WHO YOU GONNA CALL? GENDER INEQUALITY IN EXTERNAL DEMANDS FOR PARENTAL INVOLVEMENT*

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Gender imbalance in time spent on child-rearing causes gender inequalities in labor market outcomes, human capital accumulation, and economic mobility. We conduct a large-scale field experiment with a near universe of U.S. schools to investigate a potential source of inequality: external demands for parental involvement. Schools receive an email from a fictitious two-parent household and are asked to call one of the parents back. Mothers are 1.4 times more likely than fathers to be contacted. We decompose this inequality and demonstrate that the gender gap in external demands is associated with various measures of gender norms. We also show that signaling a father's availability substantially changes the gender pattern of callbacks. Our findings underscore a process through which agents outside the household contribute to within-household gender inequalities.
JEL codes: J16, J13, J71.

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I. Introduction

Despite the convergence of men's and women's roles in the labor market, there is still a persistent gender earnings gap. Prior studies have documented many factors contributing to this gap, including greater concentration of women in occupations offering temporal flexibility (Goldin 2014; Gallen, Lessner, and Vejlin 2019; Duchini and Van Effenterre 2024; Price and Wasserman forthcoming).

The need for greater workplace flexibility is consistent with the robust finding that women—even those who work outside the home—engage in a disproportionate share of child- and household-related tasks.[1] American Time Use Survey data reveal that married mothers employed full-time spend significantly more time on childcare, housework, and food preparation than analogous fathers (see Figure I, Panel A). Similarly, Cubas, Juhn, and Silos (2021) find that 35% of mothers experience a household interruption during their workday, compared with only 20% of fathers. These gender imbalances may disadvantage women economically, potentially affecting labor market outcomes, human capital accumulation, and economic growth, as documented in the motherhood wage gap literature.[2]

In this article, we investigate one potential source of this inequality: external demands for parental involvement. Institutions beyond the household and employer impose demands on families, which may fall disproportionately on mothers. These social biases can take many forms. For example, women may get called on more often than men for child-related tasks, such

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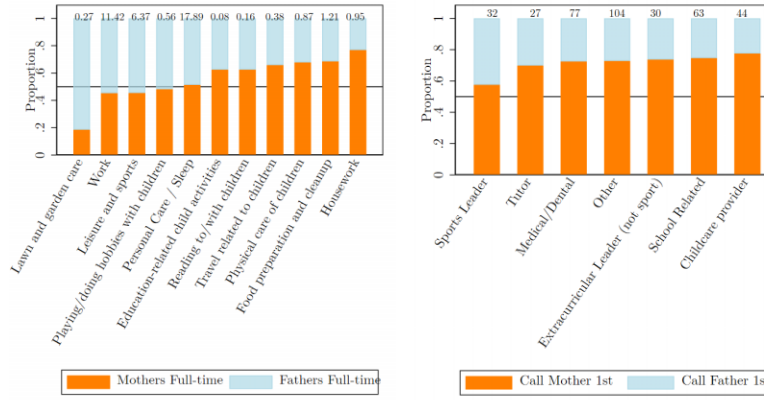
1. See, for example, Aguiar and Hurst (2007), Craig and Mullan (2011), and Schoonbroodt (2018).

2. Many prior studies have documented the motherhood wage gap in a wide range of contexts, including work by Adams et al. (2025), Kleven (2022), Andresen and Nix (2022), Jack, Tannenbaum, and Timpe (2023), Erosa et al. (2022), Albanese, Nieto, and Tatsiramos (2022), Cubas, Juhn, and Silos (2023), Kleven, Landais, and Søgaard (2019), and Angelov, Johansson, and Lindahl (2016).



(A) Proportion of Time Full-time Employed Mothers vs. Fathers in Two Parent Households Spent in Day (48 Hours Per Household)

(B) Proportion of Time Mother vs. Father in Two Parent Households are Contacted First By Type of External Decision-Maker

FIGURE I

Gender Inequality in Household Time Use and External Contacts

Panel A shows the proportion of time male versus female respondents spend on different activities. Respondents are married adults working full-time with children under 18, according to the American Time Use Survey from the BLS years 2015–2019. There is a line for the equal time spent on an activity between mothers and fathers. The number at the top of each bar is the total hours spent on this activity (sums close to 48 hours). For brevity, we exclude some categories (e.g., purchasing goods/services, caring for non-children, non-child-related travel, and other activities). Full-time working mothers tend to spend equal or more time on these excluded categories relative to full-time working fathers. Panel B shows the proportion of time mothers and fathers are contacted by adult leaders who interact with parents. There is a line at the equal amounts of contact to mothers versus fathers. The self-reported proportion of calling mothers was statistically significantly greater than 50% at the 10% level using a one-way t-test for all types of decision makers. Respondents were 377 adults who interacted with parents and self-identified as doing so mainly in a specific role (e.g., teacher, nurse, sports leader). The number at the top of each bar is the number of decision makers of each type. See Online Appendix M.B for details. We told respondents to imagine "a family that consists of one mother and one father living together jointly raising at least one child." We then asked respondents the following question about a mother or a father: What proportion of the time do you contact the [father][mother] first if only contacting one parent first? With 50% being randomized to be asked about the [father], and 50% randomized to be asked about the [mother].

as school requests. Schools therefore provide an ideal setting for investigating external demands for parental involvement by gender. We conduct a field experiment in a K–12 school setting. Specifically, we send emails with phone numbers for both

parents in a fictitious two-parent household to the near universe of U.S. school principals ($N = 80{,}071$), asking the principal to contact a parent by phone. Motivated by our theoretical model, we randomly vary which parent sends the email and the information provided about their availability to disentangle whether discrimination stems from decision makers' beliefs about responsiveness or other factors. Beliefs about responsiveness might include the perception that women are more available because they are stay-at-home mothers or that women want to be more involved in a school-related decision and will be more responsive than men. Other factors include distaste for calling a specific parent, systemic factors, social norms, or beliefs not related to the value of a parent's response.

Although observational data show that mothers interact with external child-related decision makers more than fathers, it is difficult to distinguish whether this reflects specialization in the household or results from social constraints. Our experiment measures bias directly and investigates its origins. By randomly varying signals about availability and decision-making preferences, we test whether the gender gap can be mitigated by households adjusting the signals they send. Our experiment shows that combining explicit signals about parents' responsiveness with implicit signals based on who sends the email can substantially change (and even reverse) the gender pattern of calls. Our model also explores other attributes, such as the prevailing gender norms of schools and geographic locations. We show that such attributes affect inequality in demands on parents' time, implying that the gender gap might be mitigated by policies targeting behavioral change in specific subgroups.[3]

We find substantial gender and treatment differences. Principals are significantly more likely to call mothers first in response to our simplest message, which contains no information about parents' availability. On average, conditional on a call being made, mothers are called first 1.4 times more than fathers (59% versus 41% for the 20% of principals who make any call), providing direct evidence of greater external demands on mothers relative to fathers. Our findings underscore significant gender

3. The scope of this article is two-parent heterosexual households, but we acknowledge that there are many types of households and exploring the effect of external demands in other settings is an important question for future work. We discuss this further in Online Appendix I.

inequality in external demands, which are common in school settings (e.g., picking up a sick child, volunteering for school events) and beyond (e.g., scheduling doctor visits, registering for summer camps, coordinating extracurricular activities, and handling grandparents' expectations for child care). Although we cannot directly link external demands to the gender earnings gap, suggestive evidence from the American Time Use Survey (ATUS) data and parent surveys shows greater effects on mothers. Furthermore, we document that even when households exert substantial efforts to achieve a more balanced split of child-related tasks (e.g., by repeatedly reminding the school whom to contact or by outsourcing the task), they incur disruption costs that may exacerbate existing gender gaps in the labor market.

Finally, in addition to documenting a gender gap in external demands for parents' time, we explore why this gap exists and test potential mechanisms. Explicitly signaling that the father is more available reduces the gap and can even reverse the pattern of callbacks. However, even when fathers state that they are more available, mothers still get 26% of calls. In contrast, signals that reinforce stereotypes that mothers are more available cause them to receive 90% of calls. Sending the email from the father significantly raises the share of calls to fathers. However, even when the email comes from the father and contains a positive signal about the father's availability, 12% of calls are still directed to mothers. This highlights an important asymmetry in the effectiveness of informational interventions in closing the observed gender gap in external demands for parents' time. Still, our findings indicate that the combination of explicit and implicit signals from the parents can be an effective tool in mitigating the gender inequality in external demands.

This article extends existing literature in four ways. First, we experimentally document a previously unexplored gender gap in external demands for parental involvement. While prior research shows that women spend significantly more time on child-related tasks than men in two-parent households, we are the first to demonstrate that external demands contribute to this inequality. This inequality can have substantial economic and social costs for women and men, both of whom report a desire for a more equal distribution of child-related tasks (Pew Research Center 2015). A nationally representative survey of parents of school-age children

finds that women report being contacted by schools more often than men, but wish they were contacted less often, while men wish to be contacted about half the time (Center for the Study of Elections and Democracy 2022). We find that women are significantly more likely to be the point of contact for external decision makers across a wide range of child-related domains, from doctors' offices to extracurricular sports coaches to religious leaders (see Figure I, Panel B).[4] Perhaps most important, in our survey (Online Appendix M.C), mothers were significantly more likely than fathers to report that child-related external interruptions negatively affected their careers and earnings. Even though in principle women can "outsource" the task to their partner, we find that outsourcing imposes a nontrivial cost.

Related prior research has documented the effects of child care and other care-giving disruptions on women's labor market outcomes. Price and Wasserman (forthcoming) show that summer child care constraints shape career choices and earnings for women with school-aged children, consistent with findings from Duchini and Van Effenterre (2024) and Cowan, Jones, and Swigert (2024). Similarly, the COVID-19 pandemic and the associated school and daycare closures led to significantly larger declines in women's employment and labor force participation relative to men. The negative effects were especially large for mothers of school-aged children, leading to significant declines in their mental and physical health.[5] Understanding how external demands contribute to gender inequalities in child-related tasks can help illuminate drivers of the persistent earnings gap and inform policies to mitigate these disparities.

Second, we contribute to the growing literature on how individual-specific information can reduce reliance. Prior work in economics and social psychology has considered the role of individual-specific information in reducing reliance on group statistics for evaluations (also known as statistical or

4. Prior studies suggest that women anticipate child-related disruptions long before having children, which may push them toward more flexible jobs, leading to substantial labor market penalties, including reduced labor force participation (Pertold-Gebicka, Pertold, and Gupta 2016; Bursztyn, Fujiwara, and Pallais 2017; Mas and Pallais 2017; D'Angelis 2023) and curbed earnings (Cortés and Pan 2023).

5. See Zamarro and Prados (2021), Montes, Smith, and Leigh (2021), Heggeness (2020), and Russell and Sun (2020).

belief-based discrimination). This literature has produced mixed evidence. Some studies show that providing accurate information can reduce statistical discrimination (Bohren, Imas, and Rosenberg 2019; Gallen and Wasserman 2021; Laouénan and Rathelot 2022), while others find no discernible effects (Bertrand and Mullainathan 2004; Oreopoulos 2011). We advance this literature by documenting an asymmetry in how information affects discrimination. In our field experiment, we test whether providing information about parents' availability mitigates the gender gap in external demands for parental involvement. While signaling fathers' availability moves calls away from mothers, informational interventions have limits. Specifically, in our baseline variation, we find that signaling mothers' high availability leads to mothers being contacted 90% of the time, while the same signal for father only results in 74% of calls.

A related literature investigates the underlying sources of discrimination. Field experiments often identify the existence of discrimination but rarely its mechanisms (Bertrand and Duflo 2017). The two most-studied mechanisms for discrimination in economics are tastes/preferences (Becker 1957) and beliefs (Phelps 1972; Arrow 1973; Aigner and Cain 1977; Bohren et al. 2025), with recent work emphasizing the importance of indirect discrimination stemming from systemic factors (Bohren, Hull, and Imas 2025). We advance this literature by pairing a simple theoretical model with a field experiment to separately identify beliefs about availability and other factors driving discriminatory behavior. Although we cannot distinguish between accurate and inaccurate beliefs, using a structural model allows us to avoid the identification problems common in studies isolating the sources of discrimination (Bohren et al. 2025).

Finally, this article contributes to the literature on institutional and systemic discrimination. Prior work in sociology and economics has explored the idea that discrimination may be perpetuated by organizations or structures in addition to individuals (for discussions, see National Research Council 2004; Powell and DiMaggio 2012; Scott 2013; Babcock et al. 2017; Small and Pager 2020; Bohren, Hull, and Imas 2025; Kline, Rose, and Walters 2022; Karpowitz et al. 2024). We provide novel evidence of systemic discrimination by showing that school principals' optimizing behavior creates worse outcomes for some individuals and arguably for society as a whole. As Small and Pager (2020) argue,

institutional discrimination deserves special attention because systemic practices are deeply ingrained and have long-lasting consequences.

II. Field Experiment

Our theoretical model (discussed in Online Appendix H) and our survey of educators inform the design of a large-scale field experiment, where we send emails to a near universe of U.S. school principals. The emails come from a set of fictitious parents, one male and one female.[6] Email is a common way for parents to contact schools; in our survey, 75% of educators report being contacted by parents via email at least once a month (See Online Appendix M.A for details about the survey). Our specific inquiry is meant to mimic a message a household might send when relocating to a new area and exploring new school options. In addition, several recent studies have used emailing schools as part of their methodology to document discrimination against students with disabilities, of certain races, or with homosexual parents (see Diaz-Serrano and Meix-Llop 2016; Bergman and McFarlin 2018; Ahmed, Hammarstedt, and Karlsson 2021; Oberfield and Incantalupo 2021; Hermes et al. 2023; Cantet, Feld, and Hernández 2024).

In the study most similar to ours, Hermes et al. (2023) emailed childcare centers in Germany from either the mother or the father and found similar response rates, but responses to mothers are shorter and less positive than responses to fathers. Importantly, Hermes et al. (2023) do not offer decision makers the choice between contacting a mother or a father, so our outcome variables are not directly comparable. They also study responses from parents about optional childcare for young children, whereas we look at questions about mandatory schooling for older children. Consistent with our results, they find that gender norms may be a major driver of the observed inequality.

II.A. Setting

Our experiment takes place in a K–12 school setting. About 40% of households in the United States have school-aged children, and 97% of parents send their children to school outside the

6. We describe our data-collection process in detail in Online Appendix L and ethical considerations in Online Appendix J.

home (Wang, Rathbun, and Musu 2021). Schools are an ideal setting for exploring external demands on parents' time because of their nearly universal relevance and the gender gap in school-related activities mirrors broader disparities in child-related tasks (BLS 2021).

We believe that any gender gaps we document in our specific task will generalize to other tasks in the school setting, such as picking up a sick child, volunteering for the book fair, or joining the Parent Teacher Association (PTA). First, educators in our survey said that they would contact the mother first in many of these scenarios (we discuss the survey in Online Appendix M.A). Second, the gender distribution of these tasks is significantly skewed: mothers make up almost 90% of PTA members, and only 13% of fathers report high levels of involvement in their child's school activities, compared with 53% of mothers (see Belkin 2009; Daly and Groes 2017; Scotland Fathers' Network 2020). While it is likely that a significant part of the overall gender disparity in child-related tasks results from optimizing decisions within the household, our results indicate that biased external demands for parental involvement are one potential driver.

Furthermore, we expect the gender gap we observe in schools to extend to many other settings requiring parental involvement.[7] As shown in Figure I, mothers spend more time than fathers on many child-related tasks, and decision makers across organizations beyond schools report contacting mothers more than fathers.

II.B. Messages

In our experiment, school principals receive emails from a fictitious two-parent, heterosexual household. The email states that the parents are searching for a school for their child and would like to have a phone discussion. We provide separate phone numbers for each parent, listing the sender's number first, and randomize whether the father or mother is the sender. We call

7. See Heffernan et al. (2025), who find that mothers are significantly more likely than fathers to report scheduling doctors' appointments and taking children to well-child visits.

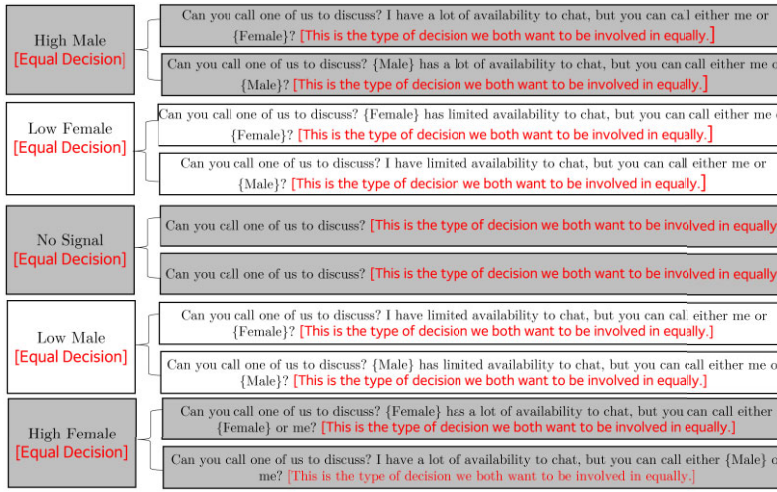


FIGURE II

Field Experiment Variation in Messages

We show a pertinent portion of differences in the messages we sent to schools in both the Baseline and Equal Decision variations. Each variation has five treatment messages: High Male, Low Female, No Signal, Low Male, and High Female. The parent who sent the email always had their phone number listed first. We show the message sent from the male parent (cc'ing the female parent) and then the message from the female parent (cc'ing the male parent). The full text of example email messages in the Baseline variation is available in Online Appendix G.

this the "No Signal" message.[8] We developed the message in consultation with administrators from various public, private, and charter schools. Conversations and survey evidence (Online Appendix M.A) confirmed that parents frequently make general email inquiries to schools before enrolling, and it is common for one parent to email and copy the other parent.

We augment the No Signal message in two ways. First, we add a baseline sentence signaling the availability of a specific parent in a two-parent household. Figure II shows the variation in wording. Details of the names and email addresses used in the experiment are in Online Appendix L, and the full text of the

8. To be precise, it is a "No Verbal Signal" message, and there is a nonverbal signal inherent in which parent sends the email. We address this issue later.

Baseline variation messages is in Online Appendix G.[9] This leaves us with five Baseline messages.

Second, because messages about availability could also signal a desire for equal decision making, we send five additional messages that add a sentence meant to fix beliefs about the household's preferences for equal decision making. Specifically, we add: "This is the type of decision we both want to be involved in equally." In Online Appendix I, we discuss variations of these messages (e.g., longer and more detailed) sent to a subsample of principals. Our findings are robust to these variations.

We designed these messages based on our theoretical model discussed in Online Appendix H and a survey we conducted with educators detailed in Online Appendix M.A. The survey reveals that a key source of statistical discrimination could be differential beliefs about mothers' responsiveness. Specifically, educators' common reasons for calling mothers first were, "I expect this person to be more likely to respond quickly" and "This person is more interested/willing." One of our model's key results is that by varying the strength (low/high) of the signals about each of parent's availability, as well as their desire for equal decision making, we can disentangle the extent to which differential beliefs about parents' responsiveness drive observed gender inequality.[10]

Our emails also contain a key nonverbal signal: which parent sends the email. Many survey respondents stated that they

9. One might question the realism of messages that are from Parent A but then state that Parent A is not very available (e.g., Low Female sent from mother or Low Male sent from father). However, as seen in Table II, response rates for these emails are similar to those of the other emails, which seems in line with the fact that there is no difference in realism for these email messages versus our other messages. Furthermore, during a pilot with 767 principals, we sent emails from a joint family account (rather than Parent A and cc'ing Parent B). We only piloted the Male High, No Signal, and Male Low messages from a joint account, but the patterns of calls to mothers versus fathers are very similar to those presented in our main text.

10. In an early draft of this article, we presented a preliminary version of our theoretical model that did not account for the effect of which parent sends the email. We have since added this to the model in response to feedback. Failing to account for the return-to-sender effect obscured the importance of beliefs about responsiveness in driving gender inequality in external demands for parents' time. We now also focus on the version of the model with messages that fix beliefs about preferences for equal decision-making.

would call the parent who is listed first or who reaches out to them. Thus, we account for the sender effect in our analysis and allow it to vary by treatment, since message content may influence decision makers' likelihood to respond.

II.C. Sample Frames and Data Collection

During the summer of 2022, we sent emails to 80,071 school principals across the United States.[11] We first describe the Baseline and Equal Decision variations, sent to over 60,000 principals. We observe whether any call is made to any of the phone numbers we list, including phone calls where no voicemail was left. We know the precise time, date, content, and length of any voicemail left for our parents. Using this information, we match each callback to the original decision maker who received a treatment email. Online Appendix L details our experimental design, data collection, and matching process. Two weeks after we sent the initial email, we sent a second email telling the decision maker we no longer needed to speak with them, releasing them from any further obligation. The vast majority of calls from principals are made within the first week of the original email being sent.

Our primary outcome of interest is whether a decision maker calls the female parent, the male parent, or neither parent. Decision makers can also email or text our parents, but we set up an auto-response to both and fewer than 0.2% of our principals responded via a text message. To test treatment effects on the likelihood of no call, calling the female parent first, or calling the male parent first, we run a multinomial logit regression.

$$(1)\quad p_{ij}(x) = \frac{e^{\beta_j^{lM}(LowMale)+\beta_j^{hM}(HighMale)+\beta_j^{lF}(LowFemale)+\beta_j^{hF}(HighFemale)+\alpha X_i}}{\sum_{k\in n,f,m} e^{\beta_k^{lM}(LowMale)+\beta_k^{hM}(HighMale)+\beta_k^{lF}(LowFemale)+\beta_k^{hF}(HighFemale)+\alpha X_i}}.$$

In this regression, p_{ij} is the probability that individual i calls neither parent ($j = n$), the female parent ($j = f$), or the male parent ($j = m$). Next we have treatment indicators for each treatment beyond the No Signal treatment: LowMale, HighMale, LowFemale, and HighFemale. We can also include a vector X_i of

11. Throughout 2021, we conducted a series of pilot experiments with a total of 3,267 observations to iron out implementation logistics. Some pilot emails were sent out during the school year, while others were sent during the summer. Notably, we did not observe significant differences in response rates by time of year.

covariates, including which parent sent the email (cc'ing the other parent) and attributes of the decision maker and their school.

In subsequent analysis, we use a binary outcome variable, taking the value one when a female parent is called and zero otherwise. We then run a simple linear regression for easier interpretation of coefficients.

III. Results: Gender Inequality and Signal Impact

We observe a 20% response rate from the principals, consistent with previous work (Online Appendix N). Our treatments are balanced on observable variables (see Online Appendix Tables C.1 and C.2). We intended to send an equal number of emails from fathers and mothers, as well as an equal number of emails in each of our treatments, but we encountered some computing errors.[12] Our results are based on reweighted data so that there is balance in the number of messages sent in each of the five messages (Figure II), and there is balance between the number of messages sent from fathers versus mothers in a treatment arm. However, our results are the same when we randomly exclude observations to achieve balance.

We compare the observable characteristics of the principals who call back with those who do not and find small but statistically significant differences. As reported in Online Appendix Table A.2, we are less likely to get callbacks from public and charter schools. Although this suggests selection into calling, we believe much of the selection is due to fewer resources in public schools compared with private ones. One might expect elementary schools to be more likely to call mothers, but we do not observe any patterns when we separate outcomes by grade level (See Online Appendix Figure E.1).

III.A. Gender Inequality with No Signal

Table I and Figure III report the proportion of actions taken by decision makers in all of our conditions, including the No Signal conditions (Table I, column (3) or center bars of Figure III), which contain no verbal information about parents' availability. If there was no gender inequality and decision makers randomly

12. The issue arose due to the use of the "set seed" command in Stata but was not detected until after we finished our experiment. We have no reason to believe that this computing error introduced any systematic bias into our results.

TABLE I
SUMMARY STATISTICS BY TREATMENT IN BASELINE AND EQUAL DECISION VARIATION

	High Male (1)	Low Female (2)	No Signal (3)	Low Male (4)	High Female (5)
Panel A.i: Baseline all outcomes					
Called female	0.05	0.10	0.12	0.15	0.19
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Called male	0.15	0.11	0.08	0.06	0.02
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
No call	0.79	0.80	0.80	0.79	0.79
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	7,075	5,931	5,612	5,700	6,153
Panel A.ii: Baseline conditional on calling					
Called female | call	0.26	0.47	0.59	0.73	0.90
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Called male | call	0.74	0.53	0.41	0.27	0.10
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	1,470	1,204	1,147	1,178	1,320
Panel B.i: Equal decision all outcomes					
Called female	0.06	0.10	0.10	0.12	0.19
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Called male	0.14	0.09	0.08	0.06	0.03
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
No call	0.80	0.81	0.82	0.81	0.77
	(0.01)	(0.01)	(0.00)	(0.00)	(0.01)
Observations	5,170	5,558	6,569	6,755	6,268
Panel B.ii: Equal decision conditional on calling					
Called female | call	0.29	0.52	0.57	0.66	0.86
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Called male | call	0.71	0.48	0.43	0.34	0.14
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)
Observations	1,041	1,062	1,210	1,249	1,418

Notes. Standard errors are in parentheses. Observations are weighted so that there are 50% of emails from a female parent and 50% from a male parent, and so that all message types have equal weighting.

chose which parent to call, we would expect the same number of calls to male and female parents. In our No Signal Baseline variation message, we observe that about 12% of school principals call mothers first, while only 8% call fathers first. The remaining decision makers do not call either parent. The difference in calls to male and female parents is large and statistically significant ($Pr(T > t) = .00$). Thus, we observe a clear gender gap in

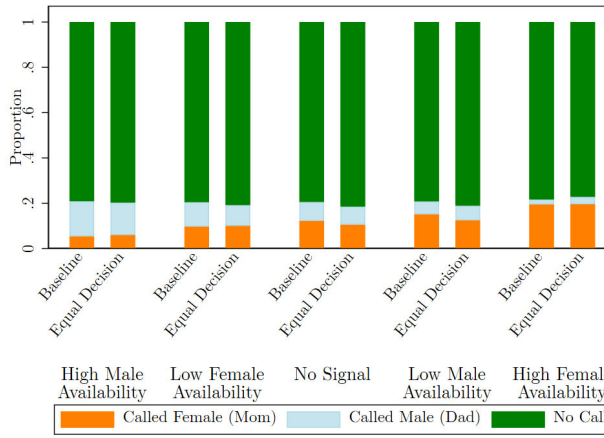
callbacks, with mothers being significantly more likely than fathers to be called first.

Another way to see the bias toward calling female parents is the ratio of female-to-male calls in the No Signal messages, which is about 1.4. This is well above the ratio of 1 that we would expect if decision makers were randomizing which parent to call, indicating that mothers are 1.4 times more likely than fathers to receive a call. Conditional on receiving a callback, mothers are called first about 60% of the time in the No Signal treatment, with and without the addition of the sentence about making decisions equally.

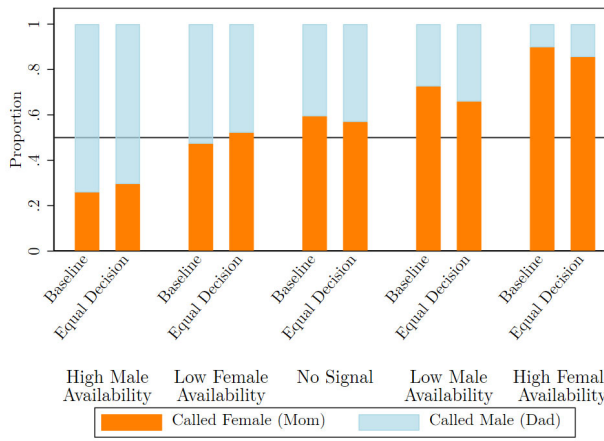
We argue that the gender gap we document is a lower-bound estimate of the gender inequality in external demands from schools for several reasons. First, our experiment essentially sends an equal number of requests from mothers and fathers, neutralizing any gender imbalances from existing relationships. Second, the inquiry in our messages is not a stereotypical male or female question. Our survey evidence suggests that external decision makers would exhibit an even stronger bias toward calling female parents if they needed to call a parent to pick up a sick child, discuss allergies, or help with a bake sale.

In Section IV.C, we explore how the gender gap in external demands varies across domains. Specifically, we test whether our results are affected by whether our email inquiry is gender-neutral (searching for a new school) or in a more stereotypically male domain (asking about school fees). However, joining an extracurricular team or paying additional fees (especially at a public school) is less universal as the experience of being called to pick up a sick child. Furthermore, picking up a sick child is usually an unexpected event that causes a significant interruption, in contrast to less time-intensive and more flexible requests about an extracurricular team or school fees. As such, we believe that the inequality we document—where the domain is neutral, there are no preexisting relationships, no verbal signal about which parent to contact, and no imbalance in the nonverbal signals inherent in who sends the email—represents a lower bound on the inequality in external demands from schools.

Parents face external demands from many sources, not just schools. We survey workers in various jobs who interact with children and their parents and find a mother preference in each of the nine domains (see Figure I, Panel B and Online Appendix M.B for details). Thus, the inequality in external demands from schools



(A) All Outcomes



(B) Outcomes Conditional On Calling

FIGURE III

Outcomes by Treatment

We show the proportion of decision makers choosing to make no call, call the female parent (mom), or the male parent (dad) by the message sent to the decision maker in our Baseline and Equal Decision variations. Panel A represents three outcomes from 60,791 decision makers, while Panel B shows only the choices for those who made a phone call to at least one parent (11,713). Observations are weighted so that 50% of emails come from a female parent and 50% from a male parent (always cc'ing the other parent) within each Variation-Treatment cell (e.g., each bar). See Table I for sample size by message and standard errors. See Online Appendix Figures B.2 and B.3S for the total number of no calls, calls to female parents, or calls to male parents by message.

that we document likely compounds across many domains, further exacerbating the impact on mothers.

While our primary analysis focuses on the first call, we observe similar patterns with multiple calls made by the same principals (Online Appendix Figures B.2 and B.3). Among the principals who make more than one call, about half of them make multiple calls, with an average of 1.7 calls per principal. Principals who make only one call are far more likely to call the mother than the father (about two-thirds to mothers versus one-third to fathers). For those who make a call, about 40% of those who call the mother first then try the father, while over 50% of those who call the father first then try the mother. Mothers are more than twice as likely to receive two calls in a row as fathers. The observed pattern strongly supports our finding that women are disproportionately more likely to field child-related external demands when no information is provided about parents' relative availability.

III.B. Impact of Signals on Gender Inequality

Next we discuss the nature of the messages we send about parental availability and involvement—both the explicit, verbal messages and the implicit, nonverbal messages. We evaluate the effectiveness of these signals and their implications for households.

1. *Explicit Signals About Availability.* We investigate whether explicit signals about parents' availability affect the gender pattern of callbacks. Figure III shows the proportion of calls made to female and male parents alongside no calls in Panel A and conditional on a call being made in Panel B. The high and low availability signals substantially affect the distribution of calls between parents and can either increase or decrease the bias toward calling female parents.

To rigorously assess how the verbal signals affect bias toward calling mothers compared with the No Signal message, Online Appendix Figure B.1 visually represents the outcomes from a multinomial logit model like that in equation (1) (see Online Appendix Table A.1 for more details). We can apply an appropriate transformation to the estimates from this model to decompose the mechanisms for gender inequality into discrimination based on beliefs about availability versus other factors, discussed in Section IV.

Recall that we randomly vary signals about availability across four messages: High Male, Low Male, High Female, and Low Female. Two of these messages (High Male and Low Female) contradict preexisting gender norms by stating that the father has a lot of availability or the mother has limited availability. Figure III shows that these messages shift away from mothers and toward fathers, which mitigates the gender gap in external demands. The High Male message reverses the inequality, with mothers called 26%–30% of the time, while the Low Female message brings calls closer to parity, with mothers getting 47%–48% of the calls and fathers the remaining 52%–53% (Table I). In contrast, the remaining two messages, Low Male and High Female, affirm the gender norm that mothers are more available than fathers. We find that they exacerbate the existing inequality by increasing the share of calls to mothers.[13]

Our results also highlight an interesting asymmetry in the effect of informational interventions. Notably, the High Female message results in mothers being called 85%–90% of the time, while fathers receive 70%–74% of the calls under the High Male message. Finally, our messages, particularly those about low availability, might affect principals' response rates. We check for variation in the no-call rate across our treatments and find that all treatments result in a similar no-call rate between 77% and 81% (Table I and Online Appendix Figure B.1).

2. *Nonverbal Signals.* In our experiment, we randomly vary verbal cues about which parent is more or less available. These signals significantly affect the outcome, with the High Female message resulting in about 20% of principals calling the mother, compared with only about 5% of principals calling the mother in the High Male message—a 15 percentage point difference, which reverses the gender inequality in favor of men (Table I). However, there are nonverbal cues to signal which parent is the primary point of contact. In our study, we randomly assign whether an email comes from the female parent with the male parent cc'd or vice versa. The person sending the email is a nonverbal signal of which parent to contact first.

13. Generally, our messages about low availability have smaller effects than those about high availability. However, "I have limited availability" might be interpreted differently for male and female senders, which could introduce confounding effects.

Pooling across our treatment messages in the Baseline and Equal Decision variations, we find that the callback rate is similar for both male and female senders (see Table II, Panel AF.i versus Panel AM.i, and Panel BF.i versus Panel BM.i). However, whether the mother or the father sends the email significantly affects the gender gap in response. Specifically, sending an email from the mother results in the principal calling her 17%–18% of the time and calling the father only 3%–4% of the time, a 14 percentage point difference. This pattern is similar to the difference we see between the High Female messages, where the mother is called 19% of the time, and High Male messages, where the mother is called 5% of the time. In contrast, sending the email from the father results in the principal calling him 13%–14% of the time and calling the mother 6%–7% of the time, a 6 percentage point difference (smaller than the difference between our High Female and High Male messages). It is clear that while the sender's identity has a significant positive effect on who gets the first call, that effect is not symmetric for mothers and fathers.

Conditional on a call being made, sending the email from the father results in him being called 65%–68% of the time (Table II, Panels AM.ii and BM.ii, column (1)), meaning that external decision makers are still calling the mother one-third of the time even when she did not send the message. However, when the mother sends the message, 83%–86% of the responding principals call her first (Table II, Panels AF.ii and BF.ii, column (1)), resulting in the father being called less than one-fifth of the time. This highlights a ceiling on fathers' ability to be the primary contact for child-related tasks. Regardless of how strongly fathers indicate they should be the primary point of contact, mothers still receive one-third of calls from principals.

Examining the differences across treatment messages in more detail, three of our messages (No Signal, Low Male, and High Female) result in the mother being called more than 95% of the time when she sends the email (Table II, Panels AF.ii and BF.ii). Similarly, the High Male and Low Female messages sent by fathers result in 88% and 92% of calls directed to fathers. The finding underscores that combining explicit and implicit signals about a father's availability is an effective tool for mitigating (and even reversing) the gender inequality in external demands.

Since we randomize which parent sends an email, we can quantify the effect of the email sender on the likelihood of a reply. One way to do this is to regress whether a call was made to the

TABLE II

SUMMARY STATISTICS BY PRIMARY EMAIL SENDER

	All msgs. (1)	High Male (2)	Low Female (3)	No Signal (4)	Low Male (5)	High Female (6)
Panel AF.i: Baseline emails sent by mother cc'ing father for all outcomes						
Called female	0.17	0.08	0.18	0.20	0.21	0.20
	(0.00)	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)
Called male	0.04	0.13	0.03	0.01	0.01	0.01
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
No call	0.79	0.79	0.79	0.79	0.79	0.79
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	15,560	3,712	2,726	3,108	2,895	3,119
Panel AF.ii: Baseline emails sent by mother cc'ing conditional on calling						
Called female | call	0.83	0.39	0.86	0.98	0.96	0.97
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Called male | call	0.17	0.61	0.14	0.02	0.04	0.03
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	3,273	795	560	641	622	655
Panel AM.i: Baseline emails sent by father cc'ing mother for all outcomes						
Called female	0.07	0.02	0.02	0.04	0.09	0.18
	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)	(0.01)
Called male	0.13	0.18	0.19	0.16	0.10	0.04
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
No call	0.80	0.80	0.80	0.80	0.80	0.78
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	14,911	3,363	3,205	2,504	2,805	3,034

TABLE II

CONTINUED

	All msgs. (1)	High Male (2)	Low Female (3)	No Signal (4)	Low Male (5)	High Female (6)
Panel AM.ii: Baseline emails sent by father cc'ing mother conditional on calling						
Called female | call	0.35	0.12	0.08	0.20	0.48	0.83
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)
Called male | call	0.65	0.88	0.92	0.80	0.52	0.17
	(0.01)	(0.01)	(0.01)	(0.02)	(0.02)	(0.01)
Observations	3,046	675	644	506	556	665
Panel BF.i: Equal decision emails sent by mother cc'ing father for all outcomes						
Called female	0.17	0.10	0.18	0.18	0.17	0.23
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Called male	0.03	0.10	0.02	0.01	0.01	0.01
	(0.00)	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)
No call	0.80	0.81	0.81	0.81	0.83	0.76
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	15,599	2,524	3,097	3,203	3,697	3,078
Panel BF.ii: Equal decision emails sent by mother cc'ing father conditional on calling						
Called female | call	0.86	0.49	0.90	0.95	0.96	0.97
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Called male | call	0.14	0.51	0.10	0.05	0.04	0.03
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	3,048	485	603	595	639	726

TABLE II
CONTINUED

	All msgs. (1)	High Male (2)	Low Female (3)	No Signal (4)	Low Male (5)	High Female (6)
Panel BM.i: Equal decision emails sent by father cc'ing mother for all outcomes						
Called female	0.06	0.02	0.02	0.03	0.08	0.16
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.01)
Called male	0.14	0.19	0.16	0.15	0.12	0.06
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.00)
No call	0.80	0.79	0.81	0.82	0.80	0.78
	(0.00)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	14,721	2,646	2,461	3,366	3,058	3,190
Panel BM.ii: Equal decision emails sent by father cc'ing mother conditional on calling						
Called female | call	0.32	0.11	0.13	0.18	0.40	0.73
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Called male | call	0.68	0.89	0.87	0.82	0.60	0.27
	(0.01)	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)
Observations	2,932	556	459	615	610	692

Notes. Standard errors are in parentheses. Observations do not have to be weighted in this table by whether the email sender is the mother or father because the panels only show responses to emails from the mother or father. Observations are weighted so that all message types have equal weighting. In columns (1) and (2), the proportions do not always sum to 100% due to rounding, since we have left the output exactly as it came from Stata.

female (or male) parent on whether the email was sent by that parent. Both regressions yield the same estimates of the effect of the email sender, as shown in Online Appendix Table A.4. We discuss the breakdown for the No Signal treatment within our Baseline Variation shown in Table II, Panel AF.ii, column (4): we see that the mother receives 98% of the calls. The 98% is partly due to the email being sent from the mother/listing her first, and partly due to decision makers wanting to call mothers even if they do not send the email/are not listed first. Because we randomize the email sender, we break that 98 percentage points down in Online Appendix Table A.4 into 77 percentage points from the email being sent by the mother (and listing her first) and 21 percentage points being driven by other reasons beyond the reply-to-sender effect. The size of the reply-to-sender effect varies by the availability message by 14–77 percentage points, indicating that it can be a useful tool for pushing calls from one parent to another.

It is notable that none of the email treatment pairs in Table II result in a 50-50 split in calls to mothers and fathers, despite many households reporting that they would prefer an equal division of parenting responsibilities. Only two combinations come close (Panel D, column (5) and Panel F, column (2)), which may be because principals are used to the administrative systems employed by most schools and other child-related organizations, which only allow two-parent households to designate a single "primary contact." These systems are likely an artifact of traditional gender norms where one parent focuses on housework while the other focuses on work outside the home. It essentially pushes the household toward a corner solution of always calling mom or always calling dad. Thus, it is not a viable solution for the growing number of households seeking a more equitable split of child-related tasks.[14]

3. *Signal Effectiveness and Implications for Households.* Our results indicate that combining verbal signals about parents' availability with nonverbal signals from who sends the email can

14. We find that about half of the respondents in our survey of households (Online Appendix M.C) report wanting a close to egalitarian split of contact across all the entities their household interacts with (e.g., school, sports, medical/dental). Furthermore, Online Appendix Figures M.1 and M.2 show that across all respondents in our survey—including those in non-egalitarian households—a large proportion of respondents report wanting some non-0/100% split of contact to each parent for every type of entity.

effectively increase the share of calls to fathers. When the father sends the email and indicates that he has high availability or that the mother has low availability, 88%–92% of the calls are directed to the father. In principle, the remaining 8%–12% of cases where the school still calls the mother first could be resolved by having the households restate their preferences. However, our survey suggests that parents struggle to get external organizations to comply with requests about whom to contact. On average, the parents in our survey report that they need to remind the organizations (including schools) of their preferences 3.2 times a year, and over 30% of parents report that no amount of reminders ensures organizations will consistently follow their preferences.

Given the effectiveness of verbal and nonverbal signals in mitigating the gender inequality in external demands, one might wonder why households are not already using these levers to shift more external demands toward fathers. Two possible explanations include lack of information about signals' effectiveness and deliberate household choice. To explore this, we conducted a hypothetical choice experiment ($N = 353$), embedded in our survey of parents (see Online Appendix M.C.1 for details). As part of this experiment, we randomized parents into one of two conditions. The Treatment condition informed participants of our study's findings, and specifically that "if the child's father emails the school and indicates that he has a lot of availability, about 90% of responses from the school will be directed to the father," in addition to information from another study about parental involvement. The Control message did not provide any information about our study's findings and instead included information about a study that finds that "when parents become more involved in their children's school lives by receiving regular information about their child's academic progress, their children develop more positive behavior in school." We asked participants if this information would influence the proportion of contact with the school initiated by the father versus the mother, and whether they were already aware of the information presented.

About 80% of respondents were reportedly unaware of our study's findings, suggesting that lack of information about the effectiveness of verbal and nonverbal signals may be one reason some households are not having fathers initiate contact with the schools. This points to informational interventions as a potential instrument for mitigating the existing inequality in external demands. Furthermore, we find support for the idea that people

would increase contact from the father if they knew the findings from our study. Specifically, we find that 41% of parents in our survey say that they will increase the proportion of contact from the father when told about our study, compared with only 30% of parents seeing the Control message ($p = .023$). Among those who found our study's findings new, we find that the gap widens: only 26% in the control group say they will increase contact from the father compared to 41% in the Treatment group ($p = .008$). After controlling for prior knowledge, treatment variation, and survey position, we find that showing information about our findings leads to a 13.3 percentage point increase in the likelihood of increasing the proportion of contact from the father.

For those who saw our Treatment message and said they did not know about our study already, 57% reported making no change to their proportion of contact from the father. The most common reason was because their household already decided that one person should handle all contact with the school. Of those who said a single parent was in charge of all contact with the school, 77% reported it to be the mother and the remaining 23% reported it was the father, suggesting that some parents have already made a deliberate choice to have one parent (most often the mother) specialize in these types of child-related tasks.

IV. Drivers of the Gender Inequality

Online Appendix H presents the theoretical model underpinning our experimental treatments and allows us to investigate the drivers of the gender inequality that we document in Section III. We use a random-utility framework to model how a decision maker, interacting with a two-parent heterosexual household, decides whom to contact. In our specific field experiment, the decision maker is a school principal tasked with discussing a child's enrollment.[15] In particular, Online Appendix H.C describes how

15. However, the model is flexible enough to be applied to different types of decision makers (e.g., doctors, school teachers, sports coaches, organized religion leaders) and different kinds of tasks (e.g., picking up a sick child, communicating about health concerns, taking the team on an overnight trip). Furthermore, our model could apply outside of parenting tasks to study many types of demands on a two-person household (e.g., for elder care, home renovations, retirement planning) as long as the central elements are present: one decision maker, a set of differentiated individuals to contact, and messages that inform key beliefs about the individuals to be contacted.

our experimental variation integrates with the random-utility model, and Online Appendix H.D shows how we use the model to identify and estimate key structural parameters.

We use these structural parameters to investigate the drivers of the gender inequality observed in the Baseline No Signal message. Potential drivers include the decision maker's beliefs about the value of a response from parents, following the norm of calling the person who sends the message, or other factors. In the United States, mothers are more likely to be stay-at-home parents than fathers are (U.S. Census Bureau 2022). This general statistical information could lead decision makers to believe that responses from mothers will provide higher expected value and, as such, will bias decision makers toward making more external demands of women. In Online Appendix M.A, we show that these types of decision makers indeed report that they prefer to contact mothers because they believe mothers are more responsive and are more likely to be the primary contact about child-related topics.

Beyond responsiveness, other factors may affect decision makers' choice to call a parent of a certain type. For example, they may prefer speaking with mothers due to perceived pleasantness, or prefer fathers for their perceived authority in household decisions. Alternatively, gender norms may drive their choice. There may be other belief-based factors unrelated to responsiveness. For example, in our setting, principals may believe that mothers are easier to convince to enroll in their school, which may explain why they are more likely to call mothers. Finally, entrenched systemic discrimination may also lead to the gender gaps we observe. Although we cannot fully disentangle these factors, we can focus on the relative impact of beliefs about responsiveness versus other factors.

First we address the importance of controlling for the reply-to-sender effect. Since our emails are equally split between being sent by the mother and the father, this effect cannot drive the gender inequalities in our data. That is, who sends the email affects this inequality in observational data, but we have experimentally controlled for that by creating balance in which parent sends the email. If the email were sent by a neutral third party, our results would remain unchanged.

However, when considering underlying mechanisms, we may want to consider the potential impact of who sends the emails. The effect of the reply-to-sender motive varies across treatments; we focus on the effect in the No Signal treatment both because it

is an upper bound and because it is most straightforward to think about the effect when it does not interact with signals about the value of a response. In the No Signal treatment, we estimate the utility gain from calling the parent who sends the email to be 2.51. For the case when the female parent sends the email, there is a gain of 0.791 from calling the mother and a penalty of 1.722 from calling the father relative to calling neither parent. The result is symmetric when the male parent sends the email. The utility difference is both economically and statistically significantly different from zero ($Prob > chi2 = .000$ derived from results in Online Appendix Table A.3). Thus, we conclude that the sender's identity is an important driver of whom the principal contacts. Since we control for this in our experiment, we focus on the role of beliefs and other factors in driving the observed gender inequalities.

Our parameter estimate for the expected value of a response from female parents is $\overline{q}_f\overline{r}_f = -0.341$, which is higher than the analogous parameter for male parents, $\overline{q}_m\overline{r}_m = -0.968$. This difference is statistically significant ($Prob > chi2 = .013$ derived from results in Online Appendix Table A.3), suggesting that principals believe that mothers are more responsive than fathers. We find strong support for our hypothesis that beliefs about responsiveness are an important driver of gender inequality in external demands for parents' time.

Next we test whether other factors can explain the observed gender inequality. We find that our parameter estimate for the residual term for male parents is greater than that for female parents: $\overline{\delta}_m - \overline{\delta}_f = 0.536$ ($Prob > chi2 = .002$), which provides direct evidence that some gender inequality in demand for parental involvement is driven by factors other than beliefs about responsiveness. Because the difference between the belief parameters is roughly equal to the difference between the other deterrent parameters, we can say that the magnitude of the effect of these other factors is about the same as the magnitude of the effect of beliefs about parents' responsiveness. Below, we investigate some of the factors that contribute to the differential beliefs about the value of response from mothers versus fathers as well as to other factors.

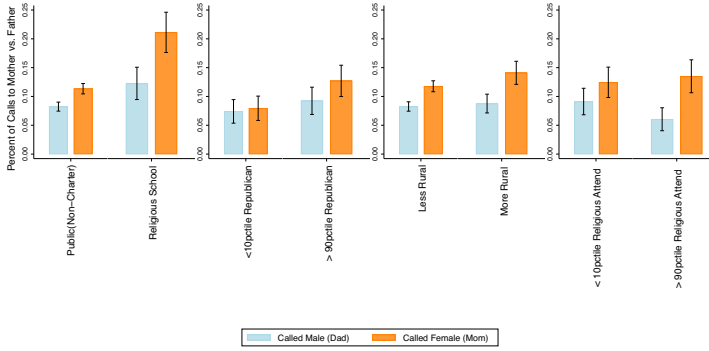


FIGURE IV

Differences in the Gender Gap by Gender Norm Proxies with No Signal Message in Baseline

We show the mean calls to male versus female parents split over proxies for more traditional gender norms (religious school, Republican county, more rural, more religious). These are from decision makers who received our No Signal message in our Baseline variation. The details of how these proxies are defined and more details are available in Online Appendix Tables A.5 and A.6. Observations are weighted so that 50% of emails come from a female parent and 50% from a male parent (always cc'ing the other parent).

IV.A. Gender Norms

One possible mechanism that could explain the gender gap in external demands for parental involvement in our experiment is a strong gender norm governing interactions between decision makers and parents. As prior studies have shown, despite women's considerable gains in education and labor market outcomes, social norms about gender identity persist, influencing various economic and social outcomes, from labor force participation to marriage, fertility, and household responsibilities (Bertrand, Kamenica, and Pan 2015; Jayachandran 2021; Andresen and Nix 2022; Charles, Guryan, and Pan 2025; Ashraf et al. 2023). Although we lack direct measures of the gender norms held by principals or schools in our sample, we use related indicators to assess whether these norms contribute to the gender inequality observed in our setting.

Figure IV shows that several variables associated with more traditional gender norms are also associated with a higher proportion of decision makers calling the female parent in response to the No Signal message in the Baseline variation. At the most

specific level—the school—we observe whether a school is a religious school, which might suggest that it has more traditional prevailing gender norms. If these gender norms partly drive our results, we would expect greater gender inequality in calls from religious schools.[16] This is exactly what we find, especially in the unconditional call proportions. In particular, in the Baseline variation with No Signal, the unconditional call-back rates for religious schools are 21% to mothers and 12% to fathers, versus 11% and 8% for mothers and fathers, respectively, for nonreligious private and public schools (see Online Appendix Table A.5 and a similar pattern in the Equal Decision variation in Online Appendix Table A.6). This difference-in-differences is statistically significant ($p = .08$).

We also link our schools to other indicators of gender norms in the county where the school is located, including the proportion of Republican voters in the 2016 presidential election, whether the county is more rural, and whether the county has a higher rate of religious attendance. We find that the proportion of calls to moms is significantly higher in counties with a higher Republican share and counties that are more rural (see Figure IV and Online Appendix Tables A.5 and A.6).[17] Note that the number of

16. Principals' gender is another dimension where we might see variation in gender norms. Here, we find little difference in the patterns by the gender of the principal looking at the unconditional calls to mothers by the principal's gender. In Panel A of Online Appendix Figures D.1 and D.2, female and male principals call mothers around 12% of the time ($p = .272$ for the Baseline variation and $p = .381$ for the Equal Decision variation). However, if we look at the results conditional on a call being made in Panel B of these figures, there is a slightly higher tendency for female principals to call mothers (60% versus 57%, $p = .001$ for the Baseline variation and 62% versus 60% for the Equal Decision variation, $p = .03$). Although it is possible that decision makers forward the email to another person of a different gender, such that we would not capture differences by decision maker gender, fewer than 4% of the voicemails left were from someone other than the principal. Furthermore, if we look at the gender of the decision makers in our survey of adults who interact with parents professionally (e.g., child care providers and sports leaders) we see that female decision makers are more likely to report calling moms, which is consistent with our suggestive results on principals' gender (see Online Appendix M.B for details).

17. In addition, we can measure gender norms directly using a sexism index based on data from the General Social Survey, but these data are only available at the state level. Matching at the state level for an individual school/principal decision makes this measure quite noisy. For example, New York State has a very centrist sexism index, but this masks that New York City is likely relatively nonsexist, while upstate New York may be more sexist. Here, we do not ob-

observations decreases significantly when we compare the gender gap in calls in counties with more traditional versus less traditional gender norms (see Online Appendix Table A.5), resulting in most difference-in-difference estimates being statistically insignificant. However, on net these findings provide suggestive evidence of the important role that gender norms play in perpetuating gender inequality in external demands for parents' time.

Most of the measures we rely on in this analysis are positively correlated with each other. For example, counties with a higher Republican vote share are also more likely to be rural and have higher religious adherence. The overlap suggests that our measures capture broader community norms, not just the preferences of individual school principals. As such, deeply entrenched gender norms likely influence schools' expectations about parents' responsiveness as well as other factors.

IV.B. Beliefs About Stay-at-Home Mothers

In the United States, mothers are significantly more likely to be stay-at-home parents than are fathers (U.S. Census Bureau 2022).[18] To better understand if our findings are partially driven by beliefs about stay-at-home parents being more likely to be female, we added the following sentence to all our messages: "We both work full time." This sentence is meant to shut down the assumption that the mother is a stay-at-home parent. We sent emails with this message to an additional 9,472 principals (see Online Appendix F for details by message variations).

We would expect fewer calls to mothers in our Full-Time variation if beliefs that mothers were more likely to be stay-at-home parents were driving gender inequality. We find no evidence of this mechanism as shown in Table III. The rates of calls to mothers and fathers are quite similar in the Full-Time variation and the Baseline variation. Also, as shown in Online Appendix Figure F.1, the pattern of calls by message is similar with the addition of information about both parents working. In the Full-Time variation, mothers receive 11.3% of the calls and fathers receive 7.7% of the calls, which is almost identical to the Baseline variation.

serve the same pattern of greater inequality in calls in more sexist states (Online Appendix Tables A.5 and A.6). We believe that this is because measuring norms at the state level is too inexact.

18. Parental full-time work status is negatively correlated with school interactions for mothers but not for fathers (Gee 2011).

TABLE III
SUMMARY STATISTICS BY VARIATION (ALL TREATMENTS COMBINED)

	Baseline (1)	Equal decision (2)	Full time (3)	Payments (4)
Panel A: All outcomes				
Called female	0.123	0.116	0.112	0.099
	(0.002)	(0.002)	(0.003)	(0.003)
Called male	0.084	0.082	0.077	0.066
	(0.002)	(0.002)	(0.003)	(0.002)
No call	0.793	0.802	0.811	0.835
	(0.002)	(0.002)	(0.004)	(0.004)
Observations	30,471	30,320	9,472	9,808
Panel B: Conditional on calling				
Called female | call	0.592	0.586	0.594	0.599
	(0.006)	(0.006)	(0.012)	(0.012)
Called male | call	0.408	0.414	0.406	0.401
	(0.006)	(0.006)	(0.012)	(0.012)
Observations	6,319	5,980	1,799	1,620

Notes. Standard errors are in parentheses. Observations are weighted so that there are 50% of emails from a female parent and 50% from a male parent and so that all message types have equal weighting. Column (3) contains an additional note from the parents that "We both work full time." Outcomes by the exact message sent within these variations are available in Online Appendix F.

Conditional on a call being made, the mother is called 59.4% of the time. In fact, the ratio of calls to mothers versus fathers rises very slightly from 59.3% in the Baseline variation when we include information that shuts down the idea that the mother is a stay-at-home parent.

IV.C. Gender Inequality in More Male-Stereotyped Domains

Finally, another possible contributor to the inequality which we document is a gender norm about what constitutes a male versus a female domain. In principle, it is possible that both male and female parents are fielding a similar volume of external requests, but certain types of requests are associated with either the father or the mother. Our survey (Online Appendix M.A) found that in the school setting, educators stated they most heavily favored calling the mother for a child being sick, for volunteering at a book fair, and when dealing with allergies. While the educators still favored the mother for all other questions, they did so to a lesser

degree for requests to volunteer for a career day and to discuss school payments.[19]

To test if fathers are contacted more often in more male-stereotyped domains, we introduced a variation of our email messages that stated, "We are searching for schools for our child and are especially interested in discussing school fees and other expenses." In this variation, we observe fewer calls to parents of either gender, and the differences in call-back rate are driven by emails sent to non-private schools, where discussion of fees is less common.[20] However, the actual rate of calling mothers versus fathers conditional on a call being made is not statistically significantly different from the Baseline variation at 59.3% (versus 60.0%). Thus, even in a domain stereotypically associated with men, we find no evidence that calls shift toward fathers.

V. Potential Consequences of the Gender Gap in External Demand for Parents' Time

We explore how gendered external demands on parents' time may contribute to persistent gender gaps in labor market outcomes. We argue that the link between external demands and gender gaps is complicated. One can imagine, for example, a number of indirect links including anticipation effects (e.g., choosing more flexible jobs or switching to part-time employment, not taking on certain roles or promotion opportunities), deeply entrenched social norms, or effects on household bargaining. There may also be direct effects if women are interrupted by external demands more frequently than men. While disentangling these mechanisms is beyond the scope of this article, we provide suggestive evidence of possible links between external demands and labor market outcomes.

We conduct two distinct analyses. First, we survey individuals who identify as either a mother or father in a two-parent household (N = 353, 45% female; see Online Appendix M.C for details, including how our respondents compare to the U.S.

19. Prior studies have also found that finances tend to be a more stereotypical male domain (Lin et al. forthcoming).

20. In private schools, there is no economically significant change in the No Call rate between our Baseline variation and the one that mentions payments (71% in Baseline versus 73% in Payments). However, for non-private schools, the No Call rate is 80% in our Baseline variation but 85% when our messages mention payments. All these comparisons are statistically significant.

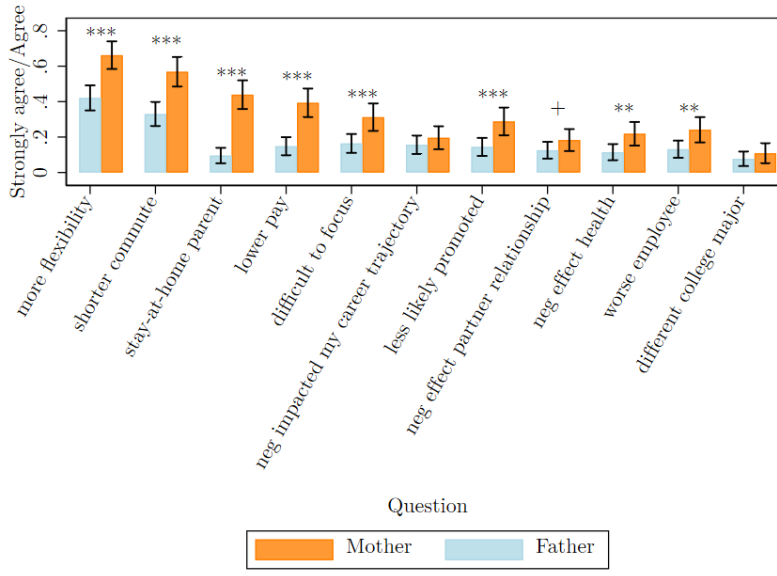


FIGURE V

Changes to Labor Market Choices Associated with Child Interruptions

We show the results from a survey of 353 persons who identify as either a mother (45%) or father (55%) in two-parent households with children in the United States. Each person was asked to indicate how strongly they agreed or disagreed with each of the statements about whether "child-related interruptions have led me to choose . . ." or "have led to . . ." Respondents were told to think of nonroutine/unexpected child-related interruptions to their job(s) by external organizations when their children were living at home that were initiated by the external organization (e.g., a call about a sick child, an email/text to schedule a doctor/dentist appointment, a reminder to register for camp/practice/extracurricular activities). There were five choices: strongly disagree, disagree, neutral, agree, strongly agree. In this figure we show the proportion who stated they either strongly agree or agree by gender. We perform one-way t-tests comparing the mean for mothers versus fathers with $^{+}p < .10$; $^{*}\ p < .05$; $^{**}\ p < .01$; $^{***}\ p < .001$.

population), asking about specific ways nonroutine/unexpected child-related external interruptions have affected their decisions. As reported in Figure V, our survey suggests that mothers experience a greater impact of child-related interruptions on their careers. For example, women are more likely than men to say that unexpected child-related interruptions have made it difficult to focus and led them to choose a job that offers lower pay and promotion prospects and allows for more flexibility and a shorter

commute (all these gender differences are economically and statistically significant, $p < .001$). These results provide suggestive evidence that women may experience larger career penalties as a result of child-related interruptions, and that these interruptions may contribute to the persistent gender earnings gap, though further research is needed to establish causality.

Notably, we also find that child-related interruptions affect women's labor market participation decisions. Specifically, 44% of women agree or strongly agree with the statement that child-related interruptions in part led them to become a stay-at-home parent for some period of time while their children were young compared with only 10% of men ($p < .001$).[21] These findings are consistent with prior work documenting that women anticipate labor market effects of motherhood (Kuziemko et al. 2018) and change their employment choices in response to childcare needs (Anstreicher and Venator 2024).[22]

The second analysis we conduct to quantify potential labor market consequences of child-related external demands builds on the methodology of Cubas, Juhn, and Silos (2021). Using ATUS data and restricting responses to full-time working adults with children in two-parent households, we reproduce their finding that 35% of women experience any incidence of household care on a typical workday versus 20% of men (see Table IV).[23] The ATUS

21. We ask respondents who indicated that they chose to be stay-at-home parents at some point while their children were young to rank several factors in how they contributed to their decision to be a stay-at-home parent. On average, parents ranked "Desire to spend more time with child(ren)" as most important, followed closely by "Cost of childcare"/"Reduction in the amount of planning/stress in the household"/"Availability of childcare." Neither mothers nor fathers in our sample rank "Nonroutine/unexpected child-related interruptions from outside organizations (e.g. calls from school/doctor/dentist)" as one of the top factors (it was sixth for mothers and fourth for fathers). As such, we believe that unexpected child-related interruptions contribute to choices to become a stay-at-home parent but are not the leading reason for this choice.

22. We also find that women are more likely than men to report that child-related interruptions make them worse employees (one-way t-test, $p = .005$) and negatively affect their mental and physical health (one-way t-test, $p = .005$), their partner relationships (one-way t-test, $p = .07$), their career trajectory (one-way t-test, $p = .17$), and their choice of college major (one-way t-test, $p = .18$), although these last differences do not reach statistical significance at traditional levels.

23. We restrict the data to 2003–2018 to avoid COVID-related issues with coding workdays and to closely match the work of Cubas, Juhn, and Silos (2021). The ATUS data allow us to observe how many minutes of household care a person reports engaging in while at the workplace during the hours of 8 am to 5 pm. While this might include the type of nonroutine/unexpected child-related interruptions

TABLE IV

THE RELATIONSHIP OF LOG HOURLY WAGES TO HOUSEHOLD CARE AND GENDER

	Without household care (1)	With household care (2)	Low-powered jobs without household care (3)	Low-powered jobs with household care (4)	High-powered jobs without household care (5)	High-powered jobs with household care (6)
Ext: Incidence of HH care 8 to 5		−0.063***		−0.050***		−0.073***
		(0.013)		(0.014)		(0.026)
Int: Hours of HH care 8 to 5		−0.002		0.005		−0.009
		(0.012)		(0.013)		(0.035)
Female	−0.290***	−0.283***	−0.271***	−0.266***	−0.193***	−0.183***
	(0.010)	(0.010)	(0.011)	(0.011)	(0.020)	(0.020)
R^2	0.346	0.348	0.280	0.281	0.252	0.255
Log mean hourly wages						
Male and female	3.011	3.011	2.885	2.885	3.487	3.487
Male	3.074	3.074	2.930	2.930	3.529	3.529
Female	2.891	2.891	2.809	2.809	3.359	3.359
Ext: Any HH care 8 to 5						
Male	0.197	0.197	0.206	0.206	0.170	0.170
Female	0.347	0.347	0.350	0.350	0.333	0.333
Int: Hours HH care 8 to 5						
Male	0.123	0.123	0.137	0.137	0.080	0.080
Female	0.169	0.169	0.173	0.173	0.144	0.144
Observations	12,658	12,658	9,706	9,706	2,952	2,952

Notes. The empirical approach in this table is inspired by the work of Cubas, Juhn, and Silos (2021). Respondents are 18–65 years old, who report usual weekly hours ≥ 35 in the CPS between 2003 and 2018, who are married with at least one child in the household, and whose diary day is a weekday. We also restrict the sample to those who report nonzero time spent on work-related activities at the work site during the diary day. The hourly wage is constructed by dividing weekly earnings reported in the CPS by usual (total) hours worked last week. Weekly earnings that are top coded are recoded as 1.5 times the top-code value. The hourly earnings measure we use is reported only for wage and salary workers, so this table excludes self-employed workers. We report regressions of this log hourly wage on "Ext: Any HH care 8 to 5," which is a dummy variable that takes the value one if a person reports household care between the hours of 8 am and 5 pm on a weekday while at work (in even columns), the variable "Int: Hours of HH care 8 to 5," which is the total hours of the household care (in even columns), and a dummy variable for if the respondent is female (in all columns). The regression also includes fixed effects for single, years of age, detailed education categories, detailed race categories, and years. All regressions are weighted using ATUS weights. * $p < .10$; ** $p < .05$; *** $p < .01$.

data allow us to observe the average number of hours per workday that parents spend on these occurrences, which are 0.123 for fathers and 0.169 for mothers. That is, in total, there are about 0.28 hours of household care in a workday for full-time working parents who live with a spouse, and those are split with mothers supplying 57% of those hours, and fathers the remaining 43%. This is quite similar to the 57%–59% of calls that we see going to mothers in our No Signal treatment (Table I). These ATUS data show that even in a broader national sample, women experience more workday household interruptions than men.

Next we extend the Cubas, Juhn, and Silos (2021) calculations to explore how engaging in any household task as well as the hours of household tasks are related to the male-female earnings gap. In Table IV, column (1) we show that being female is associated with an hourly wage that is −0.291 log points less than male respondents. In column (2) we add a dummy variable for if a person experiences any incidence of household care and a continuous variable for the hours of care. We see that having any incidence of household care between 8 am to 5 pm, the extensive margin, is associated with a −0.063 log point lower hourly wage; while the coefficient on the number of hours of care, the intensive margin, is also negative it is statistically insignificant. We also note that the coefficient capturing the male-female earnings gap in column (2) is smaller; being female is associated with a drop of −0.283 compared with male respondents (versus −0.291 in column (1), $p = .001$). These results provide suggestive evidence that gender differences in household care, particularly on the extensive margin, are correlated with the earnings gap.

Finally, we argue that household interruptions (whether from external demands or internal household arrangement) that fall disproportionately on mothers can be especially costly for those in "greedy" careers, (Bertrand, Goldin, and Katz 2010; Goldin and Katz 2011; Goldin 2021) since such jobs are both particularly lucrative and inflexible. The early work of Becker (1985)

we have described in this article, it may also include routine interruptions and cannot be broken out by whether the interruption came from an external organization or was initiated by the parent. In looking at the ATUS data, we do not see a method for restricting to unexpected/nonroutine incidence of household care. As such, we use the measure used by Cubas, Juhn, and Silos (2021) but realize it is likely an overstatement of the nonroutine/unexpected child-related interruptions from external decision makers that we focus on in the rest of the article.

pointed to what the more recent literature might call the "bandwidth tax" (Mullainathan and Shafir 2013) or "cognitive labor" demands (Daminger 2019). These can be especially pernicious for mothers in demanding high-paying jobs, who may pay large labor market costs as a result of shifting to more flexible work. Goldin (2021) emphasizes that these individual incentives and the resulting labor market penalties have important gender equity consequences.

We thus categorize the occupations for workers in the ATUS data into those which are more likely to be in greedy or high-powered jobs.[24] We see that the coefficient on the extensive margin of incidence of household care is still negative and significant for both low-powered and high-powered jobs. We also see that within both types of jobs, some of the association between women having lower wages is correlated with the higher incidence of household care. The coefficient on Female declines when we add controls for household care (columns (3) versus (4), $p = .001$, and columns (5) versus (6), $p = .007$). Although the point estimates for the wage loss from the incidence of household care are larger for high-powered jobs, -0.073, than for low-powered jobs with a loss of -0.050, this difference is not statistically significant at traditional levels (column (4) versus column (6), $p = .455$). However, the direction and ordering of these coefficients is in line with findings from the literature about greedy jobs imposing larger penalties on women.

VI. Conclusion

This article investigates gender differences in external demands for parental involvement. In a large-scale field experiment, we email over 80,000 U.S. school principals with a general

24. The ATUS data include occupation. We categorized these occupations as high-powered or not, using ChatGPT, and then enlisted the help of a research assistant to manually check and amend the categorization consistent with previous work on greedy or high-powered jobs (Bertrand, Goldin, and Katz 2010; Goldin and Katz 2011; Goldin 2021). For example, occupations that were categorized as high-powered are managers and administrators, computer systems analysts, computer software developers, chief executives and public administrators, managers and specialists in marketing, physicians, and lawyers. Examples of non-high-powered occupations include supervisors and proprietors of sales jobs; primary school teachers; truck, delivery, and tractor drivers; secretaries; and registered nurses.

inquiry about the school and a request to call one of the parents, randomly varying signals about each parent's availability and the sender of the email.

We document a prominent gender gap in responses. Conditional on receiving a call, mothers are called first 1.4 times more than fathers. We show that signaling the availability of fathers mitigates this inequality and causes mothers to be called less than half the time. When fathers signal availability and initiate contact, they receive more than 90% of responses, suggesting that explicit and implicit signals of availability effectively increase calls to fathers. However, there is an asymmetry in the effects of our informational interventions. Even when fathers explicitly signal their availability, mothers are still called 26% of the time. In contrast, signals that reinforce stereotypes about mothers being more available cause them to receive 90% of calls. Even when the email comes from the father and he signals his availability, 12% of calls are still directed to mothers. In contrast, fathers receive only 3% of calls when mothers send the email and signal that they are available, underscoring limits to how much informational signals can reduce gender inequality.

The gender inequality in external demands for parents' time persists even when we account for the nonverbal signal of parents' availability: the identity of the email sender. Sending the email from the father increases the share of calls to fathers, but this approach does not address the needs of households striving for a 50-50 allocation, as it still predominantly directs calls to one parent.

Our theoretical model allows us to disentangle the mechanisms underlying any differential demand for parental involvement, separating beliefs about responsiveness from other factors. We measure the effect of beliefs about responsiveness by randomizing the signals we send to decision makers about each parent's availability and/or desire for equality, while the other factors are measured as a residual term in our model. We find that beliefs about mothers being more responsive than fathers and differences in the residuals drive the gender inequality in our setting. We test several potential explanations and find evidence that gender norms are partly responsible for the gender gap in external demands for parental involvement.

While it is beyond the scope of this study to provide a direct link between external demands and the gender wage gap, we provide suggestive evidence that women may incur substantial

economic and personal costs as a result of being the default parent. Investigating the source of these inequalities and documenting that external demands partly drive them informs policies aimed at mitigating these gaps. Our findings highlight the role of both household and external actions in reducing the gap. To mitigate this gap, it is essential for parents to signal the availability of fathers and their desire for equality and for organizations outside the household to foster more equitable parental involvement.

Our results likely represent only a small share of the overall gender inequality in external demands for parental involvement. While the gender gap in school-related interruptions closely mirrors gender gaps in other child-related and household domains, it is just one of many settings where women are disproportionately interrupted daily.[25] The gender inequality in physical housework, for example, has remained largely unchanged since the mid-1990s, with men spending about half as much time on housework as women in similar households (Bianchi et al. 2012). Furthermore, men's housework hours tend to be disproportionately allocated toward relatively infrequent and flexible tasks (e.g., home repairs or yard work), while women shoulder many of the recurring daily tasks (e.g., cooking and childcare) that cannot be put off to a convenient time (Bianchi, Robinson, and Milkie 2006). Moreover, research across social sciences has increasingly drawn attention to "invisible" forms of labor, including emotional and cognitive labor, being disproportionately shouldered by women.[26] Although these inequalities are more difficult to measure directly, our findings shed light on potential policies to mitigate these gender gaps.

The interaction we investigate involves multiple parties, each with competing objectives, making the welfare implications of the gender gap in external demands complex. External decision makers may prioritize obtaining the most useful responses or involving a diverse set of parents. Disproportionately calling mothers may be inefficient, depending on the principal's goals.

25. In our survey, women are significantly more likely to be contacted by external decision makers across a wide range of child-related domains, from doctors' offices to extracurricular sports coaches to religious leaders (see Figure I, Panel B). Other studies have documented gender inequality in taking on caretaking in larger samples (Bianchi, Robinson, and Milkie 2006; Bertrand, Kamenica, and Pan 2015; Boye 2015; Daly and Groes 2017; Charmes 2019; Daminger 2019; Wikle and Cullen 2023).

26. Daminger (2019), Offer (2014), and Lee and Waite (2005) .

Survey evidence suggests that parents prefer a more equal distribution of child-related demands, and the skew toward mothers may contribute to intra-household and labor market inefficiencies. Even if we assume that men and women on average have different comparative advantages, there is a distribution of skills within each gender. This implies that households differ from the population average, resulting in a deadweight loss of one-size-fits-all policies due to household inefficiencies. Reducing the restrictions placed on households by institutions would therefore lead to a more optimal outcome. Moreover, the skew toward mothers may be welfare-harming for children, given the evidence that children benefit from having both fathers and mothers involved (Pleck 2007; Nakata 2023). In Online Appendix K, we discuss efficiency considerations in more detail.

Finally, while mothers are more likely to field external demands than fathers, we do not know who completes the task after being contacted. In principle, mothers could outsource the task to their partners. Our survey of parents reveals respondents report doing so quite often, albeit mothers significantly less than fathers (47% versus 64% when asked about organizations their children attend). Mothers are also 1.3 times as likely as fathers to say that outsourcing the task to their partner is disruptive to their day and that they still have to be involved in the task even after asking their partner for help (67% of the time for women versus 45% for men). This result highlights that parents, particularly women, expend extra effort and incur additional communication and disruption costs to manage child-related labor. A system that ensures a more balanced distribution of responsibilities from the outset would reduce these costs for households and enable institutions to resolve issues more efficiently.

Supplementary Material

An Online Appendix for this article can be found at *The Quarterly Journal of Economics* online.

Data Availability

The data underlying this article are available in the Harvard Dataverse, https://doi.org/10.7910/DVN/KUDB1T (Buzard, Gee, and Stoddard 2025).

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