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The invisible family load and the gender earnings gap in Kenya

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ABSTRACT

This study investigates the effect of the family load – the invisible cognitive and emotional burden of household management and childcare – on the gender earnings gap. We focus on two main components of this gap: labor productivity and job selection. We conduct an experiment in Nairobi randomly triggering family load-related thoughts and then assigning participants to perform manual or cognitive tasks. The family load reduces productivity for women on average. This effect is entirely driven by performance in the manual task, with no impact on the cognitively demanding one, but with no discernible productivity changes for men. Negative income effects for women persist in a subsequent session in which participants are given the choice of which task to perform. Yet, we find that it is treated men who change job preferences towards less remunerated but less cognitively challenging ones. We interpret this as evidence of a gender-differentiated effect of the family load, weighing substantially more on women in terms of productivity and income. Men, however, are far from immune to it: often the main income earners in a household, they respond by seeking safer income sources.

1. Introduction

A key explanatory factor of the gender earnings gap is the unequal distribution of household responsibilities, especially in the presence of children (Blau and Kahn, 2017; Kleven et al., 2019; Petrongolo and Ronchi, 2020). Compared to their male counterpart, working mothers are more likely to self-select into less-paid but more flexible jobs, that often require less commuting time, to balance their work and family obligations (Le Barbanchon et al., 2021). Recent findings highlight the differential impact of family responsibilities on women's and men's work patterns. Mothers experience more disruptions related to the domestic sphere while at work than fathers, resulting in a significant decline in productivity and a widening of the gender earnings gap (Adams-Prassl et al., 2023; Cook et al., 2021). These differential responses are attributed to physical interruptions by children (Adams-Prassl et al., 2023) or women's higher opportunity cost of non-paid-work time (Cook et al., 2021).

This said, even in dual-earner families that exhibit a more balanced distribution of household responsibilities, mothers are at higher risk of multitasking (Offer and Schneider, 2011), and of experiencing family-related thoughts spilling over to work (Offer, 2014). Building on these findings, a growing literature has focused on studying the consequences of a more invisible burden: the family load (or, mental load), i.e. the combination of cognitive and emotional labor related to the management of household activities, and the caring and responsibility for other family members' well-being (Dean et al., 2022; Wayne et al., 2023). This psychological burden,

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often shouldered disproportionately by women, is associated with interference with the work sphere, dissatisfaction with their lives, feelings of overload, and stress (Offer, 2014; Ciciolla and Luthar, 2019).

Existing studies, primarily relying on the analysis of time use and qualitative data in Western countries (Offer, 2014; Ciciolla and Luthar, 2019; Daminger, 2019; Dean et al., 2022), do not directly explore to what extent the family load may affect work performance and life choices, and fail to consider that for families living in poverty the family load is exacerbated by stressors related to economic insecurity (Randles, 2021). Moreover, since the family load extends beyond financial aspects to include complex emotional (e.g., children's well-being and safety) and non-financial cognitive loading dimensions (e.g., time management), the lack of attention on the role of the family load in studies investigating behavioral responses to cognitive scarcity may end up omitting a severely gendered dimension. One that could indeed contribute to further explaining the persistence of substantial gender earnings gaps and worsen the "psychological poverty traps" related to the cognitive burden of financial concerns (Haushofer and Fehr, 2014; Schilbach et al., 2016).

In this study, we investigate whether differences in the way men and women relate to the invisible family load may contribute to explaining the gender earnings gap in a lower-middle-income country. More specifically, we ask whether the family load reduces productivity and leads to self-select in less cognitively demanding and remunerated jobs, and to what extent its impact differs between men and women. Our evidence comes from an experiment conducted in low-income, urban settings in Nairobi, Kenya. We conduct the study in a lower-middle-income country because the family load is expected to be particularly taxing in such settings. Not only do social norms assign women a substantially greater share of childcare and domestic work, but at the same time increasingly expect them to participate in the labor market (Jayachandran, 2015).

To quantitatively assess the impact of the family load on our outcomes of interest, and deal with its potential endogeneity, we exogenously vary its salience in the mind of both male and female participants. Following a large body of literature in economic and psychological research (for a comprehensive review see Cohn and Maréchal, 2016), our treatment consists of triggering thoughts related to the family load. Using a between-subject design, we randomly assign participants to the treatment or control group and then ask them to perform an incentivized real effort task to gauge their productivity. Importantly, our setting allows us to rule out any change in productivity due to physical interruptions in the workflow among women with children, singling out the effect of the family load. This is an important improvement over Adams-Prassl et al. (2023), who in a work-from-home context facilitated by Covid-19 lockdowns, attribute their results to the former without being able to rule out the latter. Moreover, men and women are provided with the same tasks and treatment, in an isolated context where preferences for alternative uses of time are irrelevant. Therefore any heterogeneity in outcomes between men and women must stem from differential responses to the invisible burden itself.

We assign participants to perform either a menial (from here on referred to as 'manual' task) or a cognitively demanding task: dividing black from red beans, an effort task frequently used by experimental economists to measure productivity; or the Tower of Hanoi (TOH), a task used in the psychological literature to measure, among others, cognitive abilities (Zook et al., 2004). The effort tasks last 30 min and are divided into three 10 min intervals. In the first two slots, participants are asked to divide as many black from red beans and to complete as many TOH with four disks as possible, in random order (henceforth, exogenous tasks). For the last slot, participants may choose between the two tasks (henceforth, endogenous task). Importantly, in this third slot, we limit the learning effects that a previous experience with the TOH may have induced, by increasing the number of disks of each TOH to five (i.e., a substantially more cognitively demanding task). At the same time, we increase the economic incentive for completion of each TOH, to make it unambiguously more advantageous to select the latter task—mimicking self-selection into a financially more rewarding but intellectually more challenging job. Ex-ante we do not have a strong prior as to whether any effect would be stronger in manual or cognitive tasks. In fact, cognitive tasks may require a greater degree of concentration that is hard to achieve when burdened by thoughts about the family. At the same time, the concentration needed to perform such tasks may shield, at least temporarily, from excessively indulging in intrusive and negative thoughts about the outside world.

Our results show that, for women, the family load significantly reduces productivity (- 0.15 SD) immediately after treatment, pooling across the two tasks. When we disentangle by type of task, we find that our prime reduced women's productivity only in the manual (−0.28 SD) but not in the cognitive task. Exit interviews revealed that the focus required to complete the (brief) cognitive task reduced the temporary effect of the family load priming, limiting its immediate effect on productivity. Whether the family load affects performance in cognitive tasks of longer duration, where the opportunity and incentives to get distracted increase, is beyond the scope of this experiment and of the priming treatment method we use. As said, in a final round we allowed participants to self-select into their preferred task. Even though literature unambiguously identifies the short-lived nature of salience treatments, the effects identified in the first round seem to engender a "path dependency" that extends to the endogenous task: treated women exhibit significantly lower income, on average (−0.16 SD), with no significant effect on men. When looking at occupational choices, however, we find that it is treated men that are more likely to make a safer, non-income maximizing choice, with no significant effect on women.

This study contributes to the literature in three ways. First, it sheds light on a psychological and invisible dimension of the gender earnings gap that goes beyond physical interruptions or differential valuations of time not at paid work. By varying the salience of the family load in an experimental setting, we are able to measure the impact of family load on economic outcomes, i.e. productivity and self-selection on differently challenging and remunerating jobs. The existing literature on the family load, being based on the analysis of time-use surveys and qualitative interviews, suggests an effect of the family load on gender gap productivity, but it does not test nor measure a causal relationship between the family load and labor outcomes (Offer, 2014; Ciciolla and Luthar, 2019; Daminger, 2019; Dean et al., 2022).

Second, the analysis is performed in a lower-middle-income country where its burden is particularly taxing, even if not at all recognized by the literature. In low- and middle- income countries, the gender productivity gap is often explained in terms of gender-specific barriers to access productive inputs, such as land or fertilizers (Kilic et al., 2015; Mukasa and Salami, 2015; Palacios-López and López, 2015; Singbo et al., 2021), or because of the existence of specific gender norms that confine women's sphere of activity in

domestic and reproductive work (Manda and Mwakubo, 2014). Even though we know that worries that load the mind (e.g., financial concerns) negatively impact labor productivity (Kaur et al., 2024), evidence on the psychological dimension of the gender earnings gap is scarce. This paper fills this gap in the literature by showing that the family load negatively impacts women's labor productivity, resulting in a negative performance loop that risks persisting in the long term.

Third, this study provides evidence of an understudied psychological phenomenon that could trap women in poverty. From the literature on scarcity, we know that living in poverty holds psychological drawbacks that affect economic outcomes and that risks creating a "psychological poverty trap" (Haushofer and Fehr, 2014). In our experiment, men seem to respond to the family load prime, in terms of job selection, in line with the expectations from the literature, which shows that cognitive scarcity leads to choices that tend to follow a low-risk low-return pattern (Dalton et al. 2020; de Bruijn and Antonides 2021). Indeed, qualitative exit interviews revealed that men's family load-related concerns are mainly tied to the economic needs of the household. Men thus respond as they would have to a prime related to financial worries in general, leaning towards more conservative albeit less financially rewarding labor choices. The income effect on women is instead not driven by self-selection into low-effort-low-return jobs but rather through reduced productivity that persists over time. In this sense, the invisible family load may be an additional mechanism that compounds women's vulnerability to poverty.

The rest of the paper proceeds as follows: Section 2 explains the context of the study and the research hypotheses being tested; Section 3 focuses on the experimental design; Section 4 describes the data; Section 5 focuses on the empirical methodology; Section 6 reports the results; and Section 7 concludes.

2. Research context and hypotheses

2.1. The context: labor market, gender roles, and the family load in urban Kenya

Kenya has made significant progress in female labor participation in recent years.[1] Despite this, women still account for a more than commensurate share of unpaid work (i.e., housework and childcare) (Agwaya and Mairura, 2019; Oloo and Parkes, 2021). In particular, in informal settlements in Nairobi, characterized by poor living conditions and volatile informal labor markets, women divide their time between market and domestic activities with a still disproportionate amount of time devoted to domestic work (Maina et al., 2019). Daily performance at work assumes then a specific relevance: given the time constraint they face, women have to be as productive as possible to maximize their daily earnings.

The employment structure of the Kenyan labor market reflects the traditional gender division of roles: while men are employed almost equally in all sectors of the labor market, women engage mostly in traditionally female-dominated activities, like the manufacturing and garment industries, or the horticultural industry (Wanjala and Were, 2009). In urban areas, where the informal sector is particularly widespread and is constituted primarily by small-scale economic activities, women engage mainly as self-employed workers, casual workers, or employed workers in small enterprises (Agwaya and Mairura, 2019).

This structure of the labor market, paired with local gender norms that place women in charge of managing household activities, entails a gender-differentiated division of the family load. While men's share of domestic work is linked to activities carried out less frequently, such as paying school fees, women's share is linked to those activities carried out daily, like cooking, cleaning, or fetching water. Qualitative interviews in Kibera and Korogocho (i.e., two of the biggest slums in Nairobi) reveal that women's family load can be grouped into three main dimensions:

- Time pressure: women are particularly vulnerable to time management, as they feel that they do not have the time to balance work and family obligations, and they have no time left for themselves. While at work, they think about all the activities that have to be carried out at home before the end of the day;
- Children's well-being: women bear most of the emotional labor within the household, as they constantly worry about their children's and husband's well-being, especially when it comes to children's future expectations;
- Financial worries: both women and men are constantly worrying about financial needs related to rent, school fees, and food, but women are in charge of managing the household's budget on a daily basis, especially when it comes to deciding what food to buy and how to split money in the next coming days.[2]

Table A1 reports gender differences in mean time allocation for our sample. Women spent on average 197 min more than men in domestic activities, 40 min more in childcare, 37 min less in leisure, and 123 min less in market activities. Thus, in line with the stylized facts that are known about Kenya and similar contexts, our female participants spend less of their time doing paid work, which they more than replace with longer hours spent doing domestic work and multitasking—at the expense of leisure and sleep. Table A2 confirms these mean differences, on a self-reported stress scale including items that could proxy the family load. Women in our sample reported being more stressed than men on average (p-value 0.001), and to have felt stressed about more items than men in the past 7 days (p-value 0.039). Looking at each item of the stress scale separately, women reported being stressed more times than men about financial worries (p-value 0.019), their children's access to education (p-value 0.051), being a victim of violence (p-value 0.06), and the relationship with their spouse (p-value 0.012) and with others (p-value 0.00). Men instead were more likely to feel stressed about a

[1] https://data.worldbank.org/indicator/SL.TLF.CACT.FE.ZS?locations=KE

[2] To watch a short documentary on women's family load in urban and rural Kenya, please click here.

potential business failure (p-value 0.051). Paired with the information gathered through qualitative interviews, these descriptive statistics suggest that women carry on average a higher family load-related burden than men.[3]

2.2. Research hypotheses

The family load generates thoughts that run continuously in people's (mostly women's) minds and are difficult to isolate in other areas of their lives, such as at work or while sleeping (Dean et al., 2022). Following the literature on scarcity (Mani et al., 2013; Haushofer and Fehr, 2014; Schilbach et al., 2016; Kaur et al., 2024), we hypothesize that by generating these constant and boundaryless thoughts related to household management and to children's well-being, the family load can reduce their productivity and impair their decision-making processes.

More specifically, we test the following research hypotheses:

1. The family load holds a gender-differentiated effect on labor productivity;
2. The family load holds a differentiated impact based on job characteristics, i.e., manual vs cognitive task;
3. The family load leads individuals to self-select into less cognitively demanding and remunerative jobs.

3. Experimental design

3.1. Sample and randomization

A total of 720 individuals participated in the experiment. We sampled participants in urban areas (i.e., Nairobi) with children under the age of 10. By design, half of them are women and half are men. For each household, we sampled only one woman or man, to avoid any potential problem related to intra-household dynamics. The choice of children under the age of 10 comes from the literature on the family load and the qualitative interviews conducted in the field. A substantial burden of the family load is related to childcare, especially when children are under the age of 10 (Maccini and Yang, 2009). In addition, children above the age of 10 in Nairobi tend to become independent enough to help their parents in the house, go to school by themselves, and work if needed.

We sampled participants from three different areas of the city: 486 participants are from Kibera and Kawangware, two of the biggest slum areas of the city, where we observe substantial income variation among inhabitants. We sampled the remaining participants from Waithaka, a lower-middle-income neighborhood.

3.2. Procedure

The data collection went from April 20 until the June 3, 2022.[4] The experiment lasted on average one and a half hours and, on top of the show-up fee (i.e., 200 KSH, about 1,67 US dollars), participants gained on average 449 KSH (i.e., about 3,73 US dollars) from the effort task. From our data, the average daily income of participants is about 450 KSH.[5]

The research team was composed of nine enumerators and one supervisor, and they met the recruited participants in three different locations in Kibera, Kawangware, and Waithaka. Recruitment was phone-based and it took place the week before the start of the experiment. We initially selected a sample of 1000 individuals from an already existing pool of participants of the survey firm. Because of a delay in the IRB approval, we started the data collection three weeks later than expected. For this reason, we had to re-sample about 15 percent of the individuals from the original list that was not available anymore. The new recruitment was made through the "snowballing" technique.

When recruited, participants were advised that they would have received a show-up fee to cover the transportation costs. Participants engaged in the experiment simultaneously and separately, each of them assigned to one enumerator. The locations were big enough to ensure that there were no spillover effects and that participants had enough space between one another. Each enumerator was provided with headphones to show the video to participants in the treatment group. All data were collected on tablets with KoboToolbox. Random assignment to the treatment or the control group was coded in the questionnaire: as soon as the enumerator inserted the name of the participant, the tablet would automatically assign her/him to the treatment or control group. Data on the TOH were collected online, and they were stored on a separate, independent database. At the end of the experiment, the enumerators reported the total earnings from the effort task and participants received the payment through M-Pesa, a mobile app commonly used in Kenya to transfer money.

[3] This is not to say that men do not worry about household issues; rather, in our research context, their family load is primarily tied to their role as the breadwinner of the household and, as a result, primarily related to economic concerns, which constitute only one dimension of household management.

[4] We received ethical approval for the experiment from the University of Florence (Ethical Approval nb.154) and from AMREF Health Africa in Kenya (ESRC P1169/2022)

[5] While it may be considered ethically controversial to increase emotional stress and remunerate participants based on their performance, it is worth noticing that the expected income from the whole experiment (i.e., show-up fee and performance-based compensation) is higher than the average daily income for both participants in the treatment and control group (for an experiment that took on average one and a half hours to complete).

After affirming their informed consent, participants were informed by the enumerators about the rules of the specific tasks they had to perform. The enumerators explained the Tower of Hanoi with 3 disks and then they asked participants to complete one to make sure they understood the rules, and they explained the rules for dividing the beans. As literature states that the effect of priming could last anywhere between 10 min to one week (Cohn and Maréchal, 2016), we decided to explain the rules before exposing participants to the treatment to minimize the chance that the effect of our prime would completely vanish before the end of the experiment.

Then, participants in the treatment and in the control group were exposed to the same activities but in different orders to ensure that they all spent the same amount of time in the experiment. As shown in Table 1, right after the explanation of the effort task participants in the treatment group were first exposed to the treatment and then they were asked to perform the effort task. After the effort task, they were asked to complete a Digit Span Task to measure their attention level (Hale et al., 2002), to self-assess their own stress level,[6] and to answer basic socioeconomic questions.

Participants in the control group, on the other hand, were asked to compile the socioeconomic questionnaire first, and then to perform the effort task to make sure that any potential differences in the outcomes of interest are not due to differences in cognitive fatigue. On average, the socioeconomic questionnaire takes the same amount of time as the treatment. After the effort task, they were asked to complete the Digit Time Span and to self-assess their own stress level. Finally, they were exposed to part of the treatment.

3.3. Treatment

Following the literature on poverty and cognition, to assess the impact of the family load on productivity and self-selection we adopt the technique of "priming", triggering in the mind of participants thoughts related to the family load (Mani et al., 2013; Shah et al., 2015; Dalton et al., 2020). Priming interventions do not aim at generating new thoughts, but rather at bringing up to the mind already existing thoughts by making them more salient (Cohn and Maréchal, 2016).

The design of the treatment was based on extensive fieldwork and pilot tests conducted in slum areas in Nairobi to identify the best trigger to increase the salience of the family load. Our treatment consists of three steps:

1. Time-use module: we ask participants to fill in a time-use module under the form of time diaries to start triggering the time pressure dimension of the family load;
2. Psychological prime: following Callen et al. (2014), we asked participants whether it happens to them to think about household-related thoughts and worries during a normal working day. If the answer was positive, we then asked them to tell us about what they were thinking about. More specifically, they were asked the following question: "Sometimes it happens that while you are working or doing other things, thoughts about household management responsibilities may come to your mind. They maybe things you have to plan, organize, facilitate or even do by yourself. We are therefore interested in understanding your daily experiences related to the management of the household that may stress or worry you. This could be anything, for example how you manage the time for cooking and cleaning activities, how you manage the household's expenses, or concerns related to your children's well-being. Could you tell us if it happens to you to think/worry about issues such as these ones during the day? "
3. Video and family load reporting: we asked participants to watch a four-minute video with women and one man from Kibera talking about their household-related worries in relation to a normal working day.[7] To have participants re-experiencing the family load, rather than just reporting it, we then asked them to do the exact same exercise. We asked them to report to the enumerator what they think about and how they feel on a normal working day. Starting from the time-use module administered before, the question would start as "Now I want you to tell me yesterday, from when you woke up until when you went to sleep, what you were thinking about, and how you were feeling about it. So you can start by saying 'Yesterday I woke at 6am and I started thinking about XXX…'"

Our triggers aim at capturing individuals' attention for a period of time long enough to alter their performance during the effort task. The treatment was designed in three steps to be effective in varying the salience of the family load: with the time use module, participants start thinking about the time management related to household work; with the "emotional trigger", based on Callen et al. (2014), participants think about how they feel in relation to these the family load related worries. Finally, the scope of the video is twofold: on the one hand, it wants to have participants relate to people similar to them on common worries and problems; on the other, it wants to instruct them

Table 1
Order of tasks in the experiment.

Treatment group	Control group
1. Treatment	1. Socio-economic questionnaire
2. Effort task (randomized)	2. Effort task (randomized)
3. Stress scale	3. Stress scale
4. Digit span task	4. Digit span task
5. Socio-economic questionnaire	5. Treatment (no video)

[6] The order of the two modules was randomized to minimize the risk of getting biased information
[7] The video is available at the following link: https://youtu.be/K8-ti3XYW_o

for the last step of our treatment, which consisted of having them *re-experiencing* their family load, rather than simply reporting it.

Since there is no widely recognized measure of family load yet, to perform a manipulation test, and assess the effectiveness of our triggers, we need to rely on closely related concepts that we can plausibly expect to be affected by our treatment, too. Table 2 shows that participants in the treatment group reported higher stress and reduced attention, suggesting that our prime was effective in triggering family-related thoughts, and it affected both men and women. In columns 3 and 4 we disaggregate the effects by gender. While women are on average more stressed, we do not find any significant difference between men and women in terms of stress response. Instead, column 4 shows that while men in the control group are on average more attentive, the treatment response for men is twice as large (0.24 SD) as that for women (0.12 SD) in terms of reduced attention.[8]

3.4. Labor productivity

To measure labor productivity and to account for self-selection, we ask participants to perform a manual and a cognitively-demanding task, in randomized order. For the former, they had to divide black from red beans. For the latter, they had to complete the Tower of Hanoi (TOH), a puzzle task commonly used to assess individuals' problem-solving abilities and executive functions like working memory or procedural learning (Zook et al., 2004). The effort task lasted in total 30 min and it was divided in three rounds of 10 min each. During the first two slots, participants were asked to divide as many black from red beans as possible and to complete as many TOH with 4 disks as possible.

As already mentioned, the order of these two tasks was randomized for each participant. Given that we expect the salience effect of priming to be time-limited, we will focus our analysis on the first task performed by each participant, while the second task is mostly there to allow each participant to experience both tasks. For the last slot, participants were asked whether they rather divide the beans again or complete as many TOH as possible, with 5 disks to assuage concerns regarding learning effects. The economic incentive was set to make it unambiguously evident that the TOH represents the more remunerative but more challenging choice, in terms of cognitive resources and expected (positive) results. In fact, participants gained 20 KSH for each 100 g of beans divided (in all three slots), 20 KSH for each TOH with 4 disks completed (in the first two slots), whilst they were offered 100 KSH for each TOH with 5 disks completed (in the final slot). It is worth noting that no partial remuneration is provided if participants fail to complete the TOH in the last slot. A participant's decision to choose the more challenging task may reflect the perceived risk of attempting a less familiar task within the same time limit, as opposed to opting for something more familiar and practiced. While we cannot rule out the possibility that the results of the endogenous choice are influenced by participants' risk aversion, our aim with this last slot was to investigate whether the family load leads individuals to self-select into less cognitively demanding jobs and to make non-income-maximizing choices.

Several factors motivated the selection of the TOH as the (cognitively) challenging task. In the literature on scarcity, various tasks have been used to measure cognitive load, sometimes in combination (Shah et al., 2012). For instance, in Mani et al. (2013), both Raven's Matrices and the spatial incompatibility task were used to assess cognitive load. In our design, we require a single challenging task that can be easily compared to the manual task, and that best simulates the challenges individuals may encounter in the labor

Table 2
Manipulation check on stress and attention.

	Pooled sample		Gender differences	
	(1) Stress	(2) Attention	(3) Stress	(4) Attention
Family Load Priming	0.128**	−0.168***	0.128	−0.116
	(0.0644)	(0.045)	(0.130)	(0.074)
Male	−0.267***	0.115	−0.212***	0.215**
	(0.094)	(0.127)	(0.054)	(0.09)
Family Load Priming#Male	–	–	−0.005	−0.122
			(0.147)	(0.082)
Constant	0.072***	0.023	0.063	−0.006
	(0.025)	(0.073)	(0.040)	(0.085)
Session FEs	Yes	Yes	Yes	Yes
Observations	720	720	720	720
Adjusted R-squared	0.019	0.008	0.018	0.007

Note: Clustered standard errors at the ward level in parentheses.*, **, *** denote significance at the 10 %, 5 % and 1 % levels respectively. The reported dependent variables are the standardized values of self-reported stress (Stress) and the results of the Digit Span Task (Attention). "Family Load Priming" (FL Priming henceforth) is a dummy variable equal to 1 if the participant is in the treatment group, 0 otherwise. We control for interview fixed effects, while no control variables are included.

[8] These results should be interpreted with caution. We measured participants' stress and attentional levels after the effort task. The time pressure dimension of the tasks, paired with the economic incentive, may have increased stress levels in participants in the control group and decreased their attention, too. This may have increased the noise, thus rendering the gender differences less statically significant due to lack of power. Moreover the time that separates this manipulation from the treatment it self means that part of the effect can be expected to have dissipated. Overall, we are confident that our manipulation test is reporting a lower-bound

market. Compared to Raven's matrices, the TOH is a more physical task, as it requires physically moving discs from one position to another. This is more comparable with the task of sorting beans, albeit requiring a higher level of focus and concentration.

Also, the TOH measures executive functions such as planning and working memory (Zook et al., 2004), which are closely aligned with the skills and difficulties individuals might face in a real-world labor environment. In line with this perspective, a challenging task may also involve an activity in which the individual risks failure by not meeting the targets. No partial remuneration is given if participants do not complete the 5 disks TOH. At the same time, we are not interested in measuring inherent personal characteristics like fluid intelligence, which is the focus of Raven's Matrices. Furthermore, the TOH offers a task with a learning curve that is both quick and gradual enough to allow participants to repeat the task over a 10-minutes period. Additionally, its design allows for increased difficulty in a subsequent 10-minute round, making it a better fit for our experimental objectives compared to other cognitive measures such as Raven's Matrices.

4. Data

4.1. Main outcome variables

4.1.1. Productivity

Labor productivity is measured as the standardized values of participants' performance in each task of the effort task. We distinguish between productivity in the *exogenous* tasks (i.e., during the first 20 min of the effort task) and in the *endogenous* task (i.e., during the last round of the effort task). In exogenous tasks, we define productivity in the manual task as the total grams of beans divided, and productivity in the cognitive task as the total number of TOHs completed. In the endogenous task, by contrast, we define productivity as the standardized value of the income earned during the last round, irrespective of the task performed.

4.1.2. Endogenous choice

The endogenous choice is defined as the likelihood of selecting the cognitive task in the third round. The expected maximizing income choice is a dummy variable equal to 1 if the participant, based on the performance in the previous two rounds, decides to perform the task in which she/he was more productive. More specifically, we measure the predicted income of the TOH with 5 disks or of dividing beans based on the performance in the first two rounds of the effort task. We then define the choice as being income maximizing if the predicted income of the TOH with 5 disks is higher than the predicted income of dividing the beans, and the participant chooses the TOH, and vice versa. If the participant chooses the TOH with 5 disks even though the predicted income from dividing the beans is higher than the predicted income of the TOH, then she/he is making a non-income maximizing choice.

4.2. Descriptive statistics

Table 3 presents descriptive statistics on key characteristics of the participants at the individual and the household level. Participants in our sample have on average 31 years, 11 years of education, and 78 % of them are married. The average number of household

Table 3
Descriptive Statistics of the Sample.

	Mean	Std. Dev	Min	Max	Mean diff*
Male	.51	.5	1	0	–
Age	31.3	7.654	18	62	−1.736
Education	11.173	2.925	0	20	−1.405
Muslim	.055	.229	0	1	−0.062
Married	.779	.415	0	1	−0.297
Childcare - school	.208	.406	.0	1	.056
Childcare - parents	.266	.442	0	1	−0.428
Nb hh members	4.025	1.264	.2	11	.245
Children < 10	1.868	.934	1	7	.24
Female share	.534	.207	0	1	.083
Self-employed	.318	.466	0	1	−0.135
Unemployed	.103	.304	0	1	.176
Informal	.51	.5	0	1	.022
Working hours	38.655	23.589	0	126	−20.859
Asset index	−0.016	.999	−2.675	4.72	−0.228
Downward income risk	.404	.311	−1.667	1	−0.0113
Monthly income	12,792.6	16,655.1	0	200,000	−2308.144
Slum	.6430	.479	0	1	−0.039

Note: *Mean differences refer to the differences between women and men in the sample. Reported variables are: a dummy variable equal to 1 if the participant is male, 0 if female; the respondent's age; years of education; a dummy variable equal to 1 if the participant is Muslim, 0 otherwise; a dummy variable equal to 1 if the participant is married, 0 otherwise; dummy variables equal to 1 if the mode of childcare is school or if the children are left with their grandparents; the number of household members; the number of children under the age of 10 in the household; the share of female members in the household; dummy variables equal to 1 if the participant is self-employed in the formal sector, if she is unemployed, or if she is employed in the informal sector; the number of weekly hours worked; the asset index measured by Factor Analysis; the downward income risk, measured as 1 - (weekly income below the average / weekly average income); the monthly income measured in KSH; and a dummy variable equal to 1 if the participant lives in a slum.

members is slightly greater than 4, with almost 2 children under the age of 10. Half of the sample reported being employed in the informal sector, working on average 39 hours per week, and earning 12,800 KSH (about 107 US Dollars) per month.

Table A3 in the Appendix reports a randomization test between treatment and control. We do not observe any significant differences in terms of observable socio-economic characteristics, confirming that the randomization achieved balance across the two groups.

5. Empirical specification

To estimate the impact of the family load on labor productivity and the endogenous choice we proceed by step: we first estimate the impact of the treatment on productivity by distinguishing between exogenous and endogenous tasks, and by type of tasks (cognitive vs manual). Then, we examine the impact of the treatment on the endogenous and non-income maximizing choices.

We adopt an Ordinary Least Squares (OLS) model to evaluate the impact of the treatment on task performance during the three rounds and a linear probability modeling for the endogenous choice they have to make before starting the last round of the effort task. We divide the analysis between productivity in the exogenous and endogenous tasks. We estimate the heterogeneous treatment effects by interacting the treatment with the sex of participants (with male = 1). In this way, the treatment effect for women is captured by the coefficient of the main treatment variable.

Because assignment to treatment was orthogonal to individual characteristics, due to randomization, the main analysis does not include control variables. To clearly distinguish the role of observable and unobservable characteristics in influencing gender differences is, in our view, impossible. Cultural and psychological traits of women may shape socio-economic outcomes, or vice versa, and the interaction between these factors may jointly influence results. For this reason, we have chosen a fixed-effects approach, as it best highlights differences in outcomes driven by gender and all its implications. As a robustness check, we replicate the benchmark analyses including as control variables all the mentioned socio-demographic characteristics at the individual and household level (variables are shown in Table A4 in the Appendix).[9]

5.1. Impact of family load on exogenous tasks

To estimate the effect of our Family Load priming on productivity in the exogenous tasks, we estimate the following specification:

$$Y_{i,t} = \beta i_0 + \beta_1 FL\ Priming_{i,t} + \beta_2 MALE_{i,t} + \beta_3 Round_{i,t} + \beta_4 \left(FL\ Priming_{i,t} \times MALE_{i,t} \times Round_{i,t} \right) + Session_t + \varepsilon_{i,t} \quad (1)$$

where $Y_{i,t}$ is labor productivity measured as the *standardized value* of the income earned separately during the exogenous tasks of the effort task for individual i in session t. Given the nature of the tasks, we also estimate the impact of our treatment separately for the manual task and the cognitive task during the first two rounds of the experiment. $FL\ Priming_{i,t}$ identifies the independent treatment dummy variable ("Family Load Priming"), and the interaction term ($FL\ Priming_{i,t} \times MALE_{i,t} \times Round_{i,t}$) estimates the impact of the treatment in relation to being a man for individual i in session t in the first and second round of the effort task (i.e., in the exogenous tasks); $Session_t$ are the session fixed-effects, that control for the time and date of the interview, and $\epsilon_{i,t}$ is the error term clustered at the ward level.

5.2. Impact of family load under endogenous task choice

To estimate the effect of our treatment on productivity and self-selection in the endogenous choice, we estimate the following specification:

$$Y_{i,t} = \beta i_0 + \beta_1 FL\ Priming\ _{i,t} + \beta_2 MALE_{i,t} + \beta_3 \left(FL\ Priming_{i,t} \times MALE_{i,t} \right) + Session_t + \varepsilon_{i,t} \quad (2)$$

where $Y_{i,t}$ is labor productivity measured as the *standardized value* of the income earned in the endogenous task of the effort task for individual i in session t, and a dummy variable equal to 1 if the individual chooses the cognitive task in the last round of the effort task. The variable $FL\ Priming_{i,t}$ identifies the independent treatment dummy variable, and the interaction term ($FL\ Priming_{i,t} \times MALE_{i,t}$) estimates the impact of the treatment in relation to being a man for individual i in session t; $Session_t$ are the session fixed-effects, that control for the time and date of the interview, and $\epsilon_{i,t}$ is the error term clustered at the ward level.

6. Results

6.1. The impact of the family load on productivity

Table 4 reports the impact of our treatment on productivity in the effort tasks. Column 1 shows that in the pooled sample (pooling together men and women) our family load priming has a negative but insignificant effect on the income earned during the exogenous task performed immediately after priming. By definition, priming will only induce changes among participants who are susceptible to

[9] Results of the robustness checks are available upon request.

the specific trigger at stake. Because the family load is likely not to be a gender-neutral phenomenon within our sample, we expect it to differently affect women's and men's productivity.

Before delving into the gender-differentiated effect of the treatment, and providing a reference for productivity differences between men and women across the tasks, it is worth noting that women are about one standard deviation more productive than men in the manual task (Table 4, column 3), while men outperform women by 0.5 standard deviations in the TOH (Table 4, column 4). Since the average productivity across both tasks is similar, we can conclude that, on average, in the control group women were more productive in the manual task than in the cognitive task (see Fig. 1).

Indeed, column 2 shows that our treatment had a significant, negative impact on productivity for women only (−0.15 SD), regardless of the nature of the task performed immediately after priming (i.e., manual vs cognitive). The interaction term "*FL Priming#Male*" is not statistically significant, implying that we do not observe significant differences across genders, although the interaction term coefficient more than cancels the treatment effect. Similarly, during the second round, where participants performed the task they didn't perform in the first round, we observe that for women in the treatment group, the effect is almost nullified (the interaction term "*FL Priming#2nd round*" is positive and statistically significant). When we test for the joint significance of the variables, we find their effect to be different than zero, confirming our results. Table A5 (columns 1 and 4) in the Appendix shows the regressions separated by gender. Figs. 2 and 3 in Appendix report the income distribution in each round of the effort task and of the total income earned separately for women and men, while Figs. 4 and 5 in Appendix report the income distribution in the first two rounds for the manual and cognitive tasks separately for men and women.

Given the significant differences between the tasks in our experiment, we can expect our treatment to affect each task differently, with one task potentially driving the overall effect on productivity. As previously mentioned, we did not have a strong prior hypothesis about how family load would influence performance across manual and cognitive tasks. Our results indicate that the negative treatment effect on women's productivity is entirely driven by a decline in the manual task (column 3), with the interaction term between treatment and men being significantly positive and of the same magnitude (suggesting that the effect on men is close to zero). Interestingly, the priming effect almost disappears in the second round: when women perform the manual task after the cognitive one, their productivity increases (as shown by the positive and statistically significant interaction term "*FL Priming#2nd round*").

In contrast, we find no significant effects on productivity in the cognitive task for either women or men (column 4). Similar to the results for the manual task, but with reversed trends, women who complete the cognitive task in the first round show a positive but non-significant effect, while performing it in the second round results in a negative effect (with the interaction term "*FL Priming#2nd round*" being negative but not statistically significant).

Performance in the second round appears to be influenced by productivity in the first round (columns 3 and 4), though with no significant effect in column 4. The group that performed the manual task immediately after treatment, resulting in lower productivity in the manual task, also showed reduced productivity in the cognitive task in the second round, and vice versa. This suggests that the

Table 4
Impact of the family load on productivity.

	(1) Productivity - pooled sample	(2) Productivity – gender diff.	(3) Productivity manual task	(4) Productivity cognitive task
FL Priming	−0.056	−0.154*	−0.283***	0.061
	(0.050)	(0.088)	(0.065)	(0.143)
Male	−0.182*	−0.283***	−0.983***	0.521***
	(0.095)	(0.084)	(0.101)	(0.094)
FL Priming#Male		0.191	0.318**	−0.109
		(0.184)	(0.147)	(0.263)
2nd Round	0.016	−0.059***	−0.147***	0.108
	(0.056)	(0.022)	(0.049)	(0.084)
FL Priming#2nd round	0.050	0.186**	0.372***	−0.166
	(0.055)	(0.091)	(0.116)	(0.154)
Male#2nd round		0.146	0.327***	−0.189
		(0.106)	(0.111)	(0.175)
FL Priming#Male#2nd round		−0.266	−0.400**	0.183
		(0.167)	(0.199)	(0.219)
Constant	−0.249	−0.211	0.689***	−1.272***
	(0.151)	(0.137)	(0.127)	(0.209)
Session FEs	Yes	Yes	Yes	Yes
Observations	1440	1440	720	720
Adjusted R-squared	0.026	0.025	0.205	0.019
Tests of joint significance				
(Prob > fl) FL Priming#round	0.902	0.039	0.005	0.294
FL Priming#male	–	0.309	0.045	0.680
FL Priming#male#round	–	0.500	0.028	0.675

Note: Clustered standard errors at the ward level are reported in parentheses. *, **, and *** denote significance at the 10 %, 5 %, and 1 % levels, respectively. The dependent variables reported are the standardized values of income earned in the exogenous task during the first round for the pooled sample (column 1), the difference between men and women (column 2), and the standardized values of income earned in the manual task (column 3) and in the cognitive task (column 4). All analyses control for interview fixed effects and for the round (2nd round = 1). No other control variables are included. The Wald test reports the test for joint significance of the parameters of interest for each specification.

priming effect varies depending on the order in which the tasks are completed, an aspect of our experiment that we discuss further in Section 6.3. Qualitative exit interviews reveal that some participants found the cognitive task to be particularly engaging and rewarding, causing them to completely focus on the task at hand, "forgetting the outside world", thus overcoming the effect of our prime. This said, our experiment cannot rule out that cognitive tasks that require longer efforts may result in diminished engagement and thus a stronger productivity tax from the family load.

6.2. The impact of the family load under endogenous task choice

Table 5 reports income under endogenous task choice, specifically income from the last round in which participants could select their preferred task. We observe that income is significantly lower for treated participants (−0.14SD) when men and women are pooled together (column 1). Women in the treatment group exhibit a persistent effect in terms of reduction in income of 0.17 SD for the task they self-select into (column 2). Contrary to our findings with respect to productivity, income outcomes for men appear reduced, but not statistically different than those of women. This is confirmed when looking at men and women separately: women experience a decrease in income of 0.14 SD, while for men there is no statistically significant effect, but still a reduction of 0.09 SD (Table A6, columns 1 and 3).

As said, the income effects reported in columns 1 and 2 of Table 5 are measured after participants self-selected into their favorite task. To better understand these results, we look then at the effect of our treatment on the endogenous task choice itself. In Table 5, column 3, we see that treatment leads to a lower likelihood of selecting the more cognitively demanding, more remunerative task ("Cognitive=1″). Column 4 further shows that this effect is driven solely by men, with an insignificant effect on women. Table A7 in the Appendix shows similar results when using a dummy equal to one for the expected income maximizing choice, with treatment significantly reducing the latter for men only (columns 1 and 2). In other words, while the drop in income for women is driven by decreased productivity among those who opt for the manual task, the income decline for men is caused by a substantial shift away from the more challenging but more financially rewarding cognitive task. When conducting the analysis separately for women and men, these results are confirmed (Table A6, columns 1 and 4, and Table A7 columns 3 and 4).

Taken together, these results are particularly interesting as they show that our prime had a gendered impact on both men and women depending on the outcome of interest: while the family load affects mostly women's productivity, it is men who respond more in terms of making a more conservative, non-income maximizing choice. In line with the literature on scarcity (de Bruijn and Antonides, 2021), we interpret these results in terms of the fact that men are mostly worried about problems related to financial needs (as reported in Table A2 in the Appendix, men in our sample reported being more stressed than women about their business failure). To comply with their role as the breadwinner in the household, when reminded of these worries, they would rather choose a less challenging but economically more conservative task to make sure that they will earn at least something (Banker et al., 2020).[10]

On the other hand, women's labour choice is not affected by our prime. We hypothesize this "resilience" of women's job preferences may be partially due to the fact that women are relatively more used to making decisions on a daily basis with all of these thoughts running through their minds. As a result, our treatment has a somewhat weaker effect on their decisions, rather than

Table 5
Impact of the family load on productivity and self-selection in endogenous task.

	(1) Income pooled sample	(2) Income gender diff.	(3) Cognitive = 1 pooled sample	(4) Cognitive = 1 gender diff.
FL Priming	−0.138**	−0.165***	−0.057***	−0.025
	(0.067)	(0.060)	(0.011)	(0.019)
Male	0.277***	0.251**	0.923***	−0.194***
	(0.104)	(0.103)	(0.032)	(0.028)
FL Priming #Male		0.053		−0.073**
		(0.183)		(0.030)
Constant	−0.785***	(0.183)−0.786***	0.923***	1.081***
	(0.130)	(0.131)	(0.032)	(0.052)
Session FEs	Yes	Yes	Yes	Yes
Observations	720	720	720	720
Adjusted R-squared	0.017	0.016	0.040	0.055

Note: Clustered standard errors at the ward level in parentheses.*, **, *** denote significance at the 10 %, 5 % and 1 % levels respectively. The dependent variables reported are the standardized values of income earned in the endogenous task during the last round for the pooled sample (column 1), the difference between men and women (column 2), the likelihood of choosing the cognitive rather than the manual task (Cognitive=1) for the pooled sample (column 3) and the difference between men and women (column 4) . We control for interview-fixed effects. No other control variables are included.

[10] During the exit interviews, men in the treatment group reported having financial-related concerns while doing the tasks, whereas women's concerns extended beyond the financial dimension to include household management and children's well-being.

expressing itself on their performance at work. While both men and women show similar reductions in income in this endogenous round, as a result of treatment, the mechanisms driving this effect seems to be different across genders.

6.3. Priming effect heterogeneity

As shown in Table 4, the impact of our priming treatment appears to depend on task order: when the manual task is performed first, its effect carries over into the second round, whereas the effect of treatment is negiglible when the cognitive task is completed in the first round. From exit interviews, some participants reported finding the cognitive task particularly engaging and rewarding, which led them to focus entirely on the task at hand, apparently overcoming the priming effect. This suggests that the priming effect depends on "initial conditions": participants who first completed the cognitive task were better able to concentrate and avoid the negative productivity effects linked to family load concerns, while those who started with the manual task struggled to do so, resulting in lower productivity that persisted across rounds.

Table A8 in the Appendix presents an analysis of the pooled sample and gender-specific sub-samples, examining the interaction between task order and the FL Priming variable. In the pooled sample (columns 1, 2, and 3), we find that the decrease in productivity in the last round of the effort task is solely driven by individuals who performed the manual task first (column 2), as well as the effect on the endogenous choice (column 3).

For women (columns 4, 5, and 6 of Table A8), the productivity decline is significant only among those who started with the manual task, showing that the decrease in income during the final round is primarily due to the "productivity shock" faced immediately after priming. In other words, the immediate drop in productivity experienced by women seems to have engendered long-term negative consequences on their performance in the final round of the effort task. Indeed, women who first engaged in the manual task exhibited a decrease in productivity, that negatively influenced their subsequent cognitive task productivity (Table A8, column 4). More so, in the final round, these women experienced a continued reduction in productivity of 0.22 SD (Table A8, column 5). Conversely, when the cognitive task followed the treatment immediately, women in the treatment group showed slightly higher productivity than the control group (Table A8, column 4, *FL Priming#Cognitive task 1st + FL Priming* show a positive and significant difference). This trend was also observed in the last round of the effort task (Table A8, column 5). In line with the results from the main analysis, we do not find significant differences in the choice of the task for the last round, but we notice that women who first performed the manual task are less likely to choose the cognitive task, and vice versa.

Lastly, for men, we find no heterogeneity in priming effects on productivity and in the endogenous choice. This result suggests that our prime does not impact men's productivity, and consequently, the treatment affects their likelihood of self-selecting into the less remunerative task in the last round regardless of the order of the task they were exposed to.

These results are confirmed when we look at the differential effect of the treatment on the total income earned by participants as shown in Table A9. For women who performed the cognitive task first, the treatment effect is null, while those who performed the manual task first experienced an income loss of 0.2 standard deviations. We take this as suggestive evidence that the family load can cause long-term "path dependencies in productivity", well beyond the conditions that determined the initial trigger. This resonates with the poverty traps literature where low initial wealth is translated into low wealth over time (see for instance Adato et al. (2006); Barrett et al. (2006); Balboni et al. (2022)).

7. Discussion and conclusion

The family load is one of the challenges women encounter in conciliating work and family spheres, especially in the presence of children. However, in the extensive literature investigating the gender pay gap, the role of the family load is an often-overlooked component. This paper investigates the gender-differentiated impact of the family load on labor productivity and occupational choices. The novelty of this contribution lies in establishing a causal relationship between family load and gendered labor market outcomes, as well as quantitatively assessing the impact of the former on the latter.

We measure the impact of the family load on labor productivity and occupational choices in poor, urban areas in Kenya. More specifically, we performed an experiment in low-income areas of Nairobi, where we prompted participants to consider thoughts related to family load before asking them to perform incentivized effort tasks. The analysis shows that our family load prime holds a gendered impact: women respond by significantly reducing productivity, while men tend to make more conservative job choices.

When disaggregating the effects by type of effort task, we find that women in the treatment group experienced a productivity shock only in the manual task and that this resulted in a long-lasting decrease in income that persisted when participants could self-select into their favorite task. At the same time, we find no evidence of reduced productivity in cognitive tasks. These findings have important implications, especially in the study's context, where women primarily work in informal, piece-rate jobs that are less mentally demanding (Agwaya and Mairura, 2019). Our results suggest that these women risk finding themselves caught not only in the psychological poverty trap (Haushofer and Fehr, 2014; Schilbach et al., 2016; Ridley et al., 2020), but also in the "family load trap". By reducing productivity, the family load decreases earnings and income while simultaneously increasing the time women must spend at work to achieve equivalent output. This, in turn, heightens "financial worries" and "time pressure", creating a reinforcing cycle.

Treatment effects were different for men. On one hand, they did not exhibit consistent and significant changes in productivity, regardless of the task. On the other hand, when given the opportunity, they self-selected more often into the less cognitively challenging task, predominantly opting for a conservative, non-income maximizing choice. In a context with strict gender norms, where men have to provide financially for their families, it appears that men prefer to engage in less remunerative tasks with a higher probability of earning money, thereby ensuring they fulfill their role as breadwinners.

Being the first study trying to vary the salience of the family load and to estimate its impact on economic outcomes, this analysis bears its limitations. First, the family load is an invisible constraint that does not yet have an externally validated scale or method of measurement. Consequently, our study could not measure baseline levels of family load, nor the effect the treatment may have had in increasing such baseline levels. As a result, we cannot determine whether the treatment had a larger effect on individuals with higher or lower baseline family load, possibly underestimating the treatment's impact. Our results reflect a conservative "intent-to-treat" estimate, as the treatment likely increased family load for those more affected, while control group members may have had high baseline levels. The magnitude of productivity and income results effects, still quite sizeable, should therefore be interpreted as a lower bound.

Second, we are not able to identify the mechanisms behind the hypotheses we are testing. We find suggestive evidence that our prime affected participants' stress and attention, but we are unable to clearly determine whether the family load has a direct impact on productivity and self-selection, or whether it operates through stress and attention. Regardless of the psychological mechanism at work, the economic implications of our results remain the same. Indeed, we find that a relatively modest manipulation of the family load worries produces meaningful effects on income.

Notwithstanding these limitations, this study highlights the need for further investigation on the gendered impact of the family load on labor outcomes in high-income countries too, as well as the need to examine the economic implications of interventions aimed at reducing the family load. Future research should focus on field experiments to identify interventions that alleviate this burden and their impact on productivity, preferences, occupational choices, and well-being. Useful interventions in similar settings might include access to childcare paired with conditional cash transfers to ease financial worries. The mental health aspect is also crucial, as many women in qualitative interviews reported using medication to cope with stress, or struggling with focus. Mindfulness and meditation techniques are gaining increasing attention also in the economic literature (Economides et al., 2018; Shreekumar and Vautrey, 2022), and they show promise not only for improving mental health but also for boosting performance and decision-making.(Shreekumar and Vautrey, 2022). More generally, whether in low, medium, or high-income settings, we believe that such interventions would be extremely helpful in the reduction of negative effects of the invisible family load, while limiting the potential cultural barriers that may arise with more invasive interventions, as for instance psychotherapy interventions.

Declaration of competing interest

None.

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The experiment was pre-registered on the AEA RCT Registry: "Cecchi, Francesco, Chiara Rapallini and Sveva Vitellozzi. 2022." Under pressure: the impact of women's mental load on labor productivity and occupational choices. Evidence from Kenya."AEA RCT Registry. May 23".

Qualitative interviews

Interviews to understand the dimensions of the family load

Woman, Kibera:

> *"When I'm at work I deeply think: "where is my child? and is my child safe wherever he is? Is he near someone who is safe, I give it a lot of thought, I always want to know, where is my child?*

And in most cases, has my child eaten? […] Something else is the daily bread, how will my people eat? How will my people eat? Wherever you are, even if you are at work, how will my family eat? And you have to do it in a way that you have to do the timing so that the children get tired, they go to sleep early so you have to be organized […] A man can provide anything that he can afford but he won't say a word, you are the one to know how to spend the money, and maybe the amount is too little but you are the one to get a headache "

Woman, Korogocho:

"*I also have such thoughts while at my business, first of all I ensure that at least my children are going to school as I don't want them to go through the kind of life I went through. As I wasn't able to even as a grown up and I go through a lot of problems in terms of education, to get a better life. So, every time I'm at work, I usually think of what I can help my children with to ensure they don't live the kind of life I have lived, so that they may live a better life and get better education so that one day they may be able to conduct their businesses with ease.* "

Man, Korogocho:

"*[…] There are many things that I go through in this job, sometimes you come to work but no customers, so you wonder what you will eat when you go back to the house because you have children who need to go to school, they need school fees, and sometimes you leave the house and there is nothing to eat, and maybe the day becomes unproductive and you end up being stressed […]*"

Exit interviews to understand the perceptions of the effort task
Woman, treatment group:

"*[…] I felt I was under pressure while sorting beans, at some point I thought about my child in school, whether she is okay, then my mind kind of shut down and I mixed the black beans with the red I had sorted. However, during the tower, I was fully focused. While sorting beans, I thought about my child in school and her safety, I was to pick her up in school and I was afraid I would be late. […]*"

Woman, treatment group:

"*While sorting beans, the thought of my child came to me. I was thinking of whether she has been fed. During the tower, my mind was fully occupied in the game. […] The tower was fun, and I thought the game would teach me about how to make hard life decisions. I thought that through the game I would learn skills on how to order competing needs, The game to me was more like the things that happen in daily life. […]*"

Man, treatment group:

"*[…] I chose beans sorting because it was simpler and direct. The tower needed more time to think and get the moves right. The beans experiment was a sure bet even though it earned less, I was sure I would get something. […]*"

Two male participants explained why he chose the Tower of Hanoi in the last round:

"*I chose the disks because it was fun and I love things that challenge me to think more and focus. I chose the tower because of the fun, I like game. It is relaxing and relieving from the many thoughts I had.*"

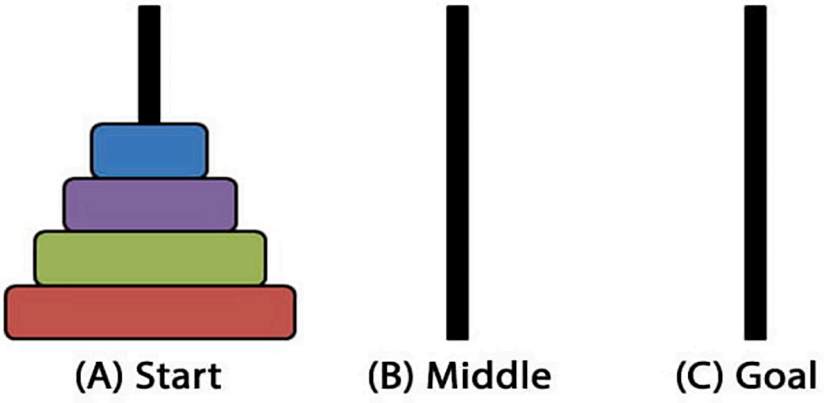

Fig. 1. Tower of Hanoi.

The TOH has three main rules: first, only one disk may be moved at a time; second, the disks can be moved only from one peg to another; and third, a disk may never be place to another smaller disk. The minimum number of moves required to complete the ToH is always $2^n - 1$, where n is the number of disks. To increase the level of difficulty, it is sufficient to add a disk to each round. In our experiment, we developed an online tool to collect precise data on the number of moves needed to complete each TOH in each round of the effort task.

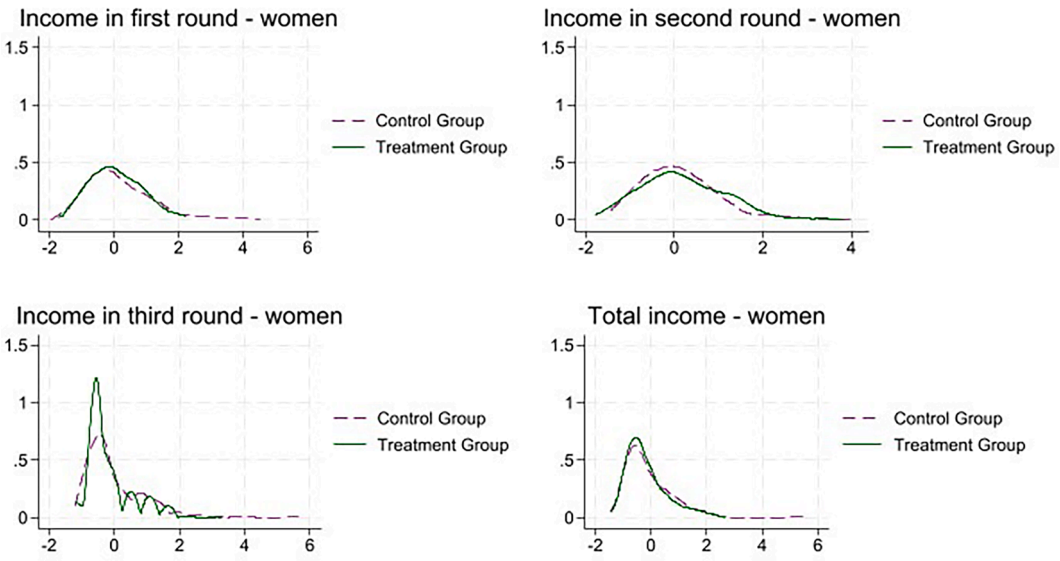

Fig. 2. Income distribution by round - women.
Note: The reported variables are the standardized value of the income earned in each round of the experiment for women and men separately.

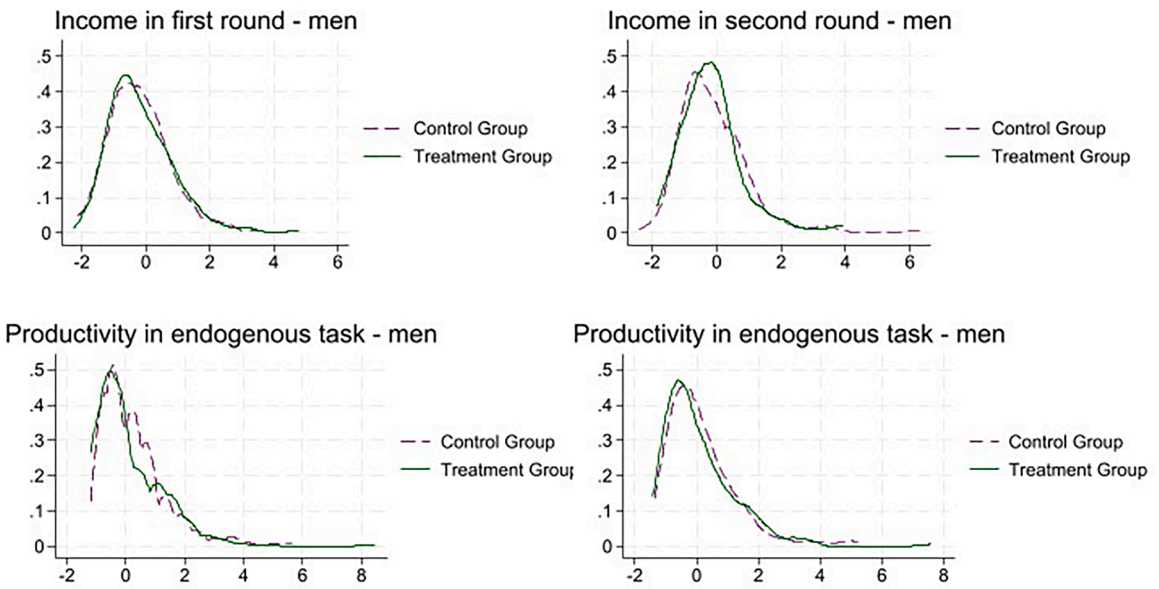

Fig. 3. Income distribution by round - men
Note: The reported variables are the standardized value of the income earned in each round of the experiment for women and men separately.

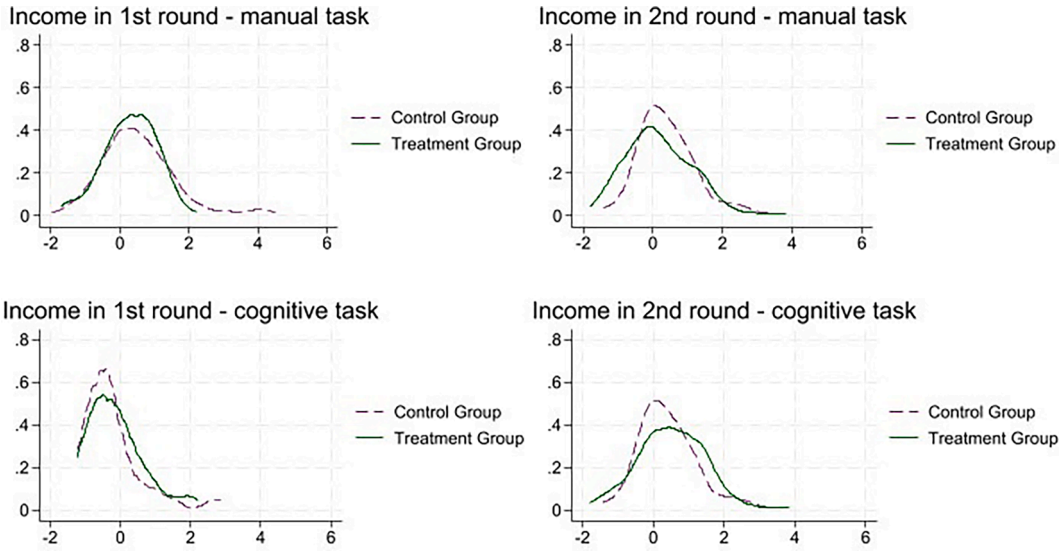

Fig. 4. Income distribution by task and round - women
Note: The reported variables are the standardized value of the income earned in the first and second rounds in the manual and cognitive task of the experiment for women and men separately.

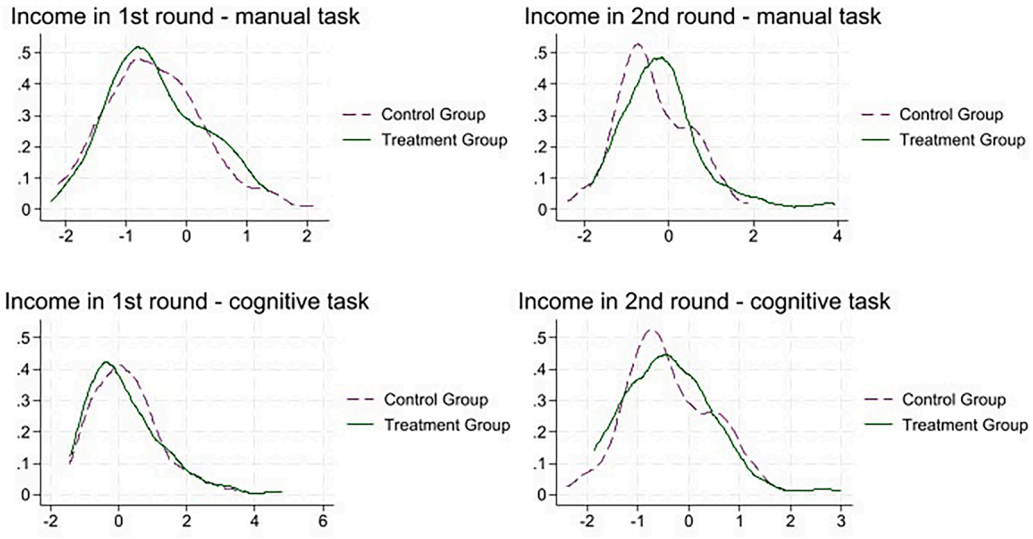

Fig. 5. Income distribution by task and round-men
Note: The reported variables are the standardized value of the income earned in the first and second rounds in the manual and cognitive task of the experiment for women and men separately.

Appendix A

Table A1
Mean differences in time allocation - men and women.

	Women	Mean	Men	Mean	Diff	St Err	P-value
Domestic work	353	266.43	367	69.401	197.03	9.517	0
Market work	353	252.833	367	376.349	−123.516	20.565	0
Leisure	353	242.04	367	279.156	−37.115	10.624	.001
Childcare	353	66.034	367	24.442	41.593	5.088	0
Commuting	353	1.731	367	2.848	−1.117	.162	0

Note: mean differences in time allocation between men and women in the sample. From the bottom, respectively, reported variables indicate the time in minutes spent, during the 24 h prior to the interview, in domestic work (i.e., cooking, cleaning, and doing laundry); market work; leisure activities (i.e., reading, listening to the radio, watching tv, engaging in social activities); childcare; and commuting.

Table A2
Mean differences in stress between men and women.

	Women	Mean	Men	Mean	Diff	St Err	P-value
Stress – self report	353	.581	367	.447	.134	.037	.001
Stress - scale	353	11.74	367	11.3	.44	.48	.36
Stress - items	353	6.575	367	6.144	.43	.208	.039
Stress–financial Worries	353	.966	367	.926	.04	.017	.019
Stress–business failure	353	.451	367	.523	−0.072	.037	.051
Stress - employment	353	.79	367	.787	.003	.03	.924
Stress – access to education	353	.847	367	.733	.114	.03	0
Stress – access to food	353	.779	367	.755	.025	.032	.442
Stress – health	353	.638	367	.605	.033	.036	.37
Stress – alcool abuse	353	.209	367	.245	−0.036	.032	.256
Stress – violence	353	.258	367	.199	.059	.031	.06
Stress – theft	353	.309	367	.33	−0.021	.035	.548
Stress – relationship with family member	353	.371	367	.335	.036	.036	.314
Stress – relationship with spouse	353	.368	367	.281	.088	.035	.012
Stress – relationship with others	353	.318	367	.175	.143	.032	0
Stress – pregnancy	353	.272	366	.252	.021	.033	.53

Note: mean differences in self-reported stress between men and women in the sample. From the bottom, respectively, reported variables indicate: self-reported stress after the effort task, the scale of self-reported stress measured following (Palermo et al., 2020), the number of items individuals reported to be stressed about; self-reported stress about financial worries, business failure, employment situation of you or the household members, access to education of the household's members, access to food, physical health of you and the household's members, alcool abuse of you and the household's members, being victim of violence, being victim of theft, the relationship with a family member, the relationship with the spouse, the relationship with others, and pregnancy or contraceptive use of you or your spouse.

Table A3
Mean differences and assessment of randomization.

	Treat	Mean	Control	Mean	Diff	SE	P-value
Male	368	.511	352	.509	.003	.037	.95
Age of respondent	368	31.392	353	31.204	.188	.571	.743
Years of education	368	11.195	353	11.152	.043	.218	.845
Muslim	368	.063	353	.048	.015	.017	.401
Married	368	.756	353	.804	−0.049	.031	.112
Nb of children < 10	368	1.843	353	1.895	−0.053	.07	.449
Nb of hh members	368	4.014	353	4.037	−0.023	.094	.805
Female share	368	.54	353	.528	.012	.016	.441
Childcare - school	368	.231	353	.184	.047	.03	.122
Childcare - parents	368	.261	353	.272	−0.011	.033	.737
Asset index	368	−0.007	353	−0.026	.018	.074	.805
Weekly work hours	368	39.31	353	37.971	1.338	1.758	.447
Weekly income	368	3367.7	353	3021.3	346.3	310.1	.265
Informal sector	368	.519	353	.502	.018	.037	.637
Unemployed	368	.101	353	.105	−0.005	.022	.851
Self-employed - formal	368	.304	353	.332	−0.027	.035	.436
Downward income risk	368	.39	353	.419	−0.029	.023	.208
Slum	368	.666	353	.621	.045	.036	.204

Note: Diff refers to the differences between the treatment and the control group. Reported variables are: a dummy equals to 1 if the participant is a man, 0 if a woman; the age of the respondent; the years of education; a dummy variable equals to 1 if the participant is Muslim, 0 otherwise; a dummy

variable equals to 1 if the participant is married, 0 otherwise; the number of children under the age of 10 in the household; the number of household's members; the share of female members in the household; dummy variables equal to 1 if the mode of childcare is school or if the children are left with their grandparents; the asset index measured the Factor Analysis;the number of weekly hours worked; the weekly income measured in KSH; dummy variables equal to 1 if the participant is employed in the informal sector, unemployed, or self-employed in the formal sector; the downward income risk, measured as 1-(Weekly income below the average Weekly average income); a dummy variable equals to 1 if the participant lives in the slum.

Table A4
Definition of outcome and control variables.

Outcome variables Labor productivity from manual and cognitive tasks Self-selection in less cognitive demanding jobs	Variables definition Standardized values of the earnings from each round of effort task accounted separately Dummy =1 if participant chooses the beans in the third round of effort task
Control variables	Variables definition
Education	Years of education
Male	Dummy =1 if respondent is a man, 0 if she is a woman
Married	Dummy =1 if respondent is married/living together with her/his partner
Formal occupation	Dummy =1 if respondent is employed in the formal sector
Self-employed	Dummy =1 if respondent is self-employed
Unemployed	Dummy =1 if respondent is unemployed
Income level	Monthly income of the participant
Downward income risk	1 − (Weekly income below the average /Weekly average income)
Number of adults in the hh	Total nb. of adults in the household
Number of children under the age of 10	Total nb. of children under the age of 10 in the hh
Share of female members in the hh	Total nb. of female members/Total hh members
Number of hh members earning an income	Total nb. of hh members – nb. of declared dependent children in the hh
Mode of childcare	Dummies = 1 if the main mode of childcare is school or the parents
Asset index	Measured through factor analysis
Slum	Dummy =1 if the participant is living in a slum area, 0 otherwise
Muslim	Dummy =1 if participant is Muslim
Randomization effort task	Dummy =1 if participant completed first the TOH and then the beans
Effort task	Dummy =1 if task is the TOH
Stress	Stress scale measured following (Palermo et al., 2020)
Attention	Performance to the digit span task (tot. nb of correct answer/Tot nb. of questions)
Randomization of Stress and Attention modules	Dummy =1 if first module was stress, 0 otherwise
Poor	Dummy =1 if below the median of the income distribution in the sample

Table A5
Impact of the family load on productivity in exogenous tasks by gender.

	Women			Men		
	(1) Prod.ity - 1st and 2nd round	(2) Prod.ity manual task	(3) Prod.ity cognitive task	(4) Prod.ity - 1st and 2nd round	(5) Prod.ity manual task	(6) Prod.ity cognitive task
FL Priming	−0.101	−0.283***	0.085	0.008	0.040	−0.050
	(0.098)	(0.063)	(0.168)	(0.110)	(0.106)	(0.214)
2nd round	−0.011	−0.100*	0.106	0.024	0.233**	−0.084
	(0.047)	(0.052)	(0.116)	(0.125)	(0.104)	(0.205)
FL Priming#2nd round	0.077	0.320***	−0.180	−0.013	−0.028	0.026
	(0.086)	(0.109)	(0.190)	(0.089)	(0.097)	(0.193)
				(0.058)	(0.086)	(0.089)
Constant	−0.364***	0.182***	−0.335***	−0.170	−0.352***	−0.749***
	(0.072)	(0.033)	(0.087)	(0.115)	(0.103)	(0.214)
Session FEs	Yes	Yes	Yes	Yes	Yes	Yes
Observations	706	353	353	734	367	367
Adjusted R-squared	0.110	0.007	−0.029	0.138	0.041	0.055

Note: Clustered standard errors at the ward level are reported in parentheses. *, **, and *** denote signif- icance at the 10 %, 5 %, and 1 % levels, respectively. The dependent variables reported are the standardized values of total productivity during the first two rounds of the effort task, as well as in the manual and cognitive tasks, separately for women and men. Interview fixed effects are included in the analysis. No other control variables are included.

Table A6
Impact of the family load on endogenous income and choice by gender.

	Women		Men	
	(1) Endogenous income	(2) Endog. choice (cognitive task = 1)	(3) Endogenous income	(4) Endog. choice (cognitive task = 1)
FL Priming	−0.140*	−0.023	−0.096	−0.088***
	(0.072)	(0.027)	(0.133)	(0.024)
Cognitive task 1*st*	−0.100	0.015	0.135**	−0.010
	(0.076)	(0.095)	(0.065)	(0.042)

(*continued on next page*)

Table A6 (*continued*)

	Women		Men	
	(1) Endogenous income	(2) Endog. choice (cognitive task = 1)	(3) Endogenous income	(4) Endog. choice (cognitive task = 1)
Constant	0.224***	0.314***	−0.687***	0.922***
	(0.057)	(0.056)	(0.141)	(0.035)
Session FEs	Yes	Yes	Yes	Yes
Observations	353	353	367	367
Adjusted R-squared	0.005	0.041	0.019	0.005

Note: Clustered standard errors at the ward level in parentheses.*, **, *** denote significance at the 10 %, 5 % and 1 % levels respectively. The reported dependent variables are the standardized values of the income earned during the last round of the effort task (columns 1 and 3) and the likelihood of choosing the cognitive rather than the manual task in the last round of the effort task (columns 2 and 4), separately for women and men. We control for the order of the task (=1 if the cognitive task was played in the first round) and for interview fixed effects. No other control variables are included.

Table A7
Impact of the family load on expected maximizing income choice.

	(1) Expected max. income choice - pooled sample	(2) Expected max. income choice - gender diff.	(3) Expected max. income choice - women	(4) Expected max. income choice - men
FL Priming	−0.063***	−0.027	−0.026	−0.088***
	(0.018)	(0.028)		
Male	−0.153***	−0.187***	−0.070**	(0.027)
FL Priming#Male	(0.035)	(0.037)	(0.033)	
Cognitive task 1*st*	0.048	0.048	0.054	0.021
	(0.036)	(0.037)	(0.077)	(0.024)
Constant	1.042***	1.041***	0.203***	0.891***
	(0.050)	(0.053)	(0.042)	(0.031)
Session FEs	Yes	Yes	Yes	Yes
Observations	368	368	352	352
Adjusted R-squared	0.155	0.151	0.150	0.161

Note: Clustered standard errors at the ward level in parentheses.*, **, *** denote significance at the 10 %, 5 % and 1 % levels respectively. The reported dependent variable is the likelihood of making the expected maximizing income choice (=1 if the participant chooses the task for which his/her expected income was higher). We control for the order of the tasks (Cognitive task 1st=1 if it was played in the first round) and for interview fixed effects. No other control variables are included.

Table A8
Heterogeneity priming effect.

	Pooled sample			Women			Men		
	Productivity 1st − 2nd round	*Income endog.*	*Endog. choice (Cognitive = 1)*	*Productivity 1st − 2nd round*	*Income endog.*	*Endog. choice (Cognitive = 1)*	*Productivity 1st − 2nd round*	*Income endog.*	*Endog. choice (Cognitive = 1)*
FL Priming	−0.118	−0.218**	−0.088**	−0.267***	−0.226**	−0.098	0.046	−0.149	0.047
	(0.070)	(0.073)	(0.035)	(0.060)	(0.099)	(0.061)	(0.096)	(0.136)	(0.057)
Cognitive 1*st*	0.003	−0.080	0.040	−0.758***	−0.185**	0.090	0.786***	0.081	−0.051
	(0.186)	(0.070)	(0.083)	(0.174)	(0.077)	(0.123)	(0.140)	(0.134)	(0.072)
FL Priming#Cognitive 1st	0.119	0.163*	0.053	0.329**	0.172	0.152	−0.093	0.111	0.085
	(0.150)	(0.090)	(0.083)	(0.135)	(0.099)	(0.098)	(0.226)	(0.158)	(0.101)
2nd round	0.016			−0.663***			0.649***		
	(0.145)			(0.134)			(0.131)		
FL Priming#2nd round	0.053			0.156			−0.076		
	(0.147)			(0.101)			(0.130)		
Cognitive 1st#2nd round	0.001			1.310***			−1.255***		
	(0.325)			(0.248)			(0.231)		
FL Priming#Cognitive 1*st* #2*nd* round	−0.005			−0.157			0.132		
	(0.239)			(0.188)			(0.259)		
Male	−0.178*	0.278**	−0.160***						
	(0.093)	(0.103)	(0.028)						
Constant	−0.312*	−0.791***	1.084***	0.308***	0.259***	0.283***	−0.917***	−0.691***	0.919***
	(0.146)	(0.133)	(0.047)	(0.067)	(0.059)	(0.068)	(0.094)	(0.141)	(0.033)
Observations	1440	720	720	706	353	353	734	367	367
Adjusted R-squared	0.025	0.017	0.054	0.110	0.005	0.044	0.139	0.017	0.004
Controls	No	No	No	No	No	No	No	No	No

Note: Clustered standard errors at the ward level are reported in parentheses. *, **, and *** denote significance at the 10 %, 5 %, and 1 % levels, respectively. The dependent variables reported are the standardized income values earned in the exogenous and endogenous tasks, and the endogenous choice, respectively, separated for the pooled sample (columns 1, 2, and 3), women (columns 4, 5, and 6), and men (columns 7, 8, and 9). We interact the treatment variable (FL Prming) with the order of randomization of the task in the first two rounds of the effort task (Cognitive 1st). We control for interview-fixed effects. No additional control variables are included.

Table A9
Impact of the family load on total income by order of the tasks.

	Pooled sample		Women		Men	
	(1) Total income	(2) Total income	(3) Total income	(4) Total income	(5) Total income	(6) Total income
FL Priming	−0.094	−0.176**	−0.105	−0.204*	−0.040	−0.087
	(0.059)	(0.073)	(0.074)	(0.118)	(0.130)	(0.132)
Cognitive 1*st*		−0.014		−0.137		0.171
		(0.099)		(0.116)		(0.165)
FL Priming#Cognitive 1st		0.160		0.206		0.076
		(0.126)		(0.171)		(0.203)
Male	0.254**	0.259**				
	(0.107)	(0.105)				
Constant	−0.964***	−1.032***	−0.016	0.048	−0.763***	−0.964***
	(0.131)	(0.123)	(0.031)	(0.072)	(0.130)	(0.193)
Observations	720	720	353	353	367	367
Adjusted R-squared	0.017	0.017	−0.000	−0.002	0.055	0.058
Controls	No	No	No	No	No	No

Note: Clustered standard errors at the ward level are reported in parentheses. *, **, and *** denote significance at the 10 %, 5 %, and 1 % levels, respectively. The dependent variables reported are the standardized income values earned in the exogenous and endogenous tasks, separated for the pooled sample, women, and men. In columns 2, 4, and 6, we control for the order of the tasks (Cognitive task 1st = 1 if it was played in the first round) and for interview fixed effects. No additional control variables are included.

Data availability

Data will be made available on request.

References

Adams-Prassl, A., Hara, K., Milland, K., Callison-Burch, C., 2023. The gender wage gap in an online labor market: the cost of interruptions. Rev. Econ. Stat. 1–23.
Adato, M., Carter, M.R., May, J., 2006. Exploring poverty traps and social exclusion in south africa using qualitative and quantitative data. J. Dev. Stud. 42 (2), 226–247.
Agwaya, R., Mairura, S., 2019. Gender Productivity Gap in Kenyan informal Enterprises. Kenya Institute for Public Policy Research and Analysis.
Balboni, C., Bandiera, O., Burgess, R., Ghatak, M., Heil, A., 2022. Why do people stay poor? Q. J. Econ. 137 (2), 785–844.
Banker, S., Bhanot, S.P., Deshpande, A., 2020. Poverty identity and preference for challenge: evidence from the us and india. J. Econ. Psychol. 76, 102214.
Barrett, C.B., Marenya, P.P., McPeak, J., Minten, B., Murithi, F., Oluoch-Kosura, W., Place, F., Randrianarisoa, J.C., Rasambainarivo, J., Wangila, J., 2006. Welfare dynamics in rural kenya and madagascar. J. Dev. Stud. 42 (2), 248–277.
Blau, F.D., Kahn, L.M., 2017. The gender wage gap: extent, trends, and explanations. J. Econ. Lit. 55 (3), 789–865.
Callen, M., Isaqzadeh, M., Long, J.D., Sprenger, C., 2014. Violence and Risk Prefer- ence: experimental Evidence from Afghanistan. Am. Econ. Rev. 104 (1), 123–148.
Ciciolla, L., Luthar, S.S., 2019. Invisible household labor and ramifications for adjust- ment: mothers as captains of households. Sex. Roles. 81 (7–8), 467–486.
Cohn, A., Maréchal, M.A., 2016. Priming in economics. Curr. Opin. Psychol. 12, 17–21.
Cook, C., Diamond, R., Hall, J.V., List, J.A., Oyer, P., 2021. The gender earnings gap in the gig economy: evidence from over a million rideshare drivers. Rev. Econ. Stud. 88 (5), 2210–2238.
Dalton, P.S., Nhung, N., Rüschenpöhler, J., 2020. Worries of the poor: the impact of financial burden on the risk attitudes of micro-entrepreneurs. J. Econ. Psychol. 79, 102198.
Daminger, A., 2019. The cognitive dimension of household labor. Am. Sociol. Rev. 84 (4), 609–633.
de Bruijn, E.-J., Antonides, G., 2021. Poverty and economic decision making: a review of scarcity theory. Theory Decis. 1–33.
Dean, L., Churchill, B., Ruppanner, L., 2022. The mental load: building a deeper theoretical understanding of how cognitive and emotional labor over load women and mothers. Community, Work G Family 25 (1), 13–29.
Economides, M., Martman, J., Bell, M.J., Sanderson, B., 2018. Improvements in stress, affect, and irritability following brief use of a mindfulness-based smartphone app: a ran- domized controlled trial. Mindfulness (N Y) 9 (5), 1584–1593.
Hale, J.B., Hoeppner, J.-A.B., Fiorello, C.A., 2002. Analyzing digit span components for assessment of attention processes. J. Psychoeduc. Assess. 20 (2), 128–143.
Haushofer, J., Fehr, E., 2014. On the psychology of poverty. Science (1979) 344 (6186), 862–867.
Jayachandran, S., 2015. The roots of gender inequality in developing countries. Annu. Rev. Econom. 7 (1), 63–88.
Kaur, S., Mullainathan, S., Oh, S., Schilbach, F., 2024. Do Financial Concerns Make Workers Less Productive? The Quarterly Journal of Economics, qjae038.
Kilic, T., Palacios-Lopez, A., Goldstein, M., 2015. Caught in a productivity trap: a distributional perspective on gender differences in malawian agriculture. World Dev. 70, 416–463.
Kleven, H., Landais, C., Posch, J., Steinhauer, A., Zweimüller, J., 2019. Child penalties across countries: evidence and explanations. In: AEA Papers and Proceedings, 109. American Economic Association 2014 Broadway, Nashville, TN, pp. 122–126. Suite 30537203.
Le Barbanchon, T., Rathelot, R., Roulet, A., 2021. Gender differences in job search: trading off commute against wage. Q. J. Econ. 136 (1), 381–426.
Maccini, S., Yang, D., 2009. Under the Weather: health, Schooling, and Economic Consequences of Early-Life Rainfall. Am. Econ. Rev. 99 (3), 1006–1026.
Maina, L.W., Kimani, E., Azevedo, A., Parkes, A., Ndinda, L., 2019. Gendered Patterns of Unpaid Care and Domestic Work in the Urban Informal Settlements of Nairobi, Kenya: Findings from a Household Care survey–2019. Oxfam.

Manda, D.K., Mwakubo, S., 2014. Gender and economic development in africa: an overview. J. Afr. Econ. 23 (suppl 1), i4–i17.
Mani, A., Mullainathan, S., Shafir, E., Zhao, J., 2013. Poverty Impedes Cognitive Func- tion. Science (1979) 341 (6149), 976–980.
Mukasa, A.N., Salami, A.O., 2015. Gender Productivity Differentials Among small- holder farmers in africa: A cross-Country Comparison. African Development Bank Abidjan.
Offer, S., 2014. The costs of thinking about work and family: mental labor, work–family spillover, and gender inequality among parents in dual-earner families. In: Sociological Forum, 29. Wiley Online Library, pp. 916–936.
Offer, S., Schneider, B., 2011. Revisiting the gender gap in time-use patterns: mul- titasking and well-being among mothers and fathers in dual-earner families. Am. Sociol. Rev. 76 (6), 809–833.
Oloo, R., Parkes, A., 2021. Addressing unpaid care and domestic work for a gender- equal and inclusive kenya. Oxfam.
Palacios-López, A., López, R., 2015. The gender gap in agricultural productivity: the role of market imperfections. J. Dev. Stud. 51 (9), 1175–1192.
Palermo, T., Brian, J.H., Cristina, C., Tanzania PSSN Youth Study Evaluation Team, Tanzania Adolescent Cash Plus Study Team, Ghana LEAP 1000 Evaluation Team in Acknowledgement, 2020. Enhanced life distress inventory: Development and validation in two African countries. British Journal of Health Psychology 25 (3), 728–753.
Petrongolo, B., Ronchi, M., 2020. Gender gaps and the structure of local labor markets. Labour Econ. 64, 101819.
Randles, J., 2021. willing to do anything for my kids": inventive mothering, diapers, and the inequalities of carework. Am. Sociol. Rev. 86 (1), 35–59.
Ridley, M., Rao, G., Schilbach, F., Patel, V., 2020. Poverty, depression, and anxiety: causal evidence and mechanisms. Science (1979) 370 (6522).
Schilbach, F., Schofield, H., Mullainathan, S., 2016. The Psychological Lives of the Poor. Am. Econ. Rev. 106 (5), 435–440.
Shah, A.K., Mullainathan, S., Shafir, E., 2012. Some consequences of having too little. Science (1979) 338 (6107), 682–685.
Shah, A.K., Shafir, E., Mullainathan, S., 2015. Scarcity Frames Value. Psychol. Sci. 26 (4), 402–412.
Shreekumar, A. and Vautrey, P.-L. (2022). Managing emotions: the effects of online mind- fulness meditation on mental health and economic behavior. Technical report.
Singbo, A., Njuguna-Mungai, E., Yila, J., Sissoko, K., Tabo, R., 2021. Examining the gender productivity gap among farm households in mali. J. Afr. Econ. 30 (3), 251–284.
Wanjala, B.M., Were, M., 2009. Gender disparities and economic growth in kenya: a social accounting matrix approach. Fem. Econ. 15 (3), 227–251.
Wayne, J.H., Mills, M.J., Wang, Y.-R., Matthews, R.A., Whitman, M.V., 2023. Who's remembering to buy the eggs? the meaning, measurement, and implications of invisible family load. J. Bus. Psychol. 1–26.
Zook, N.A., Davalos, D.B., DeLosh, E.L., Davis, H.P., 2004. Working memory, inhi- bition, and fluid intelligence as predictors of performance on tower of hanoi and london tasks. Brain Cogn. 56 (3), 286–292.