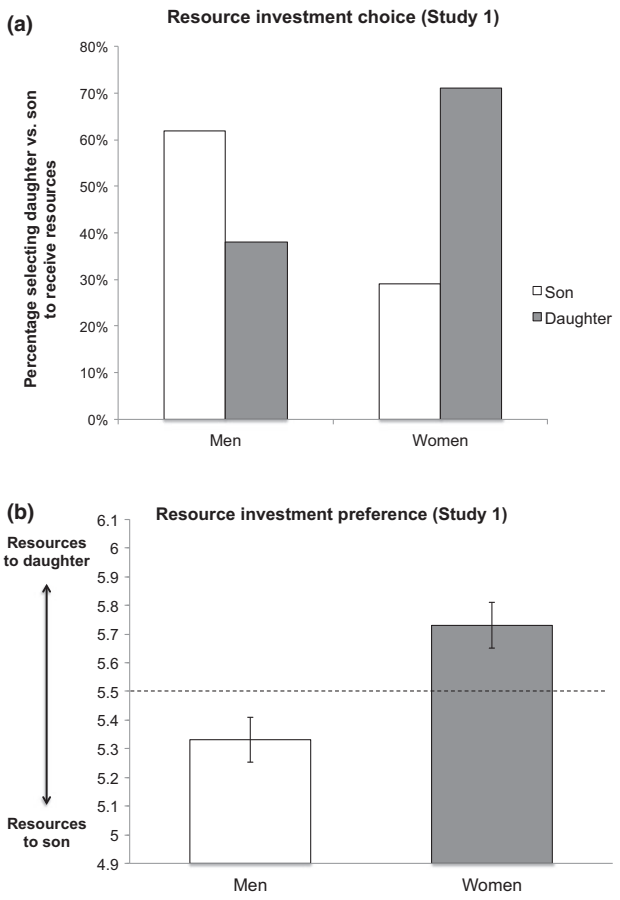

Figure 1. Percentage of women and men choosing to invest resources in a daughter versus a son (Panel 1a; Study 1). Preferences of women and men for investing resources in a daughter versus a son (Panel 1b; Study 1).

Results and Discussion

For the binary choice, there was a relationship between participants' sex and choice of son or daughter (χ^2 = 27.22, *df* = 1, *p* < .001, φ = 0.33, all cells' expected values >56). Men chose son 61.9% of the time, whereas women chose daughter 71.0% of the time (Figure 1a). Furthermore, men chose the son not only significantly more often than women did but also significantly more often than an equal split between son and daughter (χ^2 = 7.14, *df* = 1, *p* = .008, φ = 0.24, all cells' expected values ≥63). Conversely, women chose the daughter significantly more often than an equal split (χ^2 = 21.81, *df* = 1, *p* < .001, φ = 0.42, all cells' expected values ≥ 62).

An ANOVA for dividing resources using the continuous scale revealed the same pattern, *F* (1, 248) = 13.62, *p* < .001, *d* = 0.47. Results showed that men favored sons significantly more than women did, and vice versa (M_{men} = 5.33, *SE* = 0.078; M_{women} = 5.73, *SE* = 0.079). Similarly, men allocated marginally more resources to sons than an equal split, *t* (125) = 1.96, *p* = .053, *d* = 0.17, and women allocated significantly more to daughters than an equal split, *t* (123) = 3.60, *p* < .001, *d* = 0.32. Overall, for both measures, participants favored the child of concordant sex not only compared with the other group, but also in absolute terms (Figure 1b). Study 1, therefore, supported our central hypothesis that men and women favor the child of concordant sex (see Appendix S1).

Study 2

Participants and Procedure

To test whether the same pattern emerged with actual parents when real economic consequences were at stake, we conducted a field study at a metropolitan zoo in North America. Participants were 52 parents (29 women; M_{age} = 35.14, *SD* = 8.13, ranging 24–61 years) who were visiting the zoo with

children of each sex ($M_{child\ age}$ = 7.05). The parents were solicited to participate in a short survey about the zoo in exchange for the possibility of winning a prize for one of their children. The study was conducted just before the start of the school year, so parents were asked to choose whether they wanted to win a girl's or a boy's back-to-school pack (Appendix).

Results and Discussion

There was a significant relationship between the parents' sex and the sex of the child they favored (χ^2 = 20.28, df = 1, p < .001, φ = 0.62). As shown in Figure 2, mothers chose the girl 75.9% of the time, whereas fathers chose the boy 87.0% of the time. A within-sex comparison showed that fathers were significantly more likely to favor the boy compared with an equal split (χ^2 = 12.57, df = 1, p < .001, all expected cell counts > 11), and vice versa for mothers (χ^2 = 7.76, df = 1, p = .005, all expected cell counts > 14). Again, fathers and mothers both favored the concordant-sex child (see Appendix S1).

Study 3

We hypothesized that parents systematically favor material investment in a child of concordant sex because parents view a child of the same sex as a stronger extension of their own identity. This study examined whether the same-sex effect might be rooted in a shared identity with the same-sex child. The study tested whether shared identity mediated these effects.

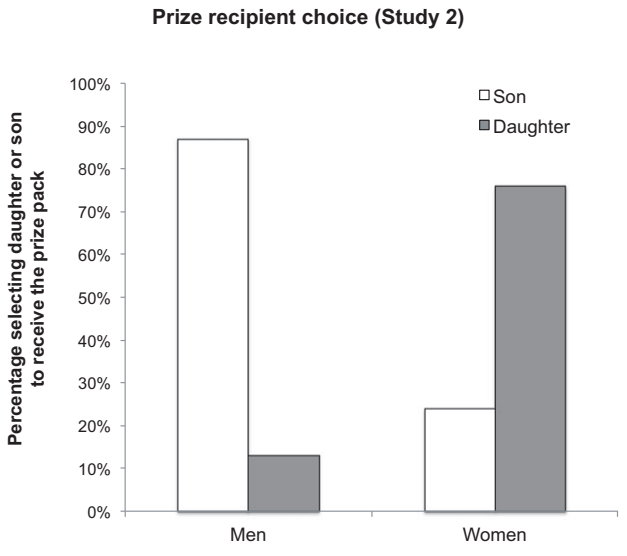

Figure 2. Percentage of mothers and fathers choosing the back-to-school prize pack for a daughter versus a son (Study 2).

Participants and Procedure

Four hundred seventy individuals were recruited from Amazon's Mechanical Turk (MTurk) (218 women; M_{age} = 35.12, SD = 11.54, ranging 19–75 years). Participants consisted of both parents (40.6%) and nonparents (58.5%). The number of children had no main effect or interaction (ps ≥ .29), and therefore, all participants were pooled together. Participants were told to imagine having a son and daughter or to think of their actual son and daughter if they had them, and asked to indicate (on a scale from 1: definitely son to 8: definitely daughter) which child they would prioritize their spending on ("If you had to prioritize spending money on only one of your children, which one would it be?"). Additionally, we measured our proposed mediator of which child participants identified with more strongly. The mediator was measured with a 5-item scale (anchored at 1: definitely son to 8: definitely daughter). An example item was "Whom do you identify with more, your son or your daughter?" (see Appendix S1).

Results and Discussion

As predicted, women prioritized daughters more than did men (M_{men} = 4.30, SE = 0.11; M_{women} = 4.96, SE = 0.11; F (1, 468) = 17.95, p < .001, d = 0.39; see Figure 3a). A within-sex comparison showed that men chose to prioritize sons over daughters, with men's choices differing significantly from the midpoint of 4.5, t (251) = 1.98, p = .049, d = 0.12. Conversely, women favored daughters over sons, t (217) = 3.81, p < .001, d = 0.26. Thus, men and women favored the concordant-sex child not only relative to each other but also within each sex.

For the mediation, we created an index of *identification* (α = 0.97) by taking the mean of the five items. This identification measure (with 4.5 as the midpoint) differed across men and women (M_{men} = 3.32, SE = 0.10; M_{women} = 5.64, SE = 0.11; F (1, 468) = 239.96, p < .001, d = 1.43). A within-sex comparison showed that men identified with sons more than with daughters, t (251) = 12.98, p < .001, d = 0.82, while women identified with daughters more than with sons, t (217) = 9.35, p < .001, d = 0.63.

We next examined whether this identification index mediated the effect of participant's gender on

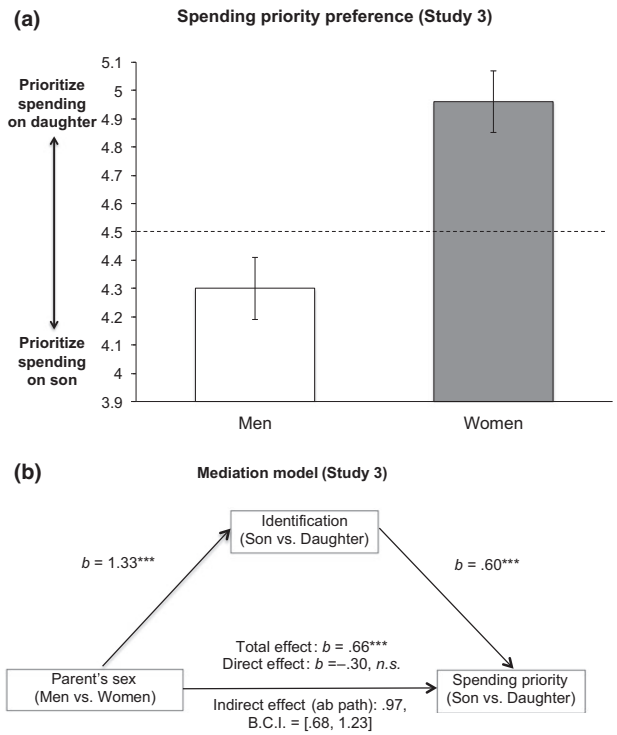

Figure 3. The dependent variable is the percentage of fathers and mothers choosing to prioritize spending on son or daughter (Panel 3a, Study 3). Path coefficients represent nonstandardized regression weights (Panel 3b, Study 3). * $p < .05$, ** $p < .01$, *** $p < .001$.

choosing to prioritize spending on son versus daughter. To test this mediation model (Figure 3b), we performed a bootstrapping procedure (Preacher & Hayes, 2004) using 1,000 resamples. We found a significant total effect of participants' sex on choice, $b = 0.66$; $SE = 0.16$; t (468) = 4.24, $p < .0001$. More importantly, there was a significant indirect effect via identification ($b = 0.97$; $SE = 0.14$; bootstrap bias-corrected 95% C.I. = [0.68, 1.23] does not contain zero), which provides evidence of mediation. Further, the direct path was only marginally significant ($p = .09$), indicating that the mediation via identification accounts for a substantial amount of the variance of the total effect.

Study 4

The objective of this study was twofold. First, we wanted to test for sex-matching favoritism using an incentive compatible measure of monetary investment. Second, we wanted to test across two different cultures (United States and India) whether parents favored a concordant-sex child. We also tested again the underlying psychological process—identification.

Participants and Procedure

Four hundred twelve parents who reported having children of each sex were recruited from Amazon's MTurk. Of those parents, 195 were from the United States (123 women; $M_{age} = 35.02$, $SD = 7.66$, ranging 22–57 years) and 217 were from India (79 women; $M_{age} = 37.01$, $SD = 7.40$, ranging 18–61 years). All participants were asked to make a binary choice about whether to give a $25 U.S. Treasury bond either to their son or daughter (as in Durante et al., 2015). Participants were explicitly told that they would be entered into a drawing to potentially receive a real bond that would be paid out according to their choice. In addition, participants responded to five questions (same as in Study 3) about how much they identified with their children ($\alpha = 0.90$; see Appendix S1).

Results and Discussion

The choices of mothers and fathers once again differed across the genders of the child, with mothers favoring daughters more frequently than fathers did and vice versa ($\chi^2 = 7.19$, $df = 1$, $p = .007$, $\varphi = 0.13$, all expected cell counts > 96). The country (United States vs India) did not have an effect ($p = .79$), nor was there a participant sex × country interaction ($p = .93$). Thus, parents in both countries systematically gave the Treasury bond more often to the child sharing their sex, compared with the parents of the opposite sex (see Appendix S1). Specifically, mothers gave the Treasury bond to their daughter 58.9% of the time, whereas fathers gave it to their son 54.3% of the time (Figure 4a). A within-sex comparison relative to an equal split showed that mothers chose the daughter significantly more often than they chose the son ($\chi^2 = 6.42$, $df = 1$, $p = .011$) and fathers chose the son more often than they chose the daughter, although the difference from equal split did not reach conventional levels of statistical significance ($\chi^2 = 1.54$, $df = 1$, $p = .21$).

Analysis of the identification index ($\alpha = 0.90$) revealed that parents identified more closely with a child of their own sex ($M_{women} = 4.91$, $SD = 1.79$ vs $M_{men} = 4.19$, $SD = 1.95$; t (410) = 3.91, $p < .001$, $d = 0.39$). A comparison within-sex for parents relative to an equal split (midpoint = 4.5) found that fathers identified with sons significantly more than

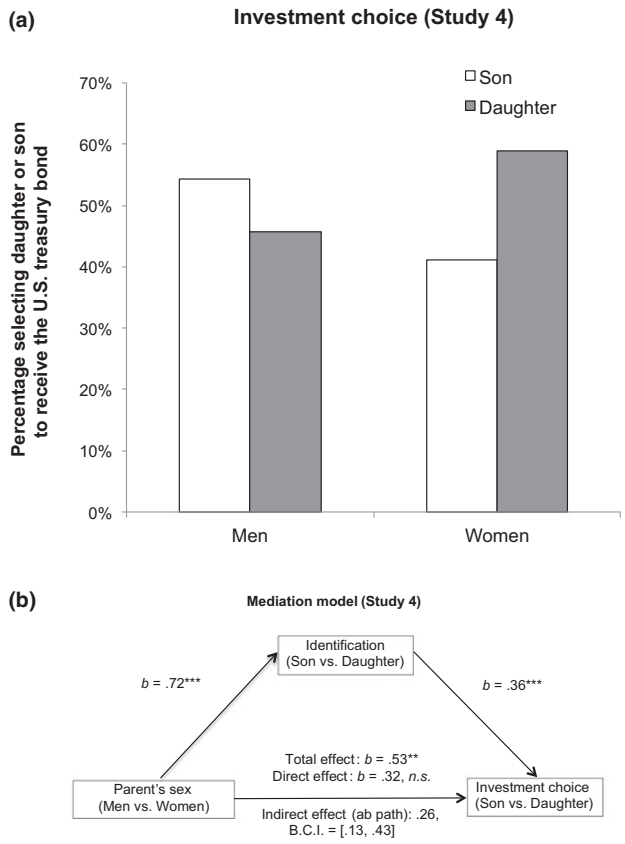

Figure 4. The dependent variable is the percentage of fathers and mothers choosing to give the Treasury bond to a son versus a daughter (a, Study 4). Path coefficients represent nonstandardized regression weights (b, Study 4). * $p < .05$, ** $p < .01$, *** $p < .001$.

with daughters, t (209) = 2.28, p = .024, while mothers identified with daughters significantly more than with sons, t (201) = 3.29, p = .001. As depicted in Figure 4b, the child given the bond depended on the parent's sex (b = 0.53, SE = 0.20, p = .007), which was mediated by the identity index (indirect effect = 0.26, SE = 0.08, bootstrap 95% $C.I.$ = [0.13, 0.43] does not contain zero). In other words, parents favored the child sharing the same sex as themselves because they identified more strongly with that child.

General Discussion

Across four studies, we found support for a sex-matching hypothesis of parental spending: Fathers favor sons and mothers favor daughters. This consistent effect was found in controlled experiments using a hypothetical scenario, in a field study with actual parents and real prizes for children, and in an incentive compatible study involving real monetary stakes in both the United States and India, which provides additional confidence in the external validity of the results. The sex-matching effect was mediated by parents' stronger identification with a child of concordant sex. These results establish for the first time this fundamental, consistent, but previously unexamined bias in parental spending.

The sex-matching finding in the current studies does not contradict the effects of external variables on parental spending, such as the effect of resource scarcity (Durante et al., 2015). Durante et al. (2015) found that resource scarcity led parents (both men and women) to bias investment toward girls. The sex-matching effect and the effect of resource scarcity appear to be rooted in fundamentally different underlying processes. Whereas the effect of resource scarcity on biased spending on daughters is proposed to occur via an evolutionary mechanism related to reproductive fitness, the sex-matching bias in parental expenditures is related to higher identification between the parent and child of the same sex. The sex-matching effect found in the current research could not account for the effects in the Durante et al. (2015) paper because the latter captures how recessions lead to greater spending on daughters regardless of the parent's sex. The current paper complements the work by Durante et al. (2015), with the effect of resource scarcity being a potential moderator of the sex-matching effect demonstrated in the present research. Hence, the effect of resource scarcity and the sex-matching effect on parental investment are not mutually exclusive or inherently related. For example, the findings of Durante et al. (2015) suggest that under conditions of resource scarcity, the sex-matching effect would be intensified for women and suppressed for men (because both would favor daughters more). Influences driven by evolutionary biology and social identification can coexist. Future research will need to explore when resource scarcity concerns outweigh a shared sex, and vice versa.

Limitations

While we found evidence for identification with the child being the mediator underlying our effect, this does not preclude the existence of other process variables. Such possible variables might include empathy (e.g., men might empathize more with boys and women with girls), or more familiarity with the child of the same sex as themselves. It is also possible that spending more time with the child of concordant sex (more exposure) results in the parent being able to imagine and anticipate the

needs (due to more information and familiarity) of that child. All of these are empirical questions that are candidates for future research, but none of these possibilities contradicts or precludes the existence of the process identified in the present research.

Additionally, there could be other moderators of the sex-matching bias that future research should examine. Beyond resource scarcity (Durante et al., 2015), possible moderators include children's birth order (Suitor & Pillemer, 2007), proportions of children of each sex within the family, presence of step children, or parents' risk aversion (because from an evolutionary perspective, investing in boys involves higher risk; Durante et al., 2015; Leimar, 1996).

A limitation of the present research is that our dependent measures consisted of one-time decisions. It is possible that over time, parents might try to make up for these biases (even if not consciously aware of them) by balancing things out across multiple decisions. Using our main finding as a starting point, future research should examine this possibility in longitudinal studies that examine this bias within individuals over time with repeated choices.

Finally, this research uses biological sex as a proxy for gender, a social construct. While there is a very strong correlation between the two in the majority of the population, the correlation is imperfect, and here, we inherently (and reasonably) assume a majority of cis-gender participants. Given the possibility that the process of social identity might depend more on the social construct of gender than on biological sex, future research should examine boundary conditions in situations where biological sex and gender are not aligned.

Implications

This research has important implications. For example, if a culture has a norm of men controlling the family's financial decisions, then sons may chronically receive more resources than daughters. By contrast, if women are the primary shoppers, this can result in subtle but consistent favoritism for daughters. This difference in investment could then manifest to far-reaching advantages that persist over time. The implications can also differ depending on various nontraditional family configurations. For instance, in single parent or same-sex parent households, the ramifications of this bias can be even stronger, given that there is no opposite-direction bias from the other parent to even things out.

Finally, it is worth noting that in the current research we found the sex-match bias in both parents and nonparents when they were asked to imagine having children of each gender (Studies 1 and 3). This suggests that our effect, while manifested as a bias in parental investment based on child sex, may be a broader bias related to general favoritism of same-sex people when investing resources. If more men are in positions of corporate and political power, this can translate to greater investment in programs and policies that favor males, and have implications in settings such as work, organizations, schools, charities, and more. Given the dearth of research on how parents make spending decisions on behalf of their children, we believe that examining these and other related questions is a novel and fruitful avenue for future consumer research.

Conflict of Interest

The authors declare no competing financial interests in conducting this research.

Appendix

Boy's and Girl's Back-To-School Prize Packs from Study 2.

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Supporting Information

Additional supporting information may be found in the online version of this article at the publisher's website:

Appendix S1. Methodological Details.