INTERNATIONAL FOOD POLICY RESEARCH INSTITUTE

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CGIAR MULTIFUNCTIONAL LANDSCAPES

IFPRI Discussion Paper 02398

December 2025

Breadwinner Role and Economic Decision-Making

Experimental Evidence from Kenya

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ABSTRACT

In several countries and settings, especially in low- and middle-income countries, men are expected to act as primary economic providers for their households, bearing the psychological and social burdens associated with this role. Despite its potential consequences, the effects of the breadwinner role on economic decision-making are understudied, particularly among poor households. This study investigates how gendered breadwinner expectations shape economic behavior in rural Kenya. Using a lab-in-the-field experiment among 400 smallholder farmers in Vihiga County, we test how psychological and social pressures associated with being the breadwinner of the family influence decision-making in both individual work choices and collective decisions. Participants completed a real-effort task choosing either a high-effort, high-reward option or a low-effort, low-reward alternative, followed by a public goods game framed around communal seed bank contributions. Results reveal that the heightened strain of the main breadwinner led male participants to reduce contributions to the communal seed bank by 0.2 standard deviations, while it did not affect their productivity in the real-effort task. These behavioral shifts suggest that the psychological consequences of breadwinner strain can undermine cooperation and the adoption of sustainable agriculture practices. Addressing the pressures of breadwinning can foster both economic resilience and social cohesion.

Keywords: Gender norms, breadwinner, poverty, cooperation, decision-making

ACKNOWLEDGMENTS

This work was undertaken as part of the CGIAR Science Program on Multifunctional Landscapes that supports sustainable and diverse eco-agrifood systems, resilient livelihoods and healthy diets while remaining within planetary boundaries. We would like to thank all funders who supported this research through their contributions to the CGIAR Trust Fund: https://www.cgiar.org/funders/.

We would like to thank farmers who participated in this study and the Kula Vyema Centre of Food Economics (KVC) team for the excellent support in the data collection. We thank Sergiu Burlacu for his valuable design advice and Almudena Claassen for insightful conversations throughout the development of this work. We are also grateful to our colleagues at ISDC Berlin and to the participants of the *Fragile Lives 2025 Conference* for their helpful feedback. The opinions expressed in this publication are those of the authors and do not necessarily reflect the views of CGIAR.

Tables

Figures

1. Introduction

A growing body of evidence in sociological and psychological literature documents that traditional masculinity norms, that is, shared beliefs about what men should do and how they should behave, impose a substantial psychological burden on men, with negative consequences to their wellbeing and behaviors (Bosson & Vandello, 2011; Mahalik et al., 2003; Wong et al., 2017). Among these norms, the breadwinner norm—the expectation that men should be the primary economic providers for their households—is one of the most pervasive and enduring worldwide (De Haas et al., 2025). When individuals are unable to meet this expectation, they may experience breadwinner strain, a form of mental and emotional stress arising from perceived failure to fulfill provider responsibilities. While both men and women can experience this strain, the social prescription of male breadwinning makes this burden particularly acute for men, and it is often associated with anxiety, frustration, and poorer mental health (Mahalik et al., 2007; Righetto & Vitellozzi, 2025).

In low-income settings, the daily challenge of meeting basic needs amplifies the psychological cost of the provider role (Pereira et al., 2023). For many men living in poverty, the inability to provide can threaten self-worth and generate persistent worry about household finances, coupled with feelings of social pressure and perceived failure (Fast et al., 2020; Pereira et al., 2023). Such worries may occupy mental bandwidth and deplete cognitive and emotional resources, consistent with evidence from the scarcity literature showing that poverty imposes not only material but also psychological costs, directly affecting decision-making processes (Ridley et al., 2020; Schilbach et al., 2016). Despite its potentially important implications, available literature has largely overlooked the economic consequences of breadwinner strain.

In this study, we investigate the gender-differentiated effect of breadwinner strain on economic decision-making, focusing on outcomes that span both individual and collective dimensions. We frame the study in the context of smallholders' participation in community seedbanks in Kenya, a setting where cooperation and sustained effort are key to collective resource management. Behavioral development literature has documented that low participation in collective resource systems and technology adoption often stems

from limited attention and present bias (Kremer et al., 2019). We also know that when individuals lack the cognitive resources to make a rational decision, they may rely on "fast and frugal" cognitive shortcuts that may not always be optimal (Cordaro & Desdoigts, 2021; Ronzani et al., 2018).

Building on these insights, we argue that, as in the documented case of scarcity (de Bruijn & Antonides, 2021; Burlacu et al., 2023), by worrying about meeting household financial responsibilities salient in individuals' minds, the breadwinner strain can affect both individual and pro-social behavior, and productivity.[1] Specifically, we hypothesize that strain associated with provider expectations may lead individuals to prefer less demanding but less financially rewarding tasks, resulting in lower productivity, and may lead to the adoption of risk-coping strategies which reduce pro-social behavior, measured by contributions to community seedbanks. While breadwinner strain may affect anyone who identifies with the provider role, we expect its effects to be particularly pronounced among men, and especially household heads, rather than women, who face stronger societal expectations to fulfill it.

We tested these hypotheses with a lab-in-the-field experiment conducted among men and women smallholder farmers in Vihiga County, Kenya, in which we exogenously exposed half of the participants to narratives and open-ended questions designed to make breadwinner strain more salient (e.g., Callen et al., 2014). These narratives provide a relatable example of the breadwinner role and describe the financial and social responsibilities that come with being the household provider, thereby temporarily activating breadwinner-related concerns among treated participants (Cohn & Maréchal, 2016). Participants in the control group instead were exposed to neutral narratives unrelated to provider responsibilities.

Following the manipulation, all participants were required to express their preference between an easy, less rewarding task and a harder, more cognitively demanding task. They then completed one of the two incentivized tasks at random to measure productivity and earnings. Furthermore, participants decided

[1] Importantly, breadwinner strain differs from simple financial worries because it encompasses a strong social and identity-based component. Financial worries concern the lack of resources to meet basic needs, whereas breadwinner strain arises from the expectation that men should be the main providers for their families. When unable to fulfill this expectation, men may not only experience economic stress but also a sense of failure to live up to their prescribed social role, leading to psychological pressure and social stigma beyond material concerns.

whether and how much to contribute to a communal seed bank in a standard public goods game, as a behavioral measure of pro-sociality.

We find that the breadwinner-strain treatment has no significant effect on individual decision-making, nor on individual productivity in the real-effort task. However, when examining pro-sociality, we observe that treated men contribute 0.2 standard deviations (SDs) less to the community seedbank. This effect is robust to the inclusion of controls and is mediated by participants' anxiety levels: among treated men, those reporting higher anxiety symptoms are substantially less likely to contribute than those with low anxiety symptoms. No statistically significant differences emerge between men and women overall, suggesting that women may also be affected by provider worries but that the treatment effect is weaker among them—consistent with social norms assigning primary provider responsibilities to men.

We contribute to the literature in several ways. First, we add a gendered dimension to the growing literature on the psychology of poverty. While this literature emphasizes how financial concerns affect, among others, cognition, attention, decision-making, and productivity (Burlacu et al., 2023; Haushofer & Fehr, 2014; Kaur et al., 2025; Mani et al., 2013; Ridley et al., 2020; Schilbach et al., 2016; Shah et al., 2015), it has largely overlooked how these mechanisms intersect with social expectations about gender roles. We extend this literature by focusing on the breadwinner strain that captures how cognitive and emotional resources are consumed not only by actual scarcity but also by the anticipation or fear of failing to meet provider obligations. In this sense, our work complements studies of women's mental load (Vitellozzi et al., 2025), showing that gendered expectations impose psychological costs on both sides of the gender divide. By bringing a gendered perspective to the scarcity framework, we highlight that the psychological consequences of poverty are not only a function of material deprivation but also have a social and context-specific component. Moreover, we extend the scarcity theory focus to pro-social decision-making. While prior work has primarily examined how scarcity affects individual choices and preferences, its implications for social preferences and cooperative behavior remain largely unexplored (Haushofer & Salicath, 2023). Existing evidence on altruism, trust, and norm enforcement under scarcity is limited and mixed, offering little insight into how economic strain affects the willingness to act

collectively (Bartoš, 2021; Boonmanunt et al., 2020). By showing that this strain reduces contributions to a shared resource, we highlight a novel channel through which psychological and social constraints can affect collective action.

Second, the paper contributes to the gender norms literature, which has traditionally focused on the constraints that norms impose on women while treating men's behavior as the neutral benchmark. As Lundberg (2023) and De Haas et al. (2025) emphasize, this asymmetry overlooks the fact that men's economic behaviors, preferences, and roles are also socially constructed. By centering on masculinity norms, and in particular the expectation that men should act as primary financial providers, we offer evidence that male identity pressures shape economic behavior and that these effects operate partly through psychological anxiety. In doing so, the paper advances a more comprehensive understanding of how gender norms influence economic outcomes, highlighting that restrictive expectations related to the breadwinner role can generate psychological strain and efficiency losses at the community and agricultural levels.

Lastly, we contribute to the behavioral development economics literature (Kremer et al., 2019) by examining how breadwinner strain influences cooperation in community resource systems. In settings where investment in collective goods or technologies requires attention, trust, and intertemporal foresight, poverty and psychological stress can jointly distort decision-making by narrowing attention to immediate needs and reducing willingness to bear short-term costs for future gains (Haushofer & Fehr, 2014; Haushofer & Salicath, 2023; Kremer et al., 2019). Our findings build on this insight by showing that breadwinner strain has similar consequences: it reduces participation in communal seedbanks, an investment for future agricultural sustainability. This pattern reveals a previously overlooked psychological channel linking gender norms to underinvestment in shared productive activities, with potential implications for technology adoption, sustainable resource management, and resilience to climate shocks.

2. Methodology

Study setting

The study was implemented in Vihiga County, in the Western region of Kenya, as part of the CGIAR Science Program on Multifunctional Landscapes. The program promotes novel, diverse, and healthy landscapes managed holistically to support sustainable and equitable agrifood systems as well as resilient livelihoods in several Kenyan counties, including Vihiga, Kisumu, and Makueni. Within this framework, our study contributes to understanding how social norms—particularly the breadwinner norm—affect men's wellbeing, productivity, and participation in collective mechanisms for agricultural resilience such as community seedbanks.

Vihiga County is a densely populated rural area where over 70 percent of households rely on small-scale farming for income and subsistence. Agriculture is the principal source of livelihood, yet limited infrastructure and market access constrain productivity and household earnings. Roughly half of the population lives below the national and international poverty lines. Farmers face increasingly frequent climate shocks—irregular rainfall, prolonged dry spells, and pest outbreaks—that threaten crop yields and food security (Kotir, 2011).

In this context, community seedbanks play an important role as local institutions that conserve, multiply, and share seeds among farmers, helping them adapt to climatic risks and maintain crop diversity. Seedbanks function through collective action: members contribute seeds, labor, or financial resources and, in return, access stored varieties during future planting seasons or following shocks. Participation therefore requires trust, cooperation, and a willingness to delay immediate benefits in favor of longer-term community and household resilience (Vernooy et al., 2017).

The experiment was conducted among 420 smallholder farmers in Vihiga County located in areas covered by the Multifunctional Landscapes Program, but targeting those who were not members of local community seedbanks. This allowed us to engage participants who understood how seed banks operate while reducing potential biases linked to direct participation in them.

Experimental design

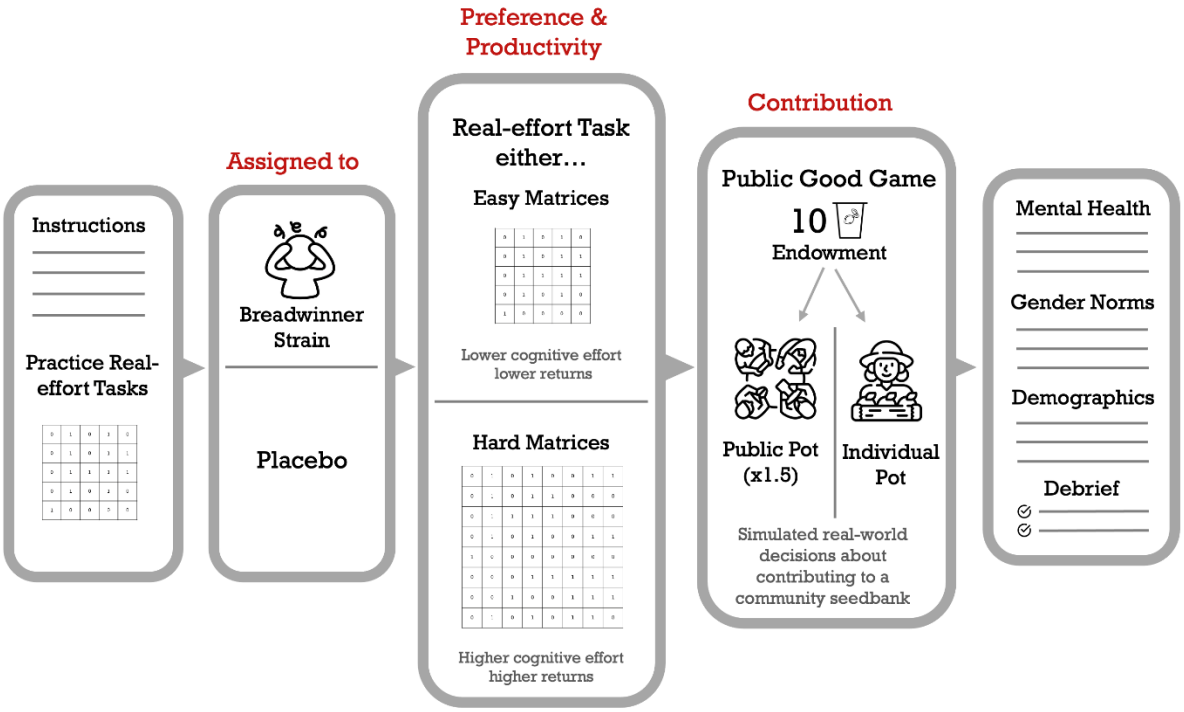
The lab-in-the-field experiment was conducted in July 2025, following ethical approval from the African Medical and Research Foundation (AMREF) Health Africa Ethics and Scientific Review Committee (ESRC) and the Kenyan National Commission for Science, Technology & Innovation (NACOSTI). Each experimental session lasted approximately 45 minutes.[2]

Participants earned an average of 520 KSH (approximately US$4) from the experiment, comprising a show-up fee of 200 KSH to cover travel expenses, plus earnings from the experiment. This amount roughly corresponds to the daily earnings of an unskilled worker in the area.

Recruitment took place via phone calls. We randomly selected a total of 420 male and female smallholder farmers from an existing registry of farmers of Vihiga's Community Health Volunteers. The sample consists of married, cohabiting couples or single individuals with at least one child under the age of 18 years. We restricted the sample to household heads and their spouses to target individuals more likely to experience breadwinner strain. Only one individual per household was sampled for feasibility and ethical reasons: interviewing both spouses would have been logistically difficult and could have created unintended tension between them. All participants were informed about the study's purpose, compensation structure, and confidentiality guarantees before providing informed consent. All responses were recorded electronically using data-entry software package. Assignment to the treatment or control group was randomized by the survey software to ensure full randomization at the individual level. After giving their informed consent, participants were informed by the enumerators about the rules of the experiment. Then, based on their reference group (i.e., treatment or control), they were exposed to slightly different activities (see Figure 1).

[2] The experiment was pre-registered (https://osf.io/g3uka) and replication material is publicly available (https://osf.io/d57e8).

Figure 1: A flowchart describing the experimental procedure



Note: This is a flowchart showing the five key stages of the experimental design. Panel 1: Participants read the instructions and familiarize themselves with the two real-effort tasks. Panel 2: Participants are randomly assigned to either the treatment condition (i.e., breadwinner strain is made salient) or the placebo condition (i.e., participants are exposed to a neutral narrative). Panel 3: Participants state their preference for either solving the easy or hard matrix task, after which they are randomly assigned to complete one of the two. Panel 4: Participants read the PGG instructions and decide how much to contribute to the public good. Panel 5: Participants complete a survey on their mental well-being, beliefs about gender roles and demographics.

Co-Design and Cultural Adaptation

Prior to implementation, the experimental procedure underwent a two-phase co-design and adaptation process to ensure cultural and contextual relevance.

In the first phase, we collaborated closely with enumerators from Western Kenya who participated in a three-day workshop. Enumerators contributed to refining the narrative tone, language, and framing of the treatment materials to align with locally meaningful expressions of financial responsibility and family provision. Their insights helped us capture the subtle, everyday forms that breadwinner pressures take in the rural context in Vihiga.

In the second phase, we conducted two semi-structured focus group discussions—one composed exclusively of male farmers and the other of female farmers—from Vihiga County. These sessions were

used to pre-test and further adapt both the narrative stimuli and survey instruments. The discussions ensured that our materials were both understandable and resonant with participants' lived experiences, while also avoiding framing that could induce unnecessary discomfort or bias.

Treatment

The treatment consisted of an experimental manipulation designed to temporarily increase the salience of household financial responsibilities and provider-related pressures (Callen et al., 2014; Cohn & Maréchal, 2016; Mani et al., 2013). Specifically, participants in the treatment group were presented with a short narrative describing the daily challenges and worries of managing household financial obligations under uncertainty. The scenario was structured to elicit reflection on the emotional and cognitive burden associated with the family's economic provision and the social pressure related to such economic provision, without explicitly referring to gender or social norms. Participants in the control group received a neutral narrative of similar length and tone, describing a typical day in the village unrelated to financial or family concerns.

This manipulation allows us to causally identify how the activation of financial responsibility pressures influences effort allocation, productivity, and cooperation in a rural, low-income context—extending evidence from behavioral economics on the interaction between psychological stress and economic decision-making (Mani et al., 2013; Diamond, 2013; Haushofer & Fehr, 2014; Schilbach et al., 2016).

Narrative

Participants in the treatment group read (or listened to) a short narrative describing an everyday situation about *Maloba* or *Mary* (depending on the participant's gender), a smallholder farmer who struggles to meet household financial expectations due to poor harvests, delayed school fee payments, and community pressure to contribute to collective activities, such as a funeral. The story is written in Swahili and delivered in a neutral tone but highlights the stress, anxiety, and sense of failure associated with being unable to provide for the family.

Treatment narrative:

"Mary/Maloba woke before dawn to the rooster's call, but today s/he did not rise with hope. Lying on the bed, s/he stared at the roof as worry filled her/his mind. How will I feed my family? Outside, her/his small maize farm struggled—the rains were late and the fall armyworm had damaged the crop. Last term, s/he delayed paying school fees, and the deadline is next week. As Mary/Maloba walked through the village, s/he overheard neighbors gossiping about her/his contribution to community activities: 'Mary/Maloba thinks s/he can skip her/his part, but everyone must contribute.' That night, Mary/Maloba sat by herself/himself, burdened by the heavy responsibility of being the provider and wondering, 'Am I failing my family?'"

After hearing or reading the narrative, participants were asked:

"How much do you identify with Mary/Maloba's situation?" (1 = Not at all; 5 = Very much)

"Which aspect of Mary/Maloba's story do you identify with most, and why?"

Reflection question

Immediately after the story, participants were prompted to reflect on whether they had ever experienced similar situations and how these affected their emotions or daily decisions. The enumerator read the following statement aloud:

"Many people who take on the responsibility of providing for their household find that these duties are always on their mind. Whether it's ensuring school fees are paid, making sure there's food on the table, or handling unexpected expenses, these concerns don't always stop when the workday ends. Family members and even the community may have expectations about what it means to be a 'good' provider. Some also feel that openly struggling financially may lead others to question their ability to manage their household."

Participants were then asked to respond to two questions:

"How much do you find yourself thinking about these responsibilities throughout the day?" (1 = Not at all; 5 = Very much)

"How do these expectations and concerns affect your focus, emotions, or energy?" (open-ended).

Placebo (Control condition)

Participants in the control group were exposed to a neutral narrative describing Maloba or Mary's daily life in the village without any mention of economic difficulties or family pressures. Though neutral, the story matched the treatment in length, delivery method, and structure to ensure comparable cognitive engagement and reading time.

Control narrative:

"Mary/Maloba woke before dawn to the rooster's call. Lying on the bed, s/he listened to the quiet sounds of the morning. Outside, the air was cool, and the first light was beginning to show. With hope, s/he stepped out to check the maize plot, noticing that it was growing well. Afterward, Mary/Maloba greeted neighbors walking through the village and joined a community meeting to solve a small problem. That evening, Mary/Maloba sat by herself/himself, thinking about the routines of village life."

After the story, participants were asked the following:

- "How much did you identify with Mary/Maloba?" (1 = Not at all; 4 = Very much)
- "How much did you enjoy the story?" (1 = Not at all; 4 = Very much)
- "Do you often think about these day-to-day activities?" (Yes/No)

And then asked them to answer the following question:

"Many people begin their day early, often with the sound of roosters crowing or birds calling from nearby trees. The morning air tends to be cool, and the rising sun casts long shadows across the fields and compounds. Some people walk to collect water, while others sweep their yards or prepare morning tea. Throughout the day, while going to the farm, neighbors may greet each other while passing on village paths or stopping briefly to chat. In the evening, the scent of cooking fills the air, and families gather as the sky begins to darken."

Participants were then asked to respond to the following question:

"Do you find yourself thinking about these day-to-day activities often?" Yes/No

This ensured that all participants, regardless of treatment condition, were exposed to a similar reading and reflection experience, differing only in emotional and normative content.

Tasks

After being exposed to the treatment or control narrative, participants completed a sequence of incentivized behavioral tasks designed to measure a) economic decision-making (the preference for a lower-reward, lower-effort task versus a higher-reward, higher-effort task); b) productivity (the earnings gained from performing one of the two incentivized tasks); and c) pro-social decision (contribution to a seedbank).

The first task consisted of choosing between two versions of a counting task that differed in difficulty and reward. The easier task involved counting the zeros in a 5×5 matrix and offered a reward of 5 KSH for each correct answer, while the more difficult task involved counting the zeros in an 8×8 matrix and offered a reward of 15 KSH for each correct answer (Figure 6 and Figure 7 in the Appendix). At this stage, each participant was only asked to choose the task they preferred, not to actually do it. The exact words were: "If you had the chance today to choose the task you would prefer to do, which task would it be?" This initial choice was intended to capture the participants' economic preferences, that is, their inclination toward options that require little effort but offer a low reward compared to those that require more effort but offer a higher reward. Before making a decision, all participants completed short, unpaid trial rounds of both tasks to ensure they fully understood them.

The second task required participants to concretely exert cognitive effort. Each participant was randomly assigned to complete one of the two tasks (easy but low-rewarding or difficult but higher-rewarding), for four minutes, regardless of which one they had previously chosen. Not everyone was given the same task because, to obtain an exogenous measure of productivity, the task played was randomly assigned regardless of the participant's initial choice. This allowed us to separate the effect of breadwinner strain on productivity (effort and performance) from its potential influence on task choice. Productivity was recorded as the number of correctly completed matrixes within the time limit, multiplied by the corresponding payoff per matrix.

The last task involved a public goods game (PGG) that simulated real-world decisions about contributing to a community seedbank (see Figure 2). Each participant received an initial endowment of 10 cups of

cowpeas seeds, valued according to the local market price. They could choose how many cups to keep for themselves and how many to contribute to the communal seedbank. In the game, the seedbank's community was composed of themselves and three other unknown members of the community. Contributions were pooled and multiplied by 1.5 to reflect the collective benefits of cooperation and shared risk, and the resulting total was then equally redistributed among all members, regardless of individual contribution.[3] The PGG thus provided a behavioral measure of participants' willingness to cooperate and invest in collective resilience, capturing their propensity to favor long-term, community-oriented outcomes over immediate personal gain.

Figure 2: An infographic shown to participants to explain the public goods game

Note: In the public goods game, each participant started with 10 cups of cowpea seeds and decided how many to keep and how many to contribute to the communal seedbank. Contributions were pooled, increased by 50 percent, and then shared equally among all participants.

Together, these three tasks allowed us to examine how the salience of breadwinner strain affects men's and women's economic decision-making, effort, productivity, as well as cooperative behavior, by

[3] Because it was not feasible to match participants' contributions in real time, we randomly selected the contributions of three farmers from the pilot data and then matched them with each participant's contribution.

providing a behavioral test of the psychological and social mechanisms through which economic stress and gender norms shape development outcomes.

Research Hypotheses

Based on our experimental design, we tested five main research hypotheses:

- **H1.** Exposure to breadwinner strain will alter participants' task preference, affecting the likelihood of selecting the low-effort, low-reward task rather than the high-effort, high-reward task.
- **H2.** Exposure to breadwinner strain will reduce productivity in the real-effort task, irrespective of which task participants are randomly assigned to play.
- **H3.** Exposure to breadwinner strain will lower contributions to the communal seedbank in the public goods game, reflecting reduced willingness to engage in cooperative and long-term potentially welfare-enhancing choices and risk-sharing strategies.
- **H4.** These effects are stronger among men than among women, given that men are more likely to identify themselves as the breadwinners with the associated anxiety. We further explored whether the effects of the treatment vary by participants' psychological characteristics.
- **H5.** The treatment effects will be more pronounced among individuals with psychological anxiety, as limited psychological resilience amplifies the strain of provider-related pressures.

Data

Main outcome variables

Our analysis focuses on three primary behavioral outcomes. The variables are constructed as follows:

- **Individual decision-making** is measured as a binary variable indicating whether participants selected the high-effort, high-reward task (the 8×8 zero-counting matrix) rather than the low-effort, low-reward task (the 5×5 matrix). This outcome captures participants' willingness to engage in cognitively demanding but potentially more rewarding activities.

- **Productivity** is measured as the number of correctly completed matrices in the assigned real-effort task, multiplied by the per-item payoff (5 KSH for the easy task and 15 KSH for the hard task).
- **Cooperation/pro-social decision-making** is measured as the number of cups of seeds (from 0 to 10) contributed to the communal seedbank in the PGG. Contributions were pooled, multiplied by 1.5 to represent the collective return to cooperation, and then equally redistributed among all participants.

We complemented these behavioral outcomes with several individual-level covariates, namely psychological anxiety and mental wellbeing variables, the breadwinner role strain, individual beliefs about men's role in family and society, masculinity norms, and sociodemographic characteristics. Mental health was proxied using two standardized instruments: the WHO-5 Wellbeing Index, which measures positive effect, and the GAD-7 scale, which measures anxiety. The WHO-5 ranges from 0 to 100, with scores below 50 indicating poor mental wellbeing ($\alpha = 0.695$). The GAD-7 ranges from 0 to 20, with scores of 15 or higher indicating severe anxiety symptoms ($\alpha = 0.805$). Breadwinner strain is measured through a 4-item scale, ranging between 5 and 20, capturing perceived stress, exhaustion, and pressure to fulfill provider expectations, with higher scores indicating higher strain ($\alpha = 0.726$). Masculinity norms and beliefs are measured using items adapted from the Masculine Gender Role Dogmatism Inventory (MGDI) and locally validated statements about provider roles ($\alpha = 0.648$). Demographic controls include age, education, household size, number of dependents, asset ownership (Principal Component Analysis (PCA)-based index), and self-reported financial stress. All continuous outcomes are standardized to mean zero and unit variance for ease of interpretation.

Descriptive statistics

Table 1 reports descriptive statistics for the study sample. The average respondent is approximately 46 years old, with a median of 46 years and a range from 20 to 70. Education levels are modest on average (mean ≈ 2.47 on a 1–4 scale), and half of respondents are male (50.6 percent). The majority are married

(83 percent). Households are relatively large, with an average household size of 5.8 members and a median of 5.

Table 1: Summary statistics of the sample

	Mean	SD	Median	Min	Max
Age	46.1	12.6	46	20	70
No formal education	.03	.17	0	0	1
Primary education	.55	.50	1	0	1
Secondary education	.33	.47	0	0	1
Tertiary education	.08	.28	0	0	1
Male	0.51	.50	1	0	1
Married	0.83	.37	1	0	1
Household size	5.75	2.22	5	2	20
N children < 5	0.89	1.07	1	0	11
N children < 18	2.04	1.39	2	0	7
N male members	2.78	1.35	3	0	10
N female members	2.97	1.67	3	0	11
Seed bank (knowledge of)	0.60	.49	1	0	1
Own land	0.91	.29	1	0	1
Asset index	-0.00	1.96	-.25	-3.95	12.21
N	*413*				

Notes: The table reports summary statistics for the main socio-demographic characteristics of the sample (N = 413). *Age* is measured in years. *No formal education* is a dummy variable equal to 1 if the respondent has never attended any formal education (2.9 percent). *Primary education* is a dummy variable equal to 1 if the respondent's highest completed level of schooling is primary education (55 percent). *Secondary education* is a dummy variable equal to 1 if the respondent's highest completed level of schooling is secondary education (32 percent). *Tertiary education* is a dummy variable equal to 1 if the respondent's highest completed level of schooling is tertiary education (8.4 percent). *Male* and *Married* are binary indicators equal to 1 for male and married respondents, respectively. *Household size* indicates the total number of household members. *N children <5* and *N children <18* denote the number of children under age five and under age eighteen in the household, respectively. *N male members* and *N female members* indicate the number of male and female household members. *Seed bank (knowledge of)* equals 1 if the respondent reports being aware of the community seedbank. *Own land* equals 1 if the respondent owns agricultural land. The *Asset index* is a standardized composite measure of household asset ownership, constructed via principal component analysis (PCA).

Participants report an average of 0.89 children under five and around two children under 18, consistent with high fertility settings. The average number of male and female household members is similar, at 2.78 and 2.97 respectively. Approximately 60 percent of respondents report knowledge of seed banks, and 91 percent own land. The asset index is centered around zero by construction and shows substantial variation, indicating heterogeneity in household wealth.

Table 2 presents descriptive statistics on gender norms and breadwinner-related beliefs among participants. Respondents rated each statement on a scale from 1 ("completely disagree") to 5 ("completely agree"). The results confirm that both men and women hold strong and deeply internalized

views about the male provider role and masculinity norms within their communities. Across nearly all items, mean responses are above 4, indicating widespread agreement that a "good man" is one who provides for his family, meets basic needs, and earns the respect of others through his role as a breadwinner.

Table 2: Mean difference tests in masculinity norms between women and men

	Female	Male	Diff.	P-value
Breadwinner strain scale	**13.52**	**12.28**	**1.24**	**.005**
Man primary provider of the family	**4.07**	**4.47**	**-.40**	**.001**
Provider meets basic family needs	4.64	4.68	-.04	.556
Women balance paid and unpaid work	**4.49**	**4.21**	**.28**	**.007**
Good provider respected by all	4.54	4.56	-.02	.858
Provider responsible for parents	4.44	4.50	-.06	.454
Real man does not accept failures	**4.57**	**4.11**	**.46**	**.000**
Man makes decision in the family	4.28	4.29	-.01	.946
Man does not show weakness	4.51	4.56	-.06	.536
Man does not back down	4.40	4.42	-.02	.855
Man controls his emotions	4.54	4.58	-.04	.573
N	*204*	*209*		

Note: The table presents mean difference tests of responses, measured on a five-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). The breadwinner strain scale is composed of the following items: *I feel emotionally exhausted by the responsibilities of earning; Financial responsibilities strain my relationship with my partner; I feel pressure to fulfill traditional expectations of the "provider" role; I feel constant stress about my ability to provide for my family.* Beliefs about the role of men and women in the society are measured through the following items: *A man should be the primary provider for his family; The provider should ensure that the family never lacks basic necessities; Women should balance paid and unpaid work; A good provider is respected by all; The provider should take on the responsibility of the parents.* Masculinity norms are measured through the following items: *A real man does not accept failures; The man makes the decisions in the family; Men should not show weakness; Being a man means never backing down from a challenge; A man should always be in control of his emotions.* Reported differences correspond to mean male–female differences, with standard errors in parentheses and *p*-values from two-sided t-tests for equality of means.

Interestingly, women report significantly higher scores on the breadwinner strain scale than men (13.5 vs. 12.3, $p = 0.005$). This difference likely reflects the gendered dynamics of emotional expression in the study area: while women may be more open in acknowledging financial stress, men are socialized to suppress emotional vulnerability—a common component of masculine identity. As a result, men's self-reported strain may underestimate the true psychological burden associated with breadwinner expectations. At the same time, men express stronger agreement with the statement that "a man should be the primary provider for his family" ($p = 0.001$), underscoring the strength of traditional provider norms. Women, by contrast, are more likely to agree that "women should balance paid and unpaid work" ($p =$

0.007), suggesting that they see women's economic participation as part of a broader household equilibrium, while men may not view women's earning role as equally necessary.

A notable gender difference also emerges for the item "a real man does not accept failures," with women rating this statement significantly higher than men ($p < 0.001$). This may indicate that women, too, uphold strong expectations of male performance and resilience, reinforcing the social pressures men face to avoid failure or vulnerability.

Overall, these findings illustrate that the social context of the study is well suited to investigating breadwinner strain. The results reveal a community where the provider role is both highly valued and socially policed—being a "good provider" is nearly unanimously associated with respect and social standing. This creates identity constraints and constant pressure on men to live up to the breadwinner ideal, making the setting ideal for studying how these norms shape economic behavior and cooperation.

Table 3 in the Appendix presents balance tests comparing baseline characteristics between the treatment and control groups. Across sociodemographic variables (gender, age, education, marital status, household size, number of children, household composition, land ownership, and asset index), we find no statistically significant differences between groups (all $p > 0.05$), indicating successful randomization on observable characteristics.

Similarly, there are no significant differences in baseline attitudes related to breadwinner norms, provider roles, emotional restraint, decision-making authority, or breadwinner strain (all $p > 0.05$). The only variable showing a marginal difference is *"Man does not show weakness"* ($p = 0.019$), with slightly higher endorsement in the treatment group; however, the magnitude is small and not directly related to any of the primary outcomes. Finally, mental health and anxiety scores are also balanced (both $p > 0.05$). Overall, these results suggest that the treatment and control groups are statistically comparable prior to the intervention, supporting the internal validity of the experimental design.

3. Empirical specification

To estimate the causal effect of the breadwinner strain prime on economic behavior, we exploit the random assignment of participants—temporary increase in the salience of household financial responsibilities through priming—to the treatment and control conditions. Randomization was conducted at the individual level and stratified by gender, and since the resulting assignment was exogenous, estimated differences in outcomes between groups can be interpreted as causal effects. We estimate the following main specification:

$$Y_{i,w} = \beta_0 + \beta_1 Treatment_{i,w} + \beta_2 Male_{i,w} + \beta_3 \left(Treatment_{i,w} \times Male_{i,w}\right) + \varepsilon_{i,w}$$

where $Y_{i,w}$ represents the outcome of participant *i* in ward *w*; $Treatment_{i,w}$ is a dummy equal to 1 if the participant was exposed to the breadwinner strain narrative; and $Male_{i,w}$ is a dummy equal to 1 if the participant is a man, 0 if she is a woman. The coefficient β_3 captures the sex-specific average treatment effect (ATE) of the breadwinner strain salience on each outcome of interest.

We then estimate an extended model including individual-level controls:

$$Y_{i,w} = \beta_0 + \beta_1 Treatment_{i,w} + \beta_2 Male_{i,w} + \beta_3 \left(Treatment_{i,w} \times Male_{i,w}\right) + \beta_4 X_{i,w} + \varepsilon_{i,w}$$

where $X_{i,w}$ is a vector of covariates including age, education, household size, and asset ownership.

Because participants were recruited from three distinct wards within Vihiga County, standard errors are clustered at the ward level. Clustering accounts for potential intra-ward correlation in outcomes, particularly in the PGG task, given that one of the three wards is geographically closer to the main seedbank. This proximity may influence social interactions and seedbank participation patterns, leading to correlated behavior among participants within the same ward.

Our binary outcome (task choice) is analyzed using a linear probability model (LPM), while continuous outcomes (productivity, contribution amount, total earnings) are estimated via ordinary least squares (OLS) with robust standard errors clustered by ward.

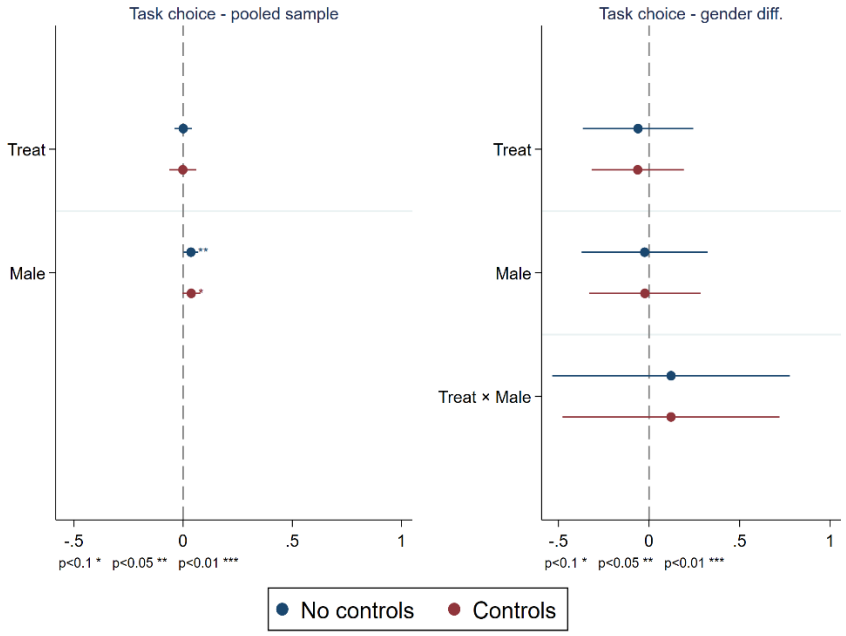
Following the pre-analysis plan, we first estimate the results for the pooled sample, that is, our main specification without the interaction term. We then explore potential mechanisms by examining whether

changes in psychological anxiety and mental wellbeing mediate the effect of the treatment on our outcomes of interest. More specifically, we replicate our benchmark strategy separately for men and women by interacting our treatment variable with two dummy variables that capture mental wellbeing and anxiety.

4. Results

Main analysis

Figure 3:Impact of breadwinner strain on individual decision-making



Note: Left panel reports treatment effects on productivity for the pooled sample, with and without control variables. Right panel reports treatment effects and gender differences, with and without control variables. Control variables include age, education, household size, and asset ownership. Standard errors are clustered at the ward level.

Individual decision-making (hypotheses H1 and H4)

Result #1. We find no statistically significant effect of the prime on task selection, either in the pooled sample or when estimating sex-specific effects (Figure 3). Treated participants are as likely as the control group to choose the low-effort, low-return task.

This result does not support H1 or H4, which predicted that exposure to breadwinner strain would increase the likelihood of selecting the low-effort, low-reward option and that this effect would be

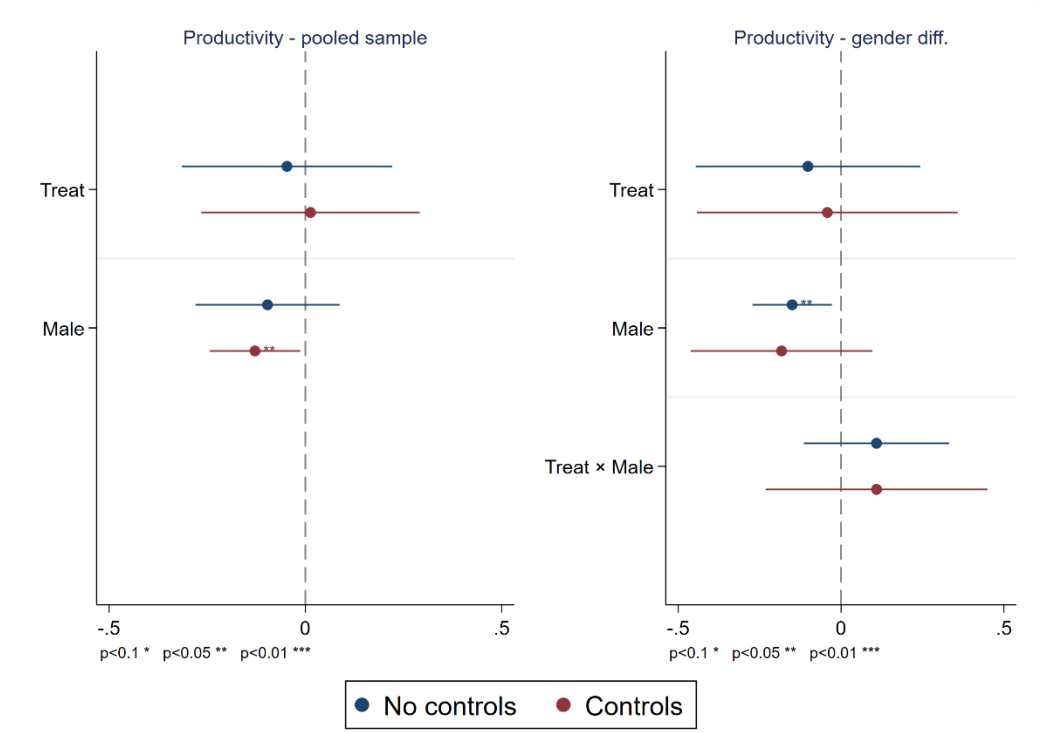
stronger for men than for women. Although we find no significant effects of breadwinner strain on task choice, this null result may stem from several factors unrelated to the true absence of an effect on decision-making. While our task was incentivized and designed to capture a real effort–reward trade-off, it inevitably abstracts from the broader set of decisions that farmers face in everyday life—where effort, income, time, and risk are jointly determined over longer horizons. In this controlled setting, the intervention may have been too short-lived or too context-specific to translate into measurable behavioral adjustments in a single experimental task. Alternatively, it is possible that the strain associated with provider expectations manifests more strongly in strategic interactions, or in environments where economic stakes and social visibility are higher. Future work combining lab-in-the-field designs with longitudinal observation would help clarify whether the null effect reflects genuine behavioral resilience or the limits of our study.

Performance in the task (hypotheses H2 and H4)

Result #2. We find no statistically significant differences in performance between treated and control participants, either in the pooled sample or when disaggregating by gender (Figure 4). The interaction term between treatment and male status is small and not statistically significant.

This result does not support H2 or H4, which predicted a reduction in productivity following exposure to breadwinner strain and a stronger effect for men than for women, respectively. Figure 4 presents the estimated effects of the breadwinner-strain treatment on productivity, for the pooled sample (left panel) and by gender (right panel). Coefficients are displayed with and without controls.

Figure 4: Impact of breadwinner strain on productivity



Note: left panel reports treatment effects on productivity for the pooled sample, with and without control variables. Right panel reports treatment effects and gender differences, with and without control variables. Control variables include age, education, household size, and asset ownership. Standard errors are clustered at the ward level.

We find no statistically significant effect of the treatment on productivity, either overall or by sex. Treated participants perform comparably to controls, and the interaction term (*Treat* × *Male*) is small and not statistically different from zero. This suggests that making provider responsibilities salient does not immediately alter individual effort levels or task performance within the short time frame of our experiment. It is plausible, however, that the psychological burden of breadwinner expectations operates through slower channels—such as accumulated stress, mental fatigue, or persistent distraction—that are not easily captured in a short, incentivized task. Identifying these longer-run mechanisms would require repeated measures of performance over time or field-based observation under real production conditions.

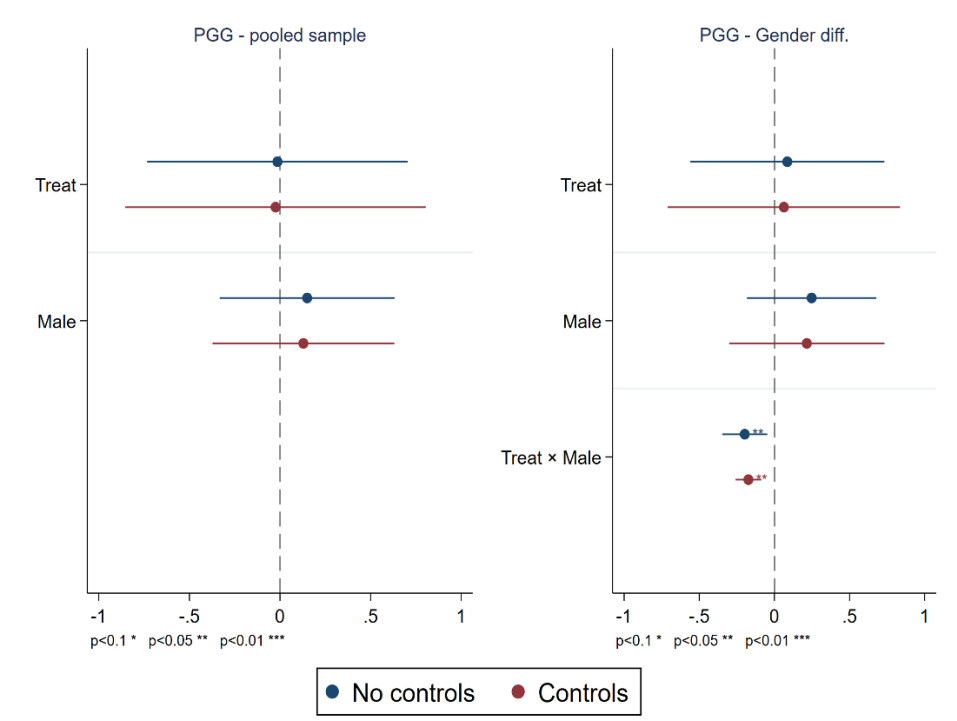
Contribution to seedbank (hypotheses H2 and H4)

Result #3. We find a negative and statistically significant interaction between the treatment and male status in contributions to the communal seedbank (Figure 5). Treated men contribute approximately 0.2

standard deviations less than untreated men, while the treatment has no significant effect on women's contributions.

This result supports H3 and H4, which predicted that exposure to breadwinner strain would reduce pro-social contributions and that this effect would be stronger among men than among women.

Figure 5: Impact of breadwinner strain on seedbank contribution (public goods game)



Note: Left panel reports treatment effects on productivity for the pooled sample, with and without control variables. Right panel reports treatment effects and sex-specific differences, with and without control variables. Control variables include age, education, household size, and asset ownership. Standard errors are clustered at the ward level.

Figure 5 reports treatment effects on contributions in the public goods game. The interaction between treatment and male status is negative and statistically significant across specifications, whereas the main treatment effect remains close to zero. This result implies that the treatment significantly reduces contributions among men, while women's contributions remain unaffected. Reduction for treated men is economically meaningful: they contribute to the seedbank about 0.2 standard deviations less than untreated men, indicating lower willingness to engage in collective resource pooling when breadwinner responsibilities are made salient.

A plausible interpretation is that activating breadwinner strain heightens men's focus on immediate income provision and household needs, narrowing their attention toward short-term financial goals.[4] In this context, cooperative actions—such as contributing to a community seedbank—may be perceived as diverting resources or effort away from the primary responsibility of "bringing money home." This mechanism is consistent with models of economic decision-making under stress, in which financial pressure induces short-termism and reduces willingness to invest in collective or future-oriented activities (Hilbert et al., 2022). In agricultural settings, such behavioral shifts may have broader implications: when breadwinner strain discourages cooperation and investment in community-based or sustainable practices, it can undermine adaptive capacity in the face of increasing climate risks.

Heterogeneity analysis: mental health variables

According to the preregistered protocol, we also conduct a heterogeneity analysis to investigate whether the effect of the breadwinner strain is mediated by mental health. We therefore replicate our benchmark specification for the pooled sample, and then separately for men and women, and interact our treatment variable with two mental health indicators for anxiety and overall wellbeing.

Anxiety

We explore whether the effects of the breadwinner-strain treatment vary with participants' anxiety levels, as measured by the GAD-7 scale. We construct a dummy variable equal to 1 if the GAD-7 score is equal to or higher than the cut-off.

We find no heterogenous effects of anxiety on individual decision-making (Table 7 in Appendix). When we look at results for productivity (Table 8 in Appendix), we observe significant heterogeneity by anxiety. In the pooled sample, the interaction term *Treat* × *Anxiety* is positive and significant at the 10 percent level (Columns 1–2), but it masks opposing gender patterns: anxious treated men tend to perform worse than their non-anxious counterparts (–0.58 SDs), whereas anxious treated women perform

[4] This is in line with findings in the literature of financial worries and decision-making (Burlacu et al., 2022; Burlacu et al., 2023).

significantly better (+0.82 SDs). These contrasting responses suggest that anxiety interacts differently with breadwinner strain across genders. For men, anxiety likely amplifies the psychological burden of provider expectations, diverting attention and cognitive resources away from the task. For women, by contrast, anxiety may function as a motivating force that enhances focus and effort when financial responsibilities become salient. This interpretation aligns with the literature distinguishing between threat-based and challenge-based responses to stress (Blascovich & Mendes, 2000; Jamieson et al., 2018), suggesting that the same emotional state can either impair or enhance performance depending on how it interacts with social expectations and identity pressures.

When we look at contributions to the seedbank (Table 9 in Appendix), we find that the interaction between treatment and anxiety is negative and statistically significant in both the pooled (Columns 1–2) and male-only (Columns 3–4) samples. In the pooled sample, individuals suffering from anxiety contribute less to the group account when exposed to the breadwinner-strain prime. This effect is driven by men: anxious treated men contribute markedly less than their non-anxious counterparts (–0.6 SDs), while no comparable pattern emerges among women.

Anxiety may correlate with individual welfare, which could in turn influence seedbank contributions. Our measure of individual welfare is the household asset index,[5] and we find no significant differences in its distribution between treatment and control groups, and only limited variation within the sample. While this does not fully eliminate endogeneity concerns, it mitigates the risk that differential welfare levels are mechanically driving the observed *Treat* × *Anxiety* effects. Also, results are robust when we include the asset index as a control variable in the specification, suggesting that they are not driven by respondents' individual welfare. These results indicate that anxiety compounds the negative impact of breadwinner strain on cooperative behavior and seedbank contribution, making the strain particularly damaging in the presence of psychological distress. When provider expectations are made salient, anxious men appear to focus more narrowly on immediate household concerns, reducing their willingness to share resources in

[5] We acknowledge that more robust and fine-grained measures of individual welfare exist. However, given the time constraints of the field experiment, it was not feasible to collect the additional information required to construct them.

collective arrangements such as community seedbanks. In other words, when anxiety about providing is already high, the breadwinner prime reinforces self-protective behavior and crowds out prosocial or future-oriented actions. This suggests that provider strain and anxiety operate as mutually reinforcing stressors: together, they limit cooperative behavior and investment in collective systems that are essential for long-term resilience in the face of economic and climatic uncertainty.

Mental Wellbeing

We also examine heterogeneity by baseline mental wellbeing (e.g., feeling calm, relaxed, happy rested, and active), measured using the WHO-5 scale.

When looking at the choice task (Table 10 in Appendix), the interaction between treatment and wellbeing is negative across all specifications but not statistically significant, suggesting that differences in wellbeing do not meaningfully shape short-run effort allocation.

For productivity (Table 11 in Appendix), the interaction *Treat* × *Wellbeing* in the pooled sample is negative and statistically significant when controls are included (Column 2), indicating that the breadwinner-strain treatment reduces performance primarily among individuals with higher mental wellbeing. This pattern appears to be driven by women (Column 6), although the effect is significant only when control variables are included. The pattern of heterogeneity by mental wellbeing contrasts with the one observed for anxiety. In the case of anxiety, the treatment interacted with a state of *heightened arousal or stress*, producing asymmetric behavioral responses: anxiety reduced men's productivity but appeared to motivate women, possibly because it triggered concern for household provision and effort compensation. In contrast, higher baseline wellbeing reflects a *stable emotional state* and a lower perceived level of psychological strain. For these individuals, exposure to the breadwinner-strain prime may have introduced an *exogenous source of stress* that disrupted their usual equilibrium, momentarily diverting cognitive resources and reducing task performance.

Finally, when we look at the outcomes of the PGG (Table 12 in Appendix), no significant heterogeneity effect by wellbeing is detected. Contributions to the PGG remain similar across wellbeing levels,

implying that anxiety—rather than general affective state—plays a more important role in mediating the behavioral effects of breadwinner strain.

Taken together, these results underscore anxiety as a key moderator of behavioral responses to breadwinner strain: it amplifies the negative effect of provider stress on cooperation—particularly among men—indicating that psychological distress and social expectations act as mutually reinforcing stressors that narrow attention to immediate household needs and reduce willingness to engage in collective action and risk-coping strategies. At the same time, anxiety appears to motivate some women to exert greater effort, suggesting that the same emotional state can produce *productive* or *unproductive* responses depending on how it interacts with gendered roles and identity pressures.

In contrast, the pattern observed for wellbeing points to a different mechanism. Individuals with higher baseline wellbeing—those who are typically less accustomed to financial or emotional strain—exhibit lower productivity when the breadwinner role is made salient. This suggests that priming introduces an exogenous source of stress that disrupts their usual emotional equilibrium, momentarily reducing performance. In other words, while anxiety reflects a state of chronic stimulation that can either impair or mobilize effort, high wellbeing reflects psychological stability that priming unsettles.

5. Discussion

Our findings show that making provider responsibilities salient reduces contributions to the public good among men—in other words, men contribute significantly less than women under the same conditions. This result suggests that social norms around economic provision can shape pro-social and forward-looking decision-making.

Several mechanisms may help explain this pattern. One possibility is that breadwinner strain narrows intertemporal attention, making immediate household needs feel more pressing and future benefits—collective as well as individual—less salient. In this sense, the effect recalls the findings of the scarcity literature, where financial concerns and perceived resource constraints shift focus toward short-term goals (Burlacu et al., 2022; Burlacu et al., 2023). Another explanation is that breadwinner strain depletes

cognitive and emotional resources. When attention and mental energy are absorbed by worries about meeting provider expectations, individuals may have less capacity for deliberate, future-oriented, or pro-social decision-making. Heightened stress and anxiety could also play a role: stress tends to trigger self-protective responses and reduce willingness to take cooperative risks, particularly when helping others might be perceived as diverting effort from one's core obligation to the family.

From a broader perspective, these results extend the insights of behavioral development economics to pro-social, intertemporal, and risk-coping decision-making. Prior work has shown how poverty and stress influence cognition, attention, and time preferences, with consequences for savings, borrowing, or technology adoption (Haushofer & Salicath, 2023). Our findings suggest that similar processes may affect collective investments that depend on trust, cooperation, and delayed returns. In smallholder agricultural systems, participation in seedbanks or comparable community initiatives requires both foresight and the willingness to consider collective gains. When provider-related stress heightens short-term financial focus, such practices may appear less urgent or less relevant to immediate household needs. In agricultural settings, these behavioral shifts may have broader implications. Smallholder farmers increasingly face climate-related shocks that demand cooperative and forward-looking responses (Kotir, 2011), such as seedbanks or community-level natural resource management. These practices rely on trust, patience, and a willingness to reallocate part of resources from individual to community levels. If men under pressure to "bring resources home" view collective initiatives as nonessential or as a diversion from immediate provision, communities may underinvest in precisely the mechanisms that protect them against future climatic and economic risks. The resulting pattern is one of behavioral maladaptation: social norms that evolved to secure household welfare end up weakening collective adaptive capacity.

Beyond its prosocial dimension, contributing to the communal seedbank can also be interpreted as an intertemporal investment decision whereby contributions yield delayed returns in the form of increased resilience to climate shocks, improved access to seeds, and reduced future production risk. As such, variation in contributions may partly reflect differences in intertemporal discounting. To the extent that breadwinner strain increases the salience of the need to cover pressing household needs, it may induce a

shift in discount factors, making future benefits appear less valuable relative to immediate household needs. In this light, the reduction in men's contributions in the treatment group may reflect not only lower pro-social choice but also a rational reallocation of resources in response to heightened short-term and identity-based pressures.

Our heterogeneity results further suggest that anxiety plays an important role in shaping how individuals respond to breadwinner-related stress. Among men, anxiety amplifies the negative effect of the treatment on seedbank contributions: more anxious men contribute substantially less to the communal seedbank when provider expectations are made salient. This finding is consistent with research showing that men who strongly internalize traditional masculine norms often experience heightened distress when they fear falling short of provider or self-reliance expectations (Addis, 2008; Mahalik et al., 2007; Wong et al., 2017). However, we are not aware of prior experimental work directly linking provider-identity stress, anxiety, pro-social or cooperative, and intertemporal choices. For this reason, we interpret our findings as suggestive rather than causal: anxiety may heighten sensitivity to provider-related pressures, thereby reinforcing a short-term, self-protective focus that reduces willingness to engage in community-beneficial actions. While this mechanism is plausible and consistent with the broader literature on gender norms and mental health, identifying its causal structure remains an important avenue for future research.

The absence of treatment effects on individual decision-making and short-run productivity also offers insight into the scope of these mechanisms. Participants did not respond to the treatment by selecting a lower-effort task, likely because this one-shot decision involved small differences in stakes and outcomes. This result might suggest that breadwinner strain exerts its influence more strongly in social or intertemporal contexts, where attention, stress, and identity constraints interact. Similarly, the lack of short-run productivity effects may reflect the transient nature of our experiment: participants may have temporarily disengaged from breadwinner-related thoughts during the task, whereas, in daily life, strain is chronic and may accumulate to affect concentration and performance over longer horizons.

The null results on individual decision-making and short-run productivity may reflect the complex cultural setting in which the study was conducted. A growing body of cross-cultural research highlights

that the subjective salience of a choice depends less on narrowly defined individual payoffs and more on socially embedded roles, relational obligations, and collective responsibilities (Thomas & Markus, 2023). From this perspective, the individual task-choice and effort components of the experiment—while valid as standardized measures of behavior (Charness et al., 2018)—may have been experienced as relatively neutral or low in social relevance, limiting their capacity to capture the behavioral implications of our manipulation. By contrast, the public goods game explicitly invoked a familiar and socially embedded institution—the communal seedbank—where significant behavioral responses were observed.

6. Conclusion

This paper investigated how the salience of provider responsibilities—captured by the concept of breadwinner strain—affects economic decision-making, productivity, and cooperative behavior among smallholder farmers in Kenya. We experimentally induced the salience of financial obligations and provider expectations to examine how this identity-based stress influences short-run economic behavior and whether effects differ by gender and mental health.

We find that the breadwinner-strain treatment does not significantly affect individual decision-making or productivity in a single experimental session. In contrast, we show that making provider responsibilities salient significantly reduces men's contributions to a communal seedbank by 0.2 SDs, and by 0.6 SDs for those men suffering from anxiety. This result is robust to the inclusion of controls, and it is also mediated by psychological anxiety: treated men who report anxiety are substantially less likely to contribute than their non-anxious counterparts. These results suggest that the interaction between economic stress and gender identity can shape cooperative behavior, narrowing men's focus to immediate household concerns at the expense of collective and future-oriented outcomes. In rural contexts where community-based resource management underpins resilience, such behavioral shifts may bear aggregate implications—undermining cooperation, technology adoption, and adaptation to climate shocks.

Our findings contribute to a broader discussion in development and gender economics. First, they expand the psychology of poverty and scarcity literature by showing that financial stress can stem not only from

material deprivation but also from social expectations about the provider role. Breadwinner strain represents a form of social scarcity—a persistent sense of insufficiency relative to normative standards—that can tax cognition and alter behavior even when economic constraints are unchanged. Second, the results underscore the importance of integrating men's roles into the analysis of gender norms. While much of gender economics has focused on constraints that norms impose on women, our findings illustrate that men, too, face identity pressures that can reduce welfare and collective efficiency. Finally, this study adds to behavioral development research on pro-social behavior by identifying a new psychological mechanism through which social norms may weaken participation in collective resource systems, with implications for sustainability and resilience.

Future research should extend these findings in three dimensions. First, longitudinal or high-frequency experimental designs could better capture the cumulative effects of breadwinner strain on productivity, risk-taking, and household investment decisions. Second, combining behavioral data with physiological or psychometric measures of stress could clarify the pathways linking identity pressures to performance. Third, interventions aimed at reshaping provider norms, for instance by promoting shared financial responsibility or redefining successful masculinity role, could be evaluated as potential tools to improve both individual wellbeing and collective outcomes.

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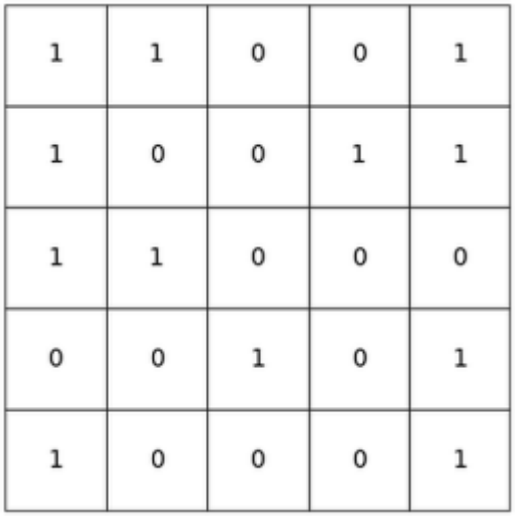
APPENDIX

Figures

Figure 6: Easy task (matrix 5×5)



1	1	0	0	1
1	0	0	1	1
1	1	0	0	0
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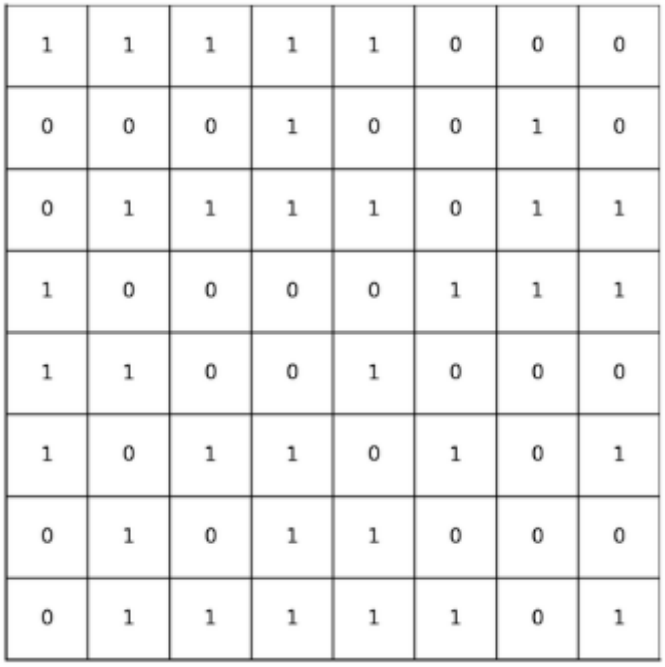
1	0	0	0	1

Figure 7: Hard task (matrix 8×8)



1	1	1	1	1	0	0	0
0	0	0	1	0	0	1	0
0	1	1	1	1	0	1	1
1	0	0	0	0	1	1	1
1	1	0	0	1	0	0	0
1	0	1	1	0	1	0	1
0	1	0	1	1	0	0	0
0	1	1	1	1	1	0	1

Tables

Table 3: Balance checks between treatment and control group (mean difference tests)

	Mean Control	Mean Treatment	Diff.	p value
Male	0.519	.492	.026	.591
Age	45.182	47.029	-1.847	.136
No formal education	0.0144	0.043	-.029	.074
Primary education	0.557	0.560	-.003	.946
Secondary education	0.336	0.317	.019	.674
Tertiary education	0.091	0.078	.013	.628
Male (=1)	0.519	.492	.026	.591
Married	0.851	.815	.036	.324
Household size	5.562	5.942	-.379	.083
N children < 5	0.812	.976	-.163	.12
N children < 18	2.005	2.078	-.073	.592
N male members	2.736	2.825	-.089	.501
N female members	2.827	3.117	-.29	.078
Seed bank (knowledge of)	0.611	.59	.021	.674
Own land	0.899	.922	-.023	.416
Asset index	-0.120	.122	-.242	.209
Breadwinner strain scale	13.125	12.654	.472	.285
Man as primary provider of the family	4.250	4.293	-.043	.723
Provider meets basic family needs	4.707	4.62	.087	.222
Women balance paid and unpaid work	4.341	4.346	-.005	.962
Good provider respected by all	4.558	4.546	.011	.896
Provider responsible for parents	4.413	4.532	-.118	.147
Real man does not accept failures	4.284	4.386	-.102	.394
Man makes decision in the family	4.212	4.356	-.144	.203
Man does not show weakness	4.423	4.649	-.226	.019
Man does not back down	4.418	4.405	.013	.897
Man controls his emotions	4.577	4.551	.026	.715
Mental health scale	14.447	14.156	.291	.428
Anxiety scale	9.789	10.356	-.568	.098
N	208	205		

Notes: The table reports mean difference tests between the treatment and control groups for baseline socio-demographic characteristics, masculinity norms, and mental health indicators. Differences are computed as treatment minus control means, with standard errors in parentheses and *p*-values from two-sided t-tests for equality of means. *Male*, *Married*, *Seed bank (knowledge of)*, and *Own land* are binary indicators equal to 1 if the condition holds. *No formal education* is a dummy variable equal to 1 if the respondent has never attended any formal education. *Primary education* is a dummy variable equal to 1 if the respondent's highest completed level of schooling is primary education. *Secondary education* is a dummy variable equal to 1 if the respondent's highest completed level of schooling is secondary education. *Tertiary education* is a dummy variable equal to 1 if the respondent's highest completed level of schooling is tertiary education. *Household size* and counts of household members or children are expressed in numbers. The *Asset index* is a standardized measure of household wealth constructed via principal component analysis (PCA). The *Breadwinner strain scale* and masculinity norm items are measured on a five-point Likert scale (1 = *Strongly disagree*, 5 = *Strongly agree*). The *Mental health scale* (WHO-5 Wellbeing Index) ranges from 0 to 100, with higher scores indicating better wellbeing, while the *Anxiety scale* (GAD-7) ranges from 0 to 20, with higher scores indicating greater anxiety.

Table 4: Impact of breadwinner strain on choice task

	Pooled sample		Gender differences	
	(1)	(2)	(3)	(4)
VARIABLES	Task choice			
T/C group = 1, Treatment	-0.000	-0.001	-0.061	-0.063
	(0.008)	(0.014)	(0.071)	(0.059)
Male = 1			-0.024	-0.023
			(0.081)	(0.072)
1.treat#1.male			0.122	0.121
			(0.152)	(0.139)
Constant	1.317***	1.102**	1.330***	1.128**
	(0.026)	(0.192)	(0.028)	(0.191)
Observations	413	413	413	413
R-squared	0.000	0.009	0.006	0.013
Controls	No	Yes	No	Yes

*** p<0.01, ** p<0.05, * p<0.1
Clustered standard errors at the ward level

Table 5: Impact of breadwinner strain on productivity

	Pooled sample		Gender differences	
	(1)	(2)	(3)	(4)
VARIABLES	Productivity			
T/C group	-0.044	0.013	-0.102	-0.042
	(0.061)	(0.065)	(0.080)	(0.093)
Male = 1			-0.150**	-0.183
			(0.028)	(0.065)
Treat#Male			0.109	0.109
			(0.052)	(0.079)
Constant	-0.297	0.068	-0.223	0.090
	(0.146)	(0.156)	(0.131)	(0.145)
Observations	413	413	413	413
R-squared	0.013	0.156	0.016	0.157
Controls	No	Yes	No	Yes

*** p<0.01, ** p<0.05, * p<0.1
Clustered standard errors at the ward level

Table 6: Impact of breadwinner strain on PGG

	Pooled sample		Gender differences	
	(1)	(2)	(3)	(4)
VARIABLES			PGG	
T/C group	-0.018	-0.024	0.086	0.063
	(0.161)	(0.193)	(0.150)	(0.180)
Male = 1			0.248	0.216
			(0.100)	(0.120)
Treat#Male			**-0.197****	**-0.173****
			(0.035)	**(0.020)**
Constant	0.009	-0.579	-0.120	-0.615
	(0.157)	(0.480)	(0.173)	(0.490)
Observations	413	413	413	413
R-squared	0.000	0.023	0.008	0.025
Controls	No	Yes	No	Yes

*** p<0.01, ** p<0.05, * p<0.1
Clustered standard errors at the ward level
Note: PGG = public goods game

Table 7: Heterogeneity: anxiety level and task choice

	Pooled sample		Men		Women	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES			Task choice			
T/C group	**0.038***	**0.038***	0.086	0.078	-0.012	-0.003
	(0.010)	**(0.013)**	(0.077)	(0.063)	(0.063)	(0.042)
Anxiety = 1	0.124	0.120	0.152	0.160	0.098	0.094
	(0.081)	(0.083)	(0.116)	(0.103)	(0.060)	(0.081)
Treat#Anxiety	-0.285	-0.292	-0.245	-0.293	-0.299	-0.306
	(0.136)	(0.118)	(0.180)	(0.164)	(0.114)	(0.110)
Constant	1.305***	1.093**	1.293***	1.125***	1.318***	1.051*
	(0.021)	(0.205)	(0.054)	(0.098)	(0.026)	(0.275)
Observations	413	413	209	209	204	204
R-squared	0.011	0.021	0.010	0.039	0.021	0.036
Controls	No	Yes	No	Yes	No	Yes

*** p<0.01, ** p<0.05, * p<0.1
Clustered standard errors at ward level

Table 8: Heterogeneity: anxiety level and productivity

	Pooled sample		Men		Women	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Productivity					
T/C group	-0.073	-0.014	0.098	**0.142***	**-0.257***	-0.167
	(0.052)	(0.035)	(0.036)	**(0.035)**	**(0.063)**	(0.110)
Anxiety	-0.335**	-0.278**	0.036	-0.012	-0.653*	-0.441
	(0.036)	(0.034)	(0.150)	(0.127)	(0.153)	(0.155)
Treat#Anxiety	**0.300***	**0.273**	**-0.672***	**-0.505**	**1.071****	**0.854****
	(0.099)	**(0.189)**	**(0.222)**	**(0.324)**	**(0.143)**	**(0.188)**
Constant	-0.258	0.087	-0.435***	-0.542	-0.146	0.588**
	(0.127)	(0.154)	(0.036)	(0.300)	(0.234)	(0.115)
Observations	413	413	209	209	204	204
R-squared	0.018	0.160	0.041	0.170	0.044	0.195
Controls	No	Yes	No	Yes	No	Yes

*** p<0.01, ** p<0.05, * p<0.1
Clustered standard errors at ward level

Table 9: Heterogeneity: anxiety level and PGG

	Pooled sample		Men		Women	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	PGG					
T/C group	0.023	0.057	-0.053	-0.044	0.104	0.083
	(0.179)	(0.179)	(0.202)	(0.213)	(0.150)	(0.168)
Anxiety	0.142	0.231	0.483	0.494	-0.106	-0.078
	(0.173)	(0.170)	(0.209)	(0.192)	(0.134)	(0.186)
Treat#Anxiety	**-0.285****	**-0.383****	**-0.616***	**-0.601****	-0.061	-0.088
	(0.049)	**(0.044)**	**(0.206)**	**(0.113)**	(0.048)	(0.113)
Constant	-0.083	-0.571	0.088	-0.542	-0.107	-0.394
	(0.183)	(0.506)	(0.156)	(0.488)	(0.165)	(0.509)
Observations	413	413	209	209	204	204
R-squared	0.008	0.044	0.012	0.040	0.005	0.015
Controls	No	Yes	No	Yes	No	Yes

*** p<0.01, ** p<0.05, * p<0.1
Clustered standard errors at ward level
Note: PGG = public goods game

Table 10: Heterogeneity: Wellbeing level and task choice

	Pooled		Men			Women
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Task choice					
T/C group	0.044	0.041	0.141	0.116	-0.024	-0.026
	(0.034)	(0.034)	(0.122)	(0.107)	(0.139)	(0.144)
WB = 1	0.008	0.007	-0.007	-0.005	0.026	0.027
	(0.009)	(0.003)	(0.034)	(0.048)	(0.026)	(0.046)
Treat#WB	-0.069	-0.067	-0.116	-0.099	-0.060	-0.043
	(0.053)	(0.061)	(0.061)	(0.055)	(0.131)	(0.169)
Constant	1.311***	1.102**	1.310***	1.160***	1.312***	1.041*
	(0.023)	(0.188)	(0.051)	(0.065)	(0.028)	(0.292)
Observations	413	413	209	209	204	204
R-squared	0.002	0.011	0.011	0.035	0.005	0.018
Controls	No	Yes	No	Yes	No	Yes

*** p<0.01, ** p<0.05, * p<0.1
Clustered standard errors at ward level

Table 11: Heterogeneity: Wellbeing level and productivity

		Pooled sample		Men		Women
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Productivity					
T/C group	0.172	0.185	0.075	0.144	0.237	0.229
	(0.105)	(0.096)	(0.133)	(0.093)	(0.159)	(0.100)
WB = 1	0.130	0.082	0.050	0.008	0.227	0.141
	(0.129)	(0.143)	(0.117)	(0.083)	(0.156)	(0.226)
Treat#WB	-0.328	**-0.265***	-0.095	-0.099	-0.552	**-0.459****
	(0.123)	**(0.078)**	(0.126)	(0.112)	(0.249)	**(0.072)**
Constant	-0.391*	0.028	-0.422**	-0.478	-0.356	0.424
	(0.117)	(0.269)	(0.067)	(0.397)	(0.215)	(0.229)
Observations	413	413	209	209	204	204
R-squared	0.019	0.161	0.015	0.154	0.029	0.187
Controls	No	Yes	No	Yes	No	Yes

*** p<0.01, ** p<0.05, * p<0.1
Clustered standard errors at ward level

Table 12: Heterogeneity: Wellbeing level and PGG

	Pooled sample		Men		Women	
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES			PGG			
T/C group	-0.134	-0.114	-0.083	-0.108	-0.192	-0.178
	(0.253)	(0.257)	(0.156)	(0.234)	(0.334)	(0.336)
WB = 1	0.084	0.052	0.301	0.277	-0.142	-0.139
	(0.115)	(0.117)	(0.321)	(0.358)	(0.127)	(0.136)
Treat#WB	0.200	0.206	-0.025	0.027	0.461	0.408
	(0.132)	(0.140)	(0.123)	(0.200)	(0.326)	(0.323)
Constant	-0.118	-0.627	-0.092	-0.744	-0.023	-0.251
	(0.220)	(0.525)	(0.341)	(0.509)	(0.238)	(0.620)
Observations	413	413	209	209	204	204
R-squared	0.016	0.047	0.018	0.046	0.020	0.024
Controls	No	Yes	No	Yes	No	Yes

*** p<0.01, ** p<0.05, * p<0.1
Clustered standard errors at ward level
Note: PGG = public goods game

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