Alleviating Time Poverty among the Working Poor: A Pre-Registered Longitudinal Field Experiment

Colin West
Ashley Whillans

Alleviating Time Poverty among the Working Poor: A Pre-Registered Longitudinal Field Experiment

Colin West
UCLA Anderson School of Management

Ashley Whillans
Harvard Business School

Working Paper 19-049

Alleviating time poverty among the working poor:
A pre-registered longitudinal field experiment

Colin West

UCLA Anderson School of Management

Ashley Whillans

Harvard Business School

Pre-registration plan, submitted for review

Corresponding author:
Ashley Whillans, Negotiations, Organizations & Markets Unit, Harvard Business School, Cambridge, MA, 1-617-308-1539, awhillans@hbs.edu

Disclosure Statement: There are no financial benefits arising from this research.

Abstract

Poverty entails more than a scarcity of material resources—it also involves a shortage of time. To examine the causal benefits of reducing time poverty, we will conduct a longitudinal field experiment in an urban slum in Kenya with a sample of working mothers, a population who is especially likely to experience severe time poverty. Participants will receive vouchers to use on services designed to reduce their burden of unpaid labor. The effect of these vouchers will be compared against in-kind vouchers that do not save time, equivalently valued unconditional cash transfers, and a neutral control condition. Using a pre-post design, we will measure whether time-saving vouchers influence subjective well-being and perceived stress. Additionally, we will explore the causal effects of reducing time poverty on cognitive functioning and economic decision making. This research tests a new model of economic aid that recognizes both financial and temporal constraints.

Keywords: time; money; subjective well-being; administrative costs; friction; poverty

Poverty is associated with lower engagement in preventative health care (even when access is available),[1,2] lower medication adherence,[3] increased spending on 'temptation goods',[4] reduced productivity at work,[5] and lower adoption of useful new technologies (e.g., agricultural innovations).[6] These seemingly disparate behaviors may share a common feature: they may be driven, in part, by the fact that people living in material poverty also tend be 'time poor.' Indeed, poverty is not only a state of material constraints, it also involves temporal constraints. This study explores whether time poverty reinforces barriers toward economic mobility and contributes to poverty traps.

Consistent with previous research,[7,8,9] we refer to individuals as 'time poor' when they engage in long hours of unpaid work and have no choice but to do so. Time poverty severely affects low-income women living in developing countries.[5] A lack of basic household amenities requires poor women to spend far more time on household production tasks like cooking and cleaning as compared to their richer counterparts.[10] For example, women in Sub-Saharan Africa spend an average of 4.2 hours on unpaid work each day[11]. These unpaid household activities are, in effect, a kind of tax that individuals—and especially women—pay before undertaking remunerated work. In this project, we propose that reducing time poverty, thereby lowering this personal 'tax,' could have direct benefits for well-being and perceived stress as well as indirect benefits for economic mobility.

Despite these potentially far-reaching consequences, there is little understanding of the psychological and economic consequences of the time poverty that often coincides with financial constraints. Traditional economic measurements of poverty typically neglect the time deficits that face households below the poverty line (Hirway[12] provides a comprehensive review). Furthermore, aid programs tend to focus on material constraints; billions of dollars of economic

aid have been spent to provide monetary and non-monetary aid to people living in extreme poverty (i.e. goods and services, the most common of which include items like food, livestock, and fertilizer, and services such as agricultural training, additional community health workers, and additional teachers).[13,14,15,16] We suggest that the effectiveness of these aid programs could be increased by considering recipients' time costs, either by adjusting how aid is delivered or by creating programs that are directly aimed at reducing recipients' temporal constraints (Khera[17,18] provides related arguments).

One of the reasons that policymakers and aid programs may neglect time poverty is the lack of data on time-use amongst the working poor in developing countries. While richer countries have benefited from extensive survey data on time-use, these data are critically absent from countries where time poverty is the most pervasive (Hirway[12] provides a comprehensive review). Despite these limitations, there is some evidence suggesting that time poverty may, indeed, be an important factor in economic development efforts. For example, a large scale correlational analysis of the Indian Human Development survey, including 41,554 households in 1,503 villages and 971 urban neighborhoods, found that women who owned a cookstove and did not have to fetch wood, were significantly healthier and reported spending more time on income generating activities than women who did not own a cookstove.[19] Of course, this research cannot rule out selection effects: women with higher wealth or higher status within their communities might be more likely to own and benefit from appliances such as cookstoves.

To the best of our knowledge, there is only one experimental study that has tested for the causal effects of reducing unpaid labor.[20] In this experiment, sixty working adults were recruited from Vancouver, Canada and were assigned to spend a small windfall of money ($40) during two consecutive weekends. During one weekend, participants were instructed to spend this

windfall in any way that would save them time, such as by ordering take-out, hiring a housecleaner, or having groceries delivered. During another weekend, participants were instructed to spend this windfall on a material purchase for themselves. Participants in this study reported greater positive mood, lower negative mood, and lower stress after making a time-saving (vs. material) purchase. However, this study only focused on affluent individuals living in North America, and only examined the near-term effects of a small one-time payment, therefore the generalizability of these results is unclear.

Given the limited causal evidence in this area, we will utilize an experimental methodology (a randomized control trial) to evaluate the benefits of reducing time poverty. We will recruit working mothers in Kibera, an urban slum near Nairobi, Kenya to participate in an eight-week study. We have selected this population because working women in this community face significant material and temporal constraints: in Kibera, women earn an average of $5USD per day and spend a median of 42 hours working and 36 hours engaged in unpaid labor each week.[21] We will randomly assign participants to receive vouchers for three consecutive weeks designed to reduce their burden of unpaid labor, specifically, time spent cooking and cleaning (methodological details below). Based on our pilot data, we expect these time-saving vouchers to provide women in our study with an additional 3-6 hours per week for three consecutive weeks.

The effectiveness of these time-saving vouchers will be compared against three separate control conditions to identify the specific effects of reductions in time poverty. First, to control for the benefits of receiving and spending a windfall,[20] we will compare the efficacy of time-saving vouchers against equivalently valued goods that do not save time. Second, we will benchmark the effects of time-saving vouchers against unconditional cash transfers—since the administrative and overhead costs of providing unconditional cash transfers is extremely low,

this condition can serve as a rigorous standard against which to measure the relative benefits and cost-effectiveness of other aid programs.[22] Third, we will compare the time-saving vouchers and unconditional cash transfers against a neutral control condition in which participants will receive no windfalls of any kind.[21]

We have argued that the efficacy of aid programs could be increased by considering recipients' time costs and adjusting how aid is delivered. To provide initial empirical support for this proposition, we include an additional time-saving condition that imposes a small time cost on recipients, similar to many economic aid programs (Khera[23,24] provides related arguments). Specifically, participants will need to travel a short distance in order to receive the identical time-saving services (laundry and prepared meals). Participants in this condition will have to *pick-up* the services (vs. having these services delivered). This condition will allow us to estimate the well-being effects of time-related frictions incurred during aid receipt. Furthermore, comparing the time-saving voucher pick-up and delivery conditions isolates the effects of reduced time poverty since these two conditions are identical except for the amount of time required to use the vouchers.

This research builds on recent research showing that poverty is associated with cognitive constraints.[25,26] Poverty has been associated with a decline in fluid intelligence and executive control, excessive risk aversion, and increased present bias.[26] The most prominent psychological explanation for these effects is that poverty increases stress and negative affect and may impose constraints on attention[27] (Pepper and Nettle[28] provide a review). Having few resources and limited access to credit necessarily entails making many difficult resource allocation trade-offs. These constant trade-off decisions compete with other mental tasks for scarce cognitive resources. Consequently, when people are chronically burdened with these stressful and

demanding daily decisions, they are more likely to rely on simple decision heuristics and habits at the expense of more future-oriented or goal-directed behaviors,[29] potentially explaining why poorer individuals often fail to save as much as they could, to take-up critical services, and adopt new technologies. Most research examining the deleterious effects of scarcity on health, well-being, and decision-making has been conducted in the context of financial poverty.[25,26,27,28,29] The current investigation will therefore extend the previous research in this area by exploring the distinct psychological and economic impacts of time poverty.

In this project, we focus our analyses on two outcome measures that are foundational to the psychology of scarcity: subjective well-being and perceived stress.[21] These outcomes are important in and of themselves,[30] and they are linked to economic decision-making.[31] For example, greater positive affect is associated with a range of downstream economic benefits including increased productivity, work performance, and higher earnings.[32] Chronic resource scarcity also increases negative affect and stress, which in turn leads to more present-oriented behaviors that can contribute to poverty traps[27] (Pepper and Nettle[28] provide a review).

The primary purpose of this research is to document the impact of reductions of unpaid labor on well-being and perceived stress. However, to maximize the impact of this research, we will also examine the causal impact of time-saving vouchers on other outcomes that represent reliable indicators of future economic well-being, including cognitive functioning, time preferences, consideration of future consequences, and self-investment behaviors. Based on the research reviewed above, any observed improvements on these more distal measures are likely to be caused by reductions in perceived stress and increases in subjective well-being[27,28]—attesting to the importance of focusing our critical analyses on these two central psychological outcomes.

On an exploratory basis, we will conduct moderator analyses to examine when and for whom time-saving vouchers might have the greatest benefit. Previous research conducted in the US and Europe suggests that people benefit most from additional free-time when they spend this free time socializing, exercising, or resting (Mogilner, Norton and Whillans[33] provide a recent review). In contrast, recent research conducted in East Africa suggests that people benefit most from additional free-time when they spend this time on paid labor.[34]

In our exploratory analyses, we will examine whether time-saving vouchers are particularly effective at promoting welfare when women spend this additional free time engaged in employment activities (vs. leisure or socializing). We will also examine whether women who are the most pressed for time experience the greatest well-being benefits.[20] Specifically, we will examine whether women who work more hours, are married, and who have a greater number of children living at home benefit most from these time-saving vouchers.

Consistent with past research[20], we will focus primarily on the comparison between vouchers that reduce the burden of unpaid labor and equivalently valued vouchers for material goods that do not save time. The comparison against unconditional cash transfers will serve as a secondary analysis designed to assess the cost-effectiveness of time-saving vouchers. Unconditional cash transfers (UCTs) have received a great deal of attention as a critical tool for poverty alleviation in developing countries.[35,36,21] Recent research finds significant welfare benefits of UCTs.[21] Consequently, we do not predict that time saving vouchers will outperform UCTs on subjective well-being or reduced stress. Yet, there may be specific situations whereby time-saving vouchers outperform UCTs on certain dimensions of psychological and economic well-being. For example, preliminary research finds evidence that cash windfalls provided to women can have a perverse effect, whereby incidents of domestic violence increase due to

arguments that arise between men and women about how best to spend this additional money.[21] Because gains in time are harder to account for than receiving or saving money, and because vouchers for specific time-saving services are less fungible[37] (Mogilner, Whillans and Norton[33] provide a recent review), time-saving vouchers may be less likely to cause relationship conflict.

These additional analyses should be treated as exploratory given that our pre-registered power analysis and Bayesian priors are based on detecting a main effect of vouchers that reduce the burden of unpaid labor on women's subjective well-being and perceived stress; thus, our experiment may be underpowered to detect other plausible direct and indirect effects. See Appendix A for an overview of some of the exploratory analyses we will conduct, our predicted outcomes where applicable, and our pre-registered analytic plan for these exploratory outcomes.

Overall, this longitudinal field experiment will generate novel insights regarding the impact of time poverty, a critical dimension of economic development that is often overlooked. Previous research has shown that people tend to underestimate the psychological benefits of time-saving purchases – just 17% of survey respondents in a relatively affluent sample of North Americans reported spending money on time-saving services.[20] Respondents in our pilot survey also reported that they were only willing to pay a maximum of 665 Kenyan Shillings (KSH) for time-saving vouchers valued at 1000 KSH (willingness to pay: $M = 665$, $SD = 505$). Policy makers may also underestimate the possible benefits of time-saving. To explore this possibility, we are currently surveying 100 current and aspiring policy makers from UCLA and the Harvard Kennedy School of Public Policy. In this survey, we are examining the extent to which these policy makers believe that an important method of improving welfare for working women in developing countries is to provide assistance in a way that would save recipients time. Despite time-savings services being undervalued by recipients and potentially by policy makers, we

predict that reducing time poverty will have a meaningful impact on both subjective well-being and perceived stress. Additionally, we will examine whether reducing the burden of unpaid labor shapes other important economic development related outcomes such as relationship conflict, cognitive functioning, time preferences, consideration of future consequences, and self-investment behavior.

Methods

We will recruit participants through the Busara Center for Behavioral Economics, a research organization based in Nairobi, Kenya. Busara has a dedicated participant pool of over 15,000 people living in nearby informal settlements (i.e. slums), enabling efficient recruitment of working mothers living below the poverty line. The study will be implemented from the Kibera Town Center (KTC), a Busara-affiliated facility located in Kibera, the largest informal settlement nearby Nairobi, Kenya, with an estimated 200,000 inhabitants. Based on similar research using Busara's subject pool,[21] we expect low attrition of around 10%. Participants will provide informed consent prior to participating, allowing us to publish all of the anonymous case level data that we will collect. These data will be made publicly available through the Open Science Initiative.

Women in Busara's subject pool will be recruited via text message to participate in a five-minute eligibility phone call. Only women who live in areas of Kibera that are at least a 30-minute walk from the Kibera Town Center will receive a recruitment text message. This location requirement ensures that participants have access to KTC, but do not live so close to the facility as to contaminate the experimental conditions involving pick-up versus delivery of goods and services. To participate, respondents must be 18 years of age or older (the legal age of consent in Kenya), and they must be working mothers since we are interested in reducing the burden of

unpaid labor for people who are most likely to experience both time and material poverty. Specifically, we will exclude respondents who work fewer than twenty-five hours per week and do not have at least one school-aged child living in their household. To reduce attrition caused by participants moving away from Kibera, we will recruit mothers who currently have a child enrolled in school, increasing the likelihood that participants will complete the study in its entirety. Approximately 80% of women who comprise Busara's subject pool have one school-aged child living at home and a large proportion of these women send their children to school (approximately 60%), therefore we do not expect this eligibility criteria to be a limiting factor.

Based on pilot research, we chose two time-saving vouchers for use in our experiment (prepared meal delivery and laundry services; see below for more information). To ensure that these time-saving vouchers reduce participants' existing burdens of unpaid labor, we will exclude participants who report that they "always" use laundry and/or meal delivery services. Based on a recent pilot study that we conducted ($N = 98$), we expect to exclude very few respondents based on these criteria: no participants in our pilot data reported that they "always" paid for laundry and prepared meals (23.5% "sometimes" paid for laundry and 17.6% "sometimes" purchased prepared meals). Similarly, we will exclude respondents who spend fewer than five hours per week on household chores such as cooking, laundry, and collecting water. Once again, our pilot data suggests that we should expect to exclude fewer than 5% of our sample based on these criteria. To facilitate data collection, respondents must have a working cell phone that is not shared with another household member. Over 90% of Kibera residents have their own phone,[21] thus we do not expect to exclude respondents on these criteria. To ensure that the time-saving vouchers are inframarginal and therefore cover the entirety of respondents' laundry or meal needs on the day that they are provided, we will exclude participants with seven

or more individuals living in their household. Lastly, we will exclude based on attrition. We will exclude all participants who do not complete our primary end line measures. We will not define or identify outliers as we are using validated scale measures and behavioral games that restrict the range of participants' responses. Proposed analyses will be conducted using all of the data that we collect from eligible participants and, based on recently published research conducted through Busara,[21] we expect our variables to be normally distributed. If any of our exploratory time-use variables are not normally distributed, we will take the square root of these variables to normalize them, and report both the raw and transformed scores.[38]

Study Timeline

This study includes a baseline survey (Time 1), weekly phone surveys throughout the experiment, a primary endline survey (Time 2) containing identical measures to the baseline, and three follow-up endline surveys to track the persistence of any observed treatment effects.

The baseline survey will be conducted during the third week of January (Time 1). Eligible participants will visit the Kibera Town Centre to provide consent and to complete the baseline survey. As part of this survey, participants will first report on their well-being and stress, after which they will complete several time-use and demographic items including the number of hours that they work for pay each week and the number of hours that they typically spend on unpaid labor each week. Participants will then complete validated measures of relationship conflict and satisfaction, cognitive performance, time preferences, consideration of future consequences, and self-investment behavior (See Appendix B for measures).

After completing the Time 1 measures, participants will be randomly assigned between-subjects to one of four experimental conditions or to a pure control condition (described below). Starting in Week 2, participants who are randomly assigned to one of the experimental

conditions will receive weekly windfalls of cash, material goods that do not save time, or one of two time-saving services. Participants will be assigned to receive one of these four windfalls for three consecutive weeks (Week 2-4). The time-saving services will be matched in terms of their cost-to-administer. Matching on cost-to-administer controls for differences in the objective value of the time-saving services received per participant. This design also serves as a direct test of the causal effect of aid programs that spend money to reduce time poverty, while holding constant the total amount of aid dispersed (see more information on matching below).

Following from related research,[21] we will also collect granular data on participants' affective experiences, stress, time-use, and household consumption throughout the experiment. Specifically, at the end of each treatment week (Weeks 2-4), participants will complete a short phone survey that contains abbreviated versions of our primary dependent measures (stress and well-being), a shortened survey module on time-use over the past seven days, and a short survey on household expenditures and consumption (See Appendix C).

In Week 5, all participants will be invited back to Kibera Town Centre to complete the Time 2 measures. At this Time 2 follow-up, participants will complete the identical measures of paid and unpaid labor, well-being, stress, relationship satisfaction and conflict, cognitive performance, and future planning that they completed during Time 1. For exploratory purposes, participants will complete a behavioral measure of self-investment at Time 2 (Appendix B).

In Weeks 6-8, participants will complete follow-up endline surveys that are identical to phone surveys conducted in Weeks 2-4, allowing us to examine the persistence of any observed treatment effects. See Figure 1 for full study flow.

For all data collections, trained field officers will guide participants through our measures in Swahili, ensuring that every participant—including participants with limited reading, writing, and numeracy skills—are able to comprehend and correctly complete instructions and measures.

Experimental Conditions Overview. Participants will be randomly assigned between-subjects to one of five conditions: 1) time-saving vouchers: delivery and planning condition, 2) time-saving vouchers: pick-up condition, 3) in-kind goods condition, 4) unconditional cash transfer condition, and 5) pure control condition. This journal requires what is noted in the literature as "a stringent standard of evidence" (Bayes factor of 0.10/10.0)[39]. Thus, as described in more detail below, our primary comparison is between the time-saving: delivery and planning condition and the in-kind goods condition, as we have the most evidence supporting this comparison. To promote readability, we will describe each of these conditions in detail below.

Details on Time-Saving Vouchers. In order to develop the time-saving voucher conditions, we have selected time-saving goods and services that are likely to have the greatest benefits for our target population: working mothers in Kibera. To identify these goods and services, we conducted a pilot study to identify local goods and services that met the following criteria: the goods and services 1) were perceived as valuable in terms of the amount of time that these services would save, 2) replaced chores that were rated as unpleasant, and 3) replaced chores that did not involve a social component (i.e., women typically engaged in these chores alone). Based on these criteria, we selected meal delivery and laundry services. In each version of the treatment, participants will receive the same services throughout the study (i.e., meals *or* laundry). To minimize boredom in the meal condition, participants will receive one of two dishes that will be randomly assigned and alternated across weeks such that some participants will

receive Meal 1, Meal 2, Meal 1 and others will receive Meal 2, Meal 1, Meal 2. Our implementation plan for the time-saving and other experimental conditions is documented below.

Condition 1: Time-Saving Vouchers (Delivery+Planning Prompt). In our primary time-saving voucher condition (delivery+planning prompt), participants will be randomly assigned to receive one laundry service or one prepared meal, each worth 500 KSH, once per week for three consecutive weeks (Week 2-4). We chose this dollar value for conceptual and pragmatic reasons. Based on our pilot data, 500 KSH worth of both services eliminates a significant amount of unpaid labor among our target population of interest (3-6 hours per week on average). Pragmatically, this amount enables us to collect a sufficient number of participants within our available budget.

These services will be provided by a centralized location that is operated by Busara staff (Kibera Town Centre). To ensure that this condition does not impose any time costs, participants in this condition will have these goods and services delivered to their home or a nearby location of their choosing by boda (motorcycle). Because eligible participants live at least 30 minutes walking distance from Kibera Town Centre, this condition will save participants significantly more time than participants assigned to the time-saving pick-up condition (described below).

In this condition, we seek to amplify the possible benefits of the time-saving vouchers in two critical ways. Firstly, people benefit most from time-saving services when they are reminded about the specific amount of time they have saved.[40] Therefore, during each week of the study, participants will be guided through a process to calculate the specific amount of time they will save. Secondly, people tend to think more abstractly and focus on the high-level purpose of an activity when they make plans for the relatively distant future,[41,42] and people are more likely to follow through on their plans when they are asked to pre-commit to a specific date and time.[43]

Consequently, during each subsequent week, we will ask participants to plan how they would like to spend this additional free-time.[43] Together, these features will help to ensure that we implement the strongest possible time-saving treatment condition.

Condition 2: Time-Saving Vouchers (Pick-Up+Planning Prompt). This condition is identical to Condition 1, except that the laundry and meal services will not be delivered to participants. Instead, participants will pick-up the same services from a centralized location that is operated by Busara staff (Kibera Town Centre). Because eligible participants live at least 30 minutes walking distance from Kibera Town Centre, this condition should save participants significantly less time than the Time-Saving Delivery Condition. Comparing delivery versus pick-up of the identical goods and services provides a rigorously controlled test of the effects of additional time-savings. Participants in these two conditions will receive the identical goods and services; however, the critical difference is the amount of time saved (vs. the friction costs) associated with the receipt of these services. In order to match these two conditions on cost to administer, participants in this condition will also receive a weekly unconditional cash transfer that is equivalent to the average delivery cost (200 KSH). Participants will receive this cash transfer via MPesa (a ubiquitous mobile money platform used by Kibera residents) immediately after they pick-up their meals/laundry. As described above, this decision is to ensure that the total economic value of the windfalls is held constant across all treatment arms.

Condition 3: In-Kind Goods That Do Not Save Time. Following from recently published research,[20] we will compare the effect of the time-saving vouchers (condition 1) against an equivalently valued voucher (700 KSH) for purchases that do not save time (i.e., staple goods[34]). To allow for a direct comparison between the time-saving voucher condition (condition 1) and this non-time saving condition, the voucher for in-kind goods will only be

redeemable for unprepared staple foods (maize/wheat flour, rice, sugar, or cooking oil[34]). In order match on cost to administer, the value of this voucher will be 700 KSH (500 KSH + average delivery cost). Participants will be required to *pick-up* these goods from KTC.

This condition mimics the standard methods used by aid programs to provide in-kind transfers. Typically, goods are provided to recipients for free or with a subsidy, however, recipients must incur a time cost to travel to receive these goods from a centralized location. These time costs are imposed for two primary reasons. Firstly, some policymakers simply seek to provide as much in-kind aid to recipients as possible, choosing not to invest resources toward reducing time costs for recipients (for instance, by delivering aid closer to recipients' homes or reducing waiting times at centralized locations). Second, some aid programs deliberately impose time or effort costs to target recipients who they believe will benefit most from their in-kind aid. This process, described as 'self-targeting,' is often effective in discouraging richer households from participating, enabling in-kind aid programs to reach households who need it most.[44] Yet, in both cases, policymakers may be ignoring or underestimating the effects of recipients' time poverty. Thus, this condition allows for a controlled comparison between in-kind goods that impose a time cost versus those that are designed to relieve time costs (i.e., Conditions 1 and 2).

Condition 4: Unconditional Cash Transfers. Participants will receive a weekly cash transfer via MPesa that is matched to the cost to administer in the primary time-saving voucher (condition 1). Therefore, the weekly cash transfer will be 700 KSH (500 KSH + average delivery cost), which is approximately 1.5x the avg. daily wage in Kibera.[21]

Condition 5: Pure Control. Participants complete all survey measures, but receive no windfalls of any kind. This condition provides a benchmark for evaluating the effectiveness of each type of windfall on our key outcomes of interest.

Primary Measures (T1 and T2)

To provide measures of subjective well-being at Time 1 and 2, participants will complete (a) the Schedule of Positive Affect and Negative Affect (SPANE[45]), which will include two 6-item measures of Positive Affect and Negative Affect and (b) the 5-item Satisfaction with Life Scale (SWLS[46]). Based on past research, we will define subjective well-being (SWB) as a combination of high positive affect (PA), low negative affect (NA) and high feelings of life satisfaction.[47,48,49] Based on this definition, we will create a composite measure that contains each of these well-being measures and focus our primary analyses on the effect of the transfers on this SWB composite measure over time (Time 1 and Time 2). On an exploratory basis, we will report the effect of the time saving vouchers on each component separately (i.e., life satisfaction, positive affect, and negative affect).

To provide measures of perceived stress, at Time 1 and 2 participants will complete the 10-item Perceived Stress Scale (PSS[50,51]), which conceptualizes subjective stress as a lack of control over important life outcomes. Previous research suggests that time saving services can increase perceived control over one's life.[20,52] There is also evidence that unconditional cash transfers can increase perceived internal locus of control—the extent to which individuals believe that they control important outcomes in their life, as opposed to these outcomes being determined by external factors.[21] We have selected this measure because it is widely used, well-validated, and because this measure defines stress specifically with respect to the perception of control. Our focus on one definition of subjective stress addresses recent calls from researchers to study the specific elements of stress they expect to be most relevant in their context of interest (versus focusing on stress as a broad construct that is less directly related to the study context[53]).

Together, the well-being composite and perceived stress scale comprise our primary measures of interest on which we will base our confirmatory predictions and Bayesian analyses.

Secondary Measures (T1 and T2)

To broaden the scope of the proposed work, we will examine whether, when, and how reducing the burden of unpaid labor shapes other important outcomes related to poverty alleviation such as relationship satisfaction and conflict, and indirect measures of future economic well-being including cognitive functioning, time preferences, consideration of future consequences, and self-investment behavior.

To provide measures of relationship satisfaction at Time 1 and 2, participants will complete a 5-item relationship satisfaction and a 5-item relationship conflict scale.[54,55] To garner converging evidence, we will solicit relationship conflict and satisfaction measures at Time 1 and 2 from all household members over the age of 16. To provide indirect measures of cognitive performance participants will complete three tests at Time 1 and Time 2: (1) Raven's Progressive Matrices,[56] measuring fluid intelligence, (2) a Numerical Stroop Task,[57] measuring executive control, and (3) the Dots-Mixed Task,[58] measuring control over attention. Participants will also complete 7 different measures that predict future economic well-being: (1) a validated measure of intertemporal trade-offs,[59] (2) a behavioral measure of self-investment,[60] (3) validated measures of subjective time preference,[61] (4) the consideration of future consequences scale,[62] (5) subjective financial well-being (validated by the Consumer Financial Protection Bureau), (6) self-reported financial well-being (adapted from the Survey of Household Economics conducted by the US Federal Reserve), and (7) measures of objective financial well-being.[21] We will also ask participants a series of household consumption questions.[21] Lastly, we will ask participants a series of household consumption questions.[21]

To confirm that participants assigned to the primary Time-Saving Delivery Condition complete fewer hours of unpaid labor as compared to the In-Kind Goods Condition as well as to observe time-use changes during the study across the other experimental conditions, we will examine time-use at T1, T2, and during weekly phone calls using validated measures.[63,64,12]

Exploratory Measures (T1 and T2)

On an exploratory basis, participants will complete abbreviated measures of subjective well-being and perceived stress during weekly phone calls to examine changes over time in response to receiving different types of windfalls (Appendix C). During this call, we will ask participants across both time-saving conditions how they spent the free time that they saved as a result of receiving the service (meals or laundry). These questions will allow us to examine whether time-saving vouchers benefit women most when they spend this windfall of time working, engaged in other productive household labor activities (such as helping children with school-work), or investing in social relationships (such as socializing or helping neighbors, friends, or relatives with unpaid labor). Similarly, participants receiving in-kind goods will be asked how they used these goods, and participants receiving unconditional cash transfers will report on how they spent this money.

On an exploratory basis, we will also ask participants assigned to one of the four treatment conditions to report on their end-of-day mood following aid receipt by responding to how "happy," "stressed," and "positive" they feel (Appendix D). These items will allow us to explore whether cash windfalls produce immediate mood benefits, whereas time-windfalls result in more sustained shifts in subjective well-being over the course of our study (as documented as part of the weekly phone surveys). This proposition is consistent with research showing that material purchases provide happiness benefits for consumers only when the cash and material

goods are received, used, or consumed, whereas purchases that change how consumers spend time provide happiness benefits in anticipation, during consumption, and upon reflection.[65,66,67]

Results

Proposed Analysis Pipeline

We will not remove outliers from the data that we collect as part of this research. In the data pre-processing stage, we will ensure that participants have completed both Time 1 and Time 2 measures. Because we are interested in how the treatments cause changes in our key outcomes of interest, we will discard data from all participants who do not have Time 2 data.

Based on past research, we will utilize a definition of subjective well-being that comprises a combination of high positive affect (PA), low negative affect (NA), and high feelings of life satisfaction.[47,48,49] Thus, we will create a composite measure that contains each of these measures for each time point (Time 1 and 2). Specifically, assuming a correlation of at least 0.50 between the SWL, PA and NA (reversed) subscales, we will combine these subscales to create an overall SWB measure. We will also create an average of the items of the perceived stress scale for each time point (Time 1 and 2). We will report the impact of condition assignment on each secondary measure separately (e.g., relationship satisfaction, cognitive attention, future planning. See below for more detail).

Pre-Processing Checks. Before testing our primary hypotheses, we will conduct chi-square analyses to ensure that we do not have differential attrition in our study depending on condition assignment. Next, we will conduct an ANOVA analysis to ensure that participants in each of the time-saving conditions complete fewer hours of unpaid labor (chores) on average each week as compared to participants assigned to the other experimental conditions. Within the time-saving conditions, we will conduct an ANOVA analysis to ensure that participants assigned

to the Time-Saving Delivery Condition report that the services saved them significantly more time than participants assigned to the Time-Saving Pick-up Condition.

Power Analysis

Because of the limited experimental research in this area and the relative novelty of the proposed work, it is difficult to estimate precise effects. However, meta-analyses suggest that typical effects in social psychology yield small to medium effects (approx. $r = .21$[68]). This estimate is consistent with recent research suggesting that the well-being and stress benefits of receiving time-saving services comprises a medium effect size ($d=0.40$[20]). Following from these results, we used G*Power 3 to calculate the sample size needed to detect a minimum difference of $r = .21$ with 80% power between each of our conditions of interest. To achieve 80% power to detect an effect size of $r = .21$ ($d = .40$) we require at least 180 participants to detect significant effects of condition on our two dependent measures of interest. We will therefore recruit two-hundred participants per condition, which will allow for 10% attrition and enable us to have 80% power to detect the effect of condition on our key outcomes. Although it is conceivable that our condition assignments might exert a smaller effect on our subjective stress and well-being measures, from a practical perspective, an effect that is smaller than $r = .21$ is unlikely to provide compelling evidence about the potential value of time-saving services among this population.

To establish the strength of evidence represented by our data, we will conduct Bayesian t-tests on the difference in subjective well-being and perceived stress at T2 under the In-Kind Goods and the Time-Saving Delivery Condition. Following the approach advocated for by Rouder and colleagues[69], we will calculate the Bayes factor B_{10} by comparing M_1, the model with the condition effect, and M_0, the null model. The null model M_0 will have a prior placed at point 0. Based on previous research suggesting a small to medium effect size[20], we will place a

narrow Cauchy prior with an *r*-scale value of .3 on the condition effect in M_1. The procedure will

be performed using JASP.[70] If B_{10} exceeds 10.00 across both dependent measures, we will

conclude that the data presents strong evidence for differences in stress and subjective well-being

between conditions. In the event that B_{10} drops below 0.10, we will conclude that the data

presents strong evidence against differences between conditions. Based on a simulation under the

assumption of $d = 0.40$ ($r = .21$) for the difference between the two conditions, there is an 81.5%

probability that B_{10} will exceed 10 under this procedure with a per condition sample size of 180.

We are focusing on perceived stress and subjective well-being as our confirmatory

hypotheses of interest. Although additional measures are secondary and more exploratory in

nature, we will also report the strength of the evidence for shaping each of the secondary

outcome measures (e.g., relationship satisfaction, relationship conflict, cognitive attention, and

future planning). Due to the difficulty in predicting the proposed differences between the other

experimental conditions, we will focus our confirmatory hypothesis on the analyses that compare

the In-Kind Condition with the Time-Saving Delivery Condition. We have made this decision

based on previous literature suggesting that this is where we should expect the largest effect. The

Bayesian analysis on other conditions will be presented in an exploratory manner.

Pre-registration guidelines from this journal require us to confirm that we will collect

data until we have reached a Bayesian prior of 0.10/10 on our key outcomes (subjective well-

being and perceived stress). In the current design, we have proposed collecting data from one-

thousand participants. We currently have the budget to run up to twelve hundred participants.

Consequently, if we do not reach a Bayesian result of 0.10 or 10.00 on subjective well-being and

perceived stress with this sample size, we will collect an additional two hundred participants

across our two key conditions of interest (In-Kind Goods and Time-Saving Delivery).

Timeline

The study will launch in January 2019. For logistical purposes, we will run the study in two waves starting in January 2019 and March 2019, respectively. If we fail to reach our required sample size needed to obtain adequate power in this experiment (80%) or if our Bayesian analyses yield unclear results, we will continue running a third wave starting May 2019. Based on achieving our data collection goals, if our analyses result in clear conclusions, we propose submitting our manuscript by May 2019 (if the Stage 1 review is successful).

Results from Initial Piloting

To ensure that our protocols were feasible to implement in this context, we ran a small-scale pilot with $N = 19$ working women living in Kibera that included only the time-saving conditions. Although it was not the purpose of this pilot to reliably assess condition differences, this initial data collection suggests that the Time-Saving Delivery Condition saved participants significantly more time than the Time-Saving Pick-up Condition, providing initial evidence that the delivery condition increased free time for participants as compared to the pick-up condition.

We recently completed an additional pilot with N=40 working women in Kibera to test and adapt our key outcome measures to the local language and context as well as to adjust for literacy and numeracy of respondents. The surveys in the Appendix reflect these adjustments.

Figure 1. Visual representation of our study design
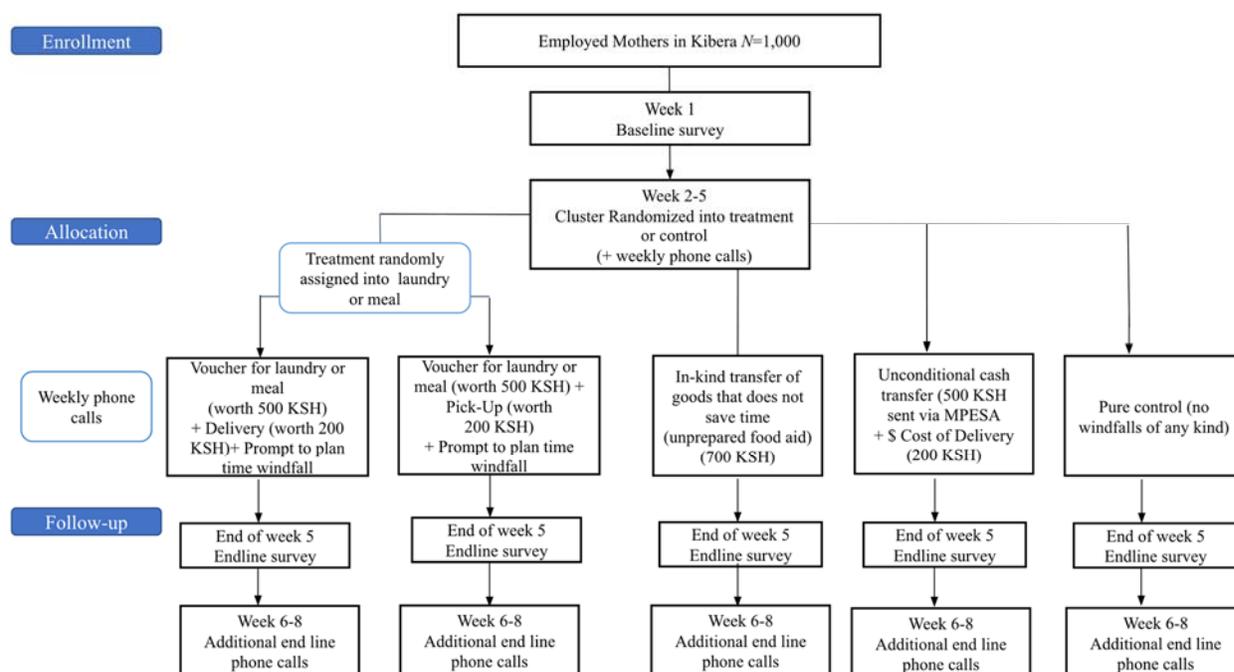
APPENDIX A:
Overview of exploratory analyses described in text

	Analysis Type	Hypothesis	Analysis Plan
1	Exploratory	As compared to vouchers for material goods that do not save time, vouchers that reduce the burden of unpaid labor will decrease present-bias, increase self-investment, encourage consideration of future consequences, and increase self-reported financial well-being.	Regression Analyses with and without controlling for the baseline measures
2	Exploratory	As compared to vouchers for material goods, any benefits of vouchers that reduce the burden of unpaid labor on the outcomes listed in Row 1 of this table will be explained by increased well-being and reductions in stress	Regression Analyses w/ Bootstrapping
3	Exploratory	The hypothesized results of reducing the burden of unpaid labor will be stronger when women spend their additional free time working (vs. socializing)	Regression Analyses w/ Bootstrapping
4	Exploratory	The hypothesized results of reducing the burden of unpaid labor will be stronger for women who do more hours of unpaid labor	Regression Analyses w/ Bootstrapping
5	Exploratory	The hypothesized results of reducing the burden of unpaid labor will be stronger for women with more children at home	Regression Analyses w/Bootstrapping
6	Exploratory	As compared to unconditional cash transfers, vouchers that reduce the burden of unpaid labor for women will have less negative impacts on relationship satisfaction and relationship conflict	Regression Analyses w/Bootstrapping
7	Exploratory	As compared to unconditional cash transfers, vouchers that reduce the burden of unpaid labor for women will be less likely to increase temptation spending	Regression Analyses w/ Bootstrapping

Note. These analyses are exploratory because they are not the main purpose of this manuscript and we will have lower power to detect significant effects of the interaction between condition assignment and the variable of interest on our key well-being outcomes.

APPENDIX B
Primary baseline and endline survey

Subjective Well-being (SWL + adapted SPANE)

Please imagine a ladder with steps numbered from zero at the bottom to ten at the top. Suppose we say that the top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. If the top step is 10 and the bottom step is 0, on which step of the ladder do you feel you personally stand at the present time (*right now*)?

0   1   2   3   4   5   6   7   8   9   10

Bottom   Top Step
Step

Please think about what you have been doing and experiencing IN THE PAST 7 DAYS. Then report how much you experienced each of the following feelings, using the scale below. For each item, select a number from 1 to 5, and indicate that number on your response sheet.

1   2   3   4   5

Very rarely/never   Rarely   Sometimes   Often   Very often/always

Positive
Negative
Good
Bad
Pleasant
Unpleasant

Perceived Stress Scale

The questions in this scale ask you about your feelings and thoughts during THE PAST SEVEN DAYS. In each case, you will be asked to indicate your response by telling me **how often** you felt or thought a certain way. Although some of the questions are similar, there are slightly differences between these questions and you should treat each question separately. The best approach is to answer quickly. That is, don't try to count up the number of times you felt a particular way but rather indicate the choice that seems like a good estimate. *1=Never; 2=Almost never, 3=Sometimes, 4=Fairly often, 5=Very Often*

1. In the PAST SEVEN DAYS, how often have you felt that you were unable to control the important things in your life?
2. In the PAST SEVEN DAYS, how often have you felt confident about your ability to handle your personal problems?
3. In the PAST SEVEN DAYS, how often have you been upset because of something that happened unexpectedly?
4. In the PAST SEVEN DAYS, how often have you felt nervous and stressed?
5. In the PAST SEVEN DAYS, how often have you felt that things were going your way?
6. In the PAST SEVEN DAYS, how often have you felt you felt that you could not cope with all the things you had to do?
7. In the PAST SEVEN DAYS, how often have you been able to control irritations in your life?
8. In the PAST SEVEN DAYS, how often have you felt like you were on top of things?
9. In the PAST SEVEN DAYS, how often have you been angered about things that were outside your control?
10. In the PAST SEVEN DAYS, how often have you felt difficulties were piling up so high that you could not overcome them?

Relationship Satisfaction

What is your marital status?
- Single
- Married or in a marriage-like relationship
- Widowed
- Divorced/Separated
- Never Married
- Refused to Answer

If married or in a marriage like relationship:

Please read each statement and ask yourself "How much do I agree?" There are no right
or wrong answers. The best answer is the one that describes your personal view. Select
the response that best indicates how much you agree with each statement. When responding to these
questions please consider the PAST SEVEN DAYS.

1	2	3	4	5	6	7
Extremely Dissatisfied	Very dissatisfied	Somewhat dissatisfied	Mixed	Somewhat satisfied	Very satisfied	Extremely satisfied

1. In the PAST SEVEN DAYS, all things considered, how happy were you with your overall relationship with your partner?
2. In the PAST SEVEN DAYS, to what extent have you been satisfied with how your partner has acted?
3. In the PAST SEVEN DAYS, how satisfied have you been with your overall relationship with your partner?
4. In the PAST SEVEN DAYS, how satisfied have you been with the intimacy of your relationship?

Relationship Conflict

Most people have disagreements in their relationships. Please indicate below the extent of
agreement or disagreement between you and your partner in the PAST SEVEN DAYS for each
item on a scale from *1=Never to 6=Never.*

1. In the PAST SEVEN DAYS, how often have you discussed or considered separation or terminating your relationship?
2. In the PAST SEVEN DAYS, how often have you and your partner quarreled?
3. In the PAST SEVEN DAYS, have you ever regretted that you started dating this person?

Intertemporal Discounting

The next set of questions ask about preferences between money today and money in the future. You will be presented with multiple pairs of alternatives. For each pair, check the alternative that you prefer. There is no right or wrong answer, so simply tell us your true preference.

Imagine you could choose between **receiving** KSH 200 immediately, or another amount in **1 week** from now. Please indicate which option you would choose in each case.

□ *Receive KSH 200 today*   □ *Receive KSH 190 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 200 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 210 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 225 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 250 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 275 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 300 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 350 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 400 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 500 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 700 in 1 week*

□ *Receive KSH 200 today*   □ *Receive KSH 1,000 in 1 week*

Imagine you could choose between **receiving** KSH 2,000 immediately, or another amount in **12 months** from now. Please indicate which option you would choose in each case.

□   *Receive KSH 2,000 today*   □ *Receive KSH 1,900 in 12 months*

□ *Receive KSH 2,000 today*   □ *Receive KSH 2,000 in 12 months*

□ *Receive KSH 2,000 today*   □ *Receive KSH 2,100 in 12 months*

□ *Receive KSH 2,000 today*   □ *Receive KSH 2,200 in 12 months*

□ *Receive KSH 2,000 today*   □ *Receive KSH 2,500 in 12 months*

□ *Receive KSH 2,000 today*   □ *Receive KSH 3,000 in 12 months*

□ *Receive KSH 2,000 today*   □ *Receive KSH 4,000 in 12 months*

□ *Receive KSH 2,000 today*   □ *Receive KSH 5,000 in 12 months*

□ *Receive KSH 2,000 today*   □ *Receive KSH 7,500 in 12 months*

□ *Receive KSH 2,0000 today*   □ *Receive KSH 10,000 in 12 months*

□ *Receive KSH 2,000 today*   □ *Receive KSH 15,000 in 12 months*

□ *Receive KSH 2,000 today*   □ *Receive KSH 30,000 in 12 months*

Time Preference

In this task, you will be asked to indicate your subjective feeling of duration between today and various days in the future. Days in the future range from 3 months to 36 months. Please read the instructions carefully and indicate your responses.

1. Imagine a day 3 months into the future. Please use the slider below to indicate how long you consider the duration between today and a day 3 months later. How long do you consider the duration between today and a day 3 months later?

2. Imagine a day 12 months into the future. Please place a mark on the line indicating how long you consider the duration between today and a day 12 months later. How long do you consider the duration between today and a day 12 months later?

3. Imagine a day 36 months into the future. Please place a mark on the line indicating how long you consider the duration between today and a day 36 months later. How long do you consider the duration between today and a day 36 months later?

Consideration of Future Consequences

Thinking about the PAST SEVEN DAYS, to what extent has each statement been characteristic of you. Please think about your feelings and actions during the PAST SEVEN DAYS only.

1=extremely uncharacteristic
2=somewhat uncharacteristic
3=uncertain
4=somewhat characteristics
5=extremely characteristic

1. I consider how things might be in the future, and try to influence those things with my day to day behavior
2. Often I engage in a particular behavior in order to achieve outcomes that may or may not result for many years
3. I often act to satisfy immediate concerns, figuring the future will take care of itself
4. My behavior is only influenced by the immediate (i.e., a matter of days or weeks) outcomes of my actions
5. My convenience is a big factor in the decisions I make or the actions I take
6. I am willing to sacrifice my immediate happiness or well-being in order to achieve future outcomes
7. I think it is important to take warnings about negative outcomes seriously even if the negative outcome will not occur for many years.
8. I think it is more important to perform a behavior with important distant consequences than a behavior with less-important immediate consequences
9. I generally ignore warnings about possible future problems because I think the problems will be resolved before they reach crisis level
10. I think that sacrificing now is usually unnecessary since future outcomes can be dealt with at a later time
11. I only act to satisfy immediate concerns, figuring that I will take care of future problems that may occur at a later date
12. Since my day to day work has specific outcomes, it is more important to me than behavior that has distant outcomes

Subjective Financial Well-being

On a scale of 1 (Much worse) to 5 (Much better), your current financial state as compared to your financial state one year ago is:

- Much worse today than one year ago
- A little worse today than one year ago
- About the same
- A little better today than one year ago
- Much better today than one year ago

Looking ahead, how do you think you will be financially one year from today?

Much worse than you are now
A little worse than you are now
About the same
A little better than you are now
Much better than you are now

How well does this statement describe you or your situation?

- Does not describe me at all
- Describes me very little
- Describes me somewhat
- Describes me very well
- Describes me completely

1. I could handle a major unexpected expense
2. I am securing my financial future
3. Because of my money situation, I feel like I will never have the things I want in life (R)
4. I can enjoy life because of the way I'm managing my money
5. I am just getting by financially (R)
6. I am concerned that the money I have or will save won't last (R)
7. Giving a gift for a wedding, birthday, or other occasion would put a strain on my finances for the month (R)
8. I have money left over at the end of the month
9. I am behind with my finances (R)
10. My finances control my life (R)

Suppose there is a very important expense, such as medication for an ill family member, that needs to be paid **today**. Can you spend 500 shillings on an important expense today?

- Yes
- No

Suppose there is a very important task **today** such as a job interview or a doctor's appointment. Can you spare 2 hours for a very important task?

- Yes
- No

Objective Financial Well-being

Which of the following assets do you own? [indicate ownership status for each asset]
- Personally own
- Common property / owned by someone in the household
- Don't own

1. Inherited or given land
2. Land you bought
3. Livestock
4. Car, van, bus, or truck
5. Motorcycle or other motorized vehicle or machinery
6. Refrigerator
7. TV
8. TV subscription
9. Working basic phone
10. Working smart phone (internet access)

What is your primary source of income? [single response]

What other sources of income do you have? [multiple response]

From all of the sources of income that you just mentioned, how much income have you earned in the last 6 months from [insert date 6 months ago] to date? If you do know the exact amount, please provide your best guess. _____ KSH

How much money (from all sources of income) do you expect to earn in the next 6 month, from today until [enter date 6 months from today]? _____ KSH
Is your income seasonal?
- Yes
- Partly
- No

If YES or PARTLY, what % of your total overall income is seasonal? (0-100%)

If you lost your main source of income, how long could you continue to cover your living expenses and the living expenses of your dependents without borrowing any money?
- Less than a week
- At least a week, but not one month
- At least one month, but not three months
- At least three months, but not six months
- More than six months
- Don't know
- Refused

Approximately, how much money do you have saved in total? (Please take the sum of all money you have saved in bank accounts, cash etc.)

_____ shillings [open-ended]

[OR provide ranges]
- Less than 100 KSH
- 100 - 500 KSH
- 500 - 1000 KSH
- 1000 - 5000 KSH
- 5000 - 10,000 KSH
- 10,000 - 50,000 KSH
- 50,000 - 100,000 KSH
- More than 100,000 KSH

How often do you save?
- Never
- Less than once per year
- About once every 6 months
- About once every 3 months
- About once per month
- Once a week or more

Please tell us if you have experienced any of the following events in the PAST SEVEN DAYS?

Change in job, form of work, or schooling
- Yes. If yes, please describe.
- No

Did you experience another type of stressful life event in the PAST SEVEN DAYS?
- Yes. If yes, please describe.
- No

Who is responsible for the day-to-day decision about money in your household?
- You
- You and your partner – *only include if participant indicated married*
- Someone else. If "someone else" what is your relation to this person?

<u>Time Use</u>

<u>Note: To match the weekly phone calls, we will ask these questions about the PAST SEVEN DAYS.</u>

Thinking about the PAST SEVEN DAYS, on average, what time did you wake up? _____

Thinking about the PAST SEVEN DAYS, on average, what time did you go to sleep?_____

Thinking about the PAST SEVEN DAYS, please estimate the NUMBER OF HOURS that you were AWAKE that you spent engaged in each of the activities listed. FOR RA: If the time spent on any activity sums up to less than an hour in the PAST SEVEN DAYS, then please indicate the number of MINUTES out of an HOUR participants engaged in the activity.
- Commuting
- Working
- Shopping
- Preparing food
- Doing housework
- Taking care of your children
- Eating
- Praying/worshipping/meditating
- On the phone
- Watching TV
- Nap/resting
- Computer/internet/email
- Relaxing
- Socializing
- Intimate Relations
- Exercising
- Doing Nothing
- Waiting
- Nap/Resting
- Computer/Internet/Email
- Intimate Relations
- Exercising
- Other

<u>Amount of Time Spent Doing Chores</u>

The following is a list of common household tasks. Please indicate which chores you have spent any time during the PAST SEVEN DAYS (i.e., XX/YY until today, XX/YY).

Select all that apply [multi-select]
1.   Grocery Shopping
2.   Cooking meals
3.   Doing the dishes
4.   Loading and emptying the dishwasher
5.   Doing the laundry
6.   Ironing clothes
7.   Vacuuming
8.   Cleaning the bathroom
9.   Cleaning the kitchen
10.   Tidying up the home
11.   Repairing things around the home
12.   Caring for pets
13.   Taking out the trash
14.   Taking children to their activities and appointments
15.   Punishing the children
16.   Playing with the children
17.   Washing the car
18.   Yard-work (mowing the lawn, gardening)

<u>For each chore separately:</u>
For example:
You previously stated that, during the PAST SEVEN DAYS, you spent time [cleaning the bathroom].
How many minutes, approximately, did you spend [cleaning the bathroom] by yourself?
How many minutes, approximately, did you spend [cleaning the bathroom] with your partner?
How many minutes, approximately, did your partner spend [cleaning the bathroom]?

<u>Amount of Time Spent Doing Chores (Overall)</u>
In an average week, how many hours do you spend on household tasks without your partner? (A rough estimate is fine).
In an average week, how many hours does your partner spend on household tasks without you?
In an average week, how many hours do you and your partner spend together completing household tasks?

Household Consumption

Now I would like to ask you questions about how you spent money in the PAST 7 DAYS. These questions are about your household expenses, do not include business expenses.

Food consumption

Did your household consume this item in the past 7 days: Alcoholic drinks
- Spirits (y/n)
- Wine (y/n)
- Beer (y/n)
- Brews (y/n)
- Cider (y/n)

What was the value of amount consumed in total (KSH) Alcoholic drinks _____ KSH

Did your household consume this item in the past 7 days: tobacco
- Cigarettes (y/n)
- Cigars (y/n)
- Tobacco (y/n)
- Snuff (y/n)
- Khatt or Miraa (y/n)

What was the value of amount consumed in total (KSH) tobacco _____ KSH

Did your household consume this item in the past 7 days: prepared foods
- Vendor food (y/n)
- Cafes or takeaways (y/n)
- Kiosks (y/n)
- Restaurants or hotels (y/n)

What was the value of amount consumed in total (KSH) prepared foods _____ KSH

Non-food consumption

Did you spend money (or goods) on this in the past 7 days? Airtime, internet, other phone expenses

What was the value of amount consumed in total (KSH) Airtime, internet, other phone _____ KSH

Did you spend money (or goods) on this in the past 7 days? Travel, transport, hotels
- 01 Petrol
- 02 Road tolls
- 03 Ferry tolls
- 04 Taxi
- 05 Parking charges
- 06 City bus
- 07 Matatu
- 08 Country bus
- 09 Boda/Piki
- 10 Train
- 11 Local flight
- 12 Hotel stays

What was the value of amount consumed in total (KSH) Travel, transport, hotels _____ KSH

Did you spend money (or goods) on this in the past 7 days? Lottery tickets, gambling

What was the value of amount consumed in total (KSH) Lottery tickets, gambling _____ KSH

Did you spend money (or goods) on this in the past 7 days? Clothing and shoes

What was the value of amount consumed in total (KSH) Clothing and shoes _____ KSH

Did you spend money (or goods) on this in the past 7 days? Recreation and entertainment
- 01 Cinema tickets
- 02 Videos
- 03 Music/CDs
- 04 Books/Magazines
- 05 Stadium tickets
- 06 Concert tickets
- 07 Park/Safari tickets

What was the value of amount consumed in total (KSH) Recreation and entertainment_____ KSH

Did you spend money (or goods) on this in the past 7 days? Personal items
- 01 Haircut
- 02 Aftershave, Body lotion, Toothpaste, razors, sanitary pads

- 03 Hair oil, Perfume, Petroleum jelly, Baby oil/powder, Cotton wool, Handkerchiefs
- 04 Cosmetics: lipstick, nail polish, eye-liner, etc.

What was the value of amount consumed in total (KSH) Personal items _____ KSH

Did you spend money (or goods) on this in the past 7 days? Household items
- 01 Soap
- 02 Combs
- 03 Toilet paper/tissue, etc.
- 04 Detergent
- 05 Dish washing paste
- 06 Broom/mop/duster
- 07 Disinfectant
- 08 Air freshener
- 09 Floor polish
- 10 Insecticide
- 11 Shoe polish
- 12 Match box
- 13 Candles
- 14 Laundry

What was the value of amount consumed in total (KSH) Household items _____ KSH

Did you spend money (or goods) on this in the past 7 days? Kerosene, firewood, charcoal

What was the value of amount consumed in total (KSH) Kerosene, firewood, charcoal _____ KSH

Did you spend money (or goods) on this in the past 7 days? Electricity

What was the value of amount consumed in total (KSH) Electricity _____ KSH

Did you spend money (or goods) on this in the past 7 days? Water

What was the value of amount consumed in total (KSH) Water _____ KSH

Did you spend money (or goods) on this in the past 7 days? House rent, mortgage

What was the value of amount consumed in total (KSH) House rent, mortgage_____ KSH

Did you spend money (or goods) on this in the past 7 days? Fixing home damage or improving or expanding

What was the value of amount consumed in total (KSH) Fixing home damage or improving or expanding_____ KSH

Did you spend money (or goods) on this in the past 7 days? Religious expenses or other ceremonies (excluding weddings and funerals)

What was the value of amount consumed in total (KSH) Religious expenses or other ceremonies (excluding weddings and funerals) _____ KSH

Did you spend money (or goods) on this in the past 7 days? Charitable donations

What was the value of amount consumed in total (KSH) Charitable donations_____ KSH

Did you spend money (or goods) on this in the past 7 days? Weddings

What was the value of amount consumed in total (KSH) Weddings_____ KSH

Did you spend money (or goods) on this in the past 7 days? Funerals

What was the value of amount consumed in total (KSH) Funerals_____ KSH

Did you spend money (or goods) on this in the past 7 days? School/college fees, uniforms, books, or other

What was the value of amount consumed in total (KSH) School/college fees, uniforms, books, or other_____ KSH

Did you spend money (or goods) on this in the past 7 days? Medical expenses, (including consultation fees, medicines, hospital costs, lab test costs, ambulance costs, and related transport)

What was the value of amount consumed in total (KSH) Medical expenses, (including consultation fees, medicines, hospital costs, lab test costs, ambulance costs, and related transport) _____ KSH

Did you spend money (or goods) on this in the past 7 days? Household durables
- 01 Cutlery
- 02 Pots, pans
- 03 Blender
- 04 Light Bulb
- 05 Cups/glasses/mugs
- 06 Curtains
- 07 Carpets
- 08 Lamps
- 09 Fans
- 10 Plates
- 11 Vases
- 12 Mirrors
- 13 Chairs
- 14 Tables
- 15 Other furniture
- 16 Other durables

What was the value of amount consumed in total (KSH) Household durables_____ KSH

Did you spend any money on other expenses greater than KSH 1000?

[IF YES] Please specify this other expense

How much did you spend on these other expenses in total in the last 7 days?

Other spending proxies

How much money did people in your household spend yesterday?

How much money did people in your household spend in the last week?

How much cash does your household have "on hand" now?

What goods do you consume that nobody else in your household consumes? (list)
In the past 7 days, how much did you spend on these items? (total)

What goods does your husband/partner consume that nobody else in your household consumes? (list)

In the past 7 days, how much was spent on these items? (total)

Selected Demographics

What is the respondent's gender?
- Male
- Female

What year were you born?

Do you have children?
- Yes
- No

How many children do you have?

In total, how many people live in your house, including you?

How many people depend on entirely you for your support?

Excluding your romantic partner or husband, please write the names of everyone who lives in your household and their relationship to you.
1. Person 1:
2. Person 2:
3. Person 3:

For each person mentioned above:

In the PAST SEVEN DAYS, how satisfied have you been in your relationship with X?

1	2	3	4	5	6	7
Extremely dissatisfied	Very dissatisfied	Somewhat dissatisfied	Mixed	Somewhat satisfied	Very satisfied	Extremely satisfied

In a typical week, how much quality time do you and X spend together?

1	2	3	4	5	6	7

Very little   A great deal

<u>Self-Investment Behavior Measure</u>

For this measure, we will offer participants the option to attend a job skills class such as business accounting or financial literacy training offered through Kibera Town Centre.

We would measure 1) sign-up and 2) follow-through rates.

Reservation Wage Measure

Note: If the vouchers that reduce the burden of unpaid labor, free up more time, women should be more willing to work. We will measure this via the labor provision task below.

Materials needed for BDM protocol:
- Large container filled with rice and lentils (mixed) marked "Rice and Lentils"
- Cup marked "Rice"
- Cup marked "Lentils"
- Opaque container marked "Wage Amounts" filled with tokens. The bag contains 8 tokens, one with each of the following wages: 25 KSH per hour, 50 KSH per hour, 75 KSH per hour, 100 KSH per hour, 150 KSH per hour, 200 KSH per hour, 300 KSH per hour, 500 KSH per hour

[FO read aloud]:
We would now like to offer you the opportunity to complete a one hour job in return for additional pay.

Job Description:
The job involves separating rice and lentils from this larger container [Note to FO: show respondent larger container marked "rice and lentils"] into two smaller containers [Note to FO: show respondent two smaller cups marked "rice" and "lentils"].

Do you have any questions about the job?

I will now ask you a series of questions about how much money you would need to be paid to complete this one hour job. I will ask you whether you would be willing to complete this job for different amounts of money. You will then draw a token that determines which of these amount you will receive in return for completing the job.

[Note to FO: show respondent the container of tokens with different wage amounts marked on each token]

If you say "no" to that wage and you draw it, then you will not be given a contract to complete the job, and you will not have a chance to change your mind. If you say "yes" to that wage and you draw it, you will be expected to work and be paid this amount for the one hour job.

[Note to FO: for each of the following wages, confirm twice and describe the implications of saying yes/no]

> If you pick 25 KSH, would you accept the job? Yes / No
> If you pick 50 KSH, would you accept the job? Yes / No
> If you pick 75 KSH, would you accept the job? Yes / No
> If you pick 100 KSH, would you accept the job? Yes / No
> If you pick 150 KSH, would you accept the job? Yes / No
> If you pick 200 KSH, would you accept the job? Yes / N
> If you pick 300 KSH, would you accept the job? Yes / No

If you pick 500 KSH, would you accept the job? Yes / No

[Note to FO: ask respondent to draw a token from the container]

What wage amount did you draw?

[FO to complete]:

Did the respondent say that he/she would accept a contract at that wage? Yes / No

[if yes, read aloud]: You said that you would accept a wage of [say wage drawn], so we will offer you a labor contract at that wage.

Thank you for completing our study!

Do you have any questions for me?

APPENDIX C
Weekly phone surveys and follow-up endline surveys

Hello (their name). This is (RA name) from the Busara Centre.

This phone call will take about 10 minutes. Is now a good time for you to complete this call? (*If NO, arrange a time to call back on the <u>same day</u>). *First of all, you will be going through a number of questions. Several of these questions will ask you to provide answers with numerical responses.

Please indicate **how frequently IN THE PAST SEVEN DAYS** have you have experienced each feeling that I will list in a moment, using the following scale (*As per the instructions above, if convenient, ask the participant to write down end markers before responding).*

1 = very rarely or never, 2 = rarely, 3= sometimes, 4 = often, 5 = very often or always

How frequently IN THE PAST SEVEN DAYS have you felt:
1. Positive   ___
2. Negative   ___
3. Good   ___
4. Bad   ___
5. Pleasant   ___
6. Unpleasant   ___

Now I will read you four statements about your thoughts and feelings during the PAST SEVEN DAYS. In each case, you will be asked to indicate your response by telling me **how often** you felt or thought a certain way. Although some of the questions are similar, there are slightly differences between these questions and you should treat each question separately. The best approach is to answer quickly. That is, don't try to count up the number of times you felt a particular way but rather indicate the choice that seems like a good estimate. *1=Never; 2=Almost never, 3=Sometimes, 4=Fairly often, 5=Very Often*

1. In the PAST 7 DAYS, how often have you felt that you were unable to control the important things in your life?
2. In the PAST 7 DAYS, how often have you felt confident about your ability to handle your personal problems?
3. In the PAST 7 DAYS, how often have you felt that things were going your way?
4. In the PAST 7 DAYS, how often have you felt difficulties were piling up so high that you could not overcome them?

I would now like to ask you a few questions about the goods you received last week.

What goods did you receive? Please answer with as much detail as possible, in at least 2-3 sentences. *[Free recall; FO to code responses into categories provided]*
Prepared meals
Laundry

[If "prepared meals"]
Did you share the prepared meals with anyone else (besides yourself)?
YES   NO

[If YES to "did share the prepared meals with anyone"] Who did you share with? *[Free recall, multiple answer; FO to select all that apply]*
    Spouse/husband
    Children
    Other relatives
    Neighbors
    Friends
    Other (specify)

[If YES to "did share the prepared meals with anyone"] Please describe how you consumed this meal? *[Free recall; FO to code responses into categories provided]*
    I ate the meal with members of my household
    I ate the meal with people who do not live in my household
    I gave the meal away to members of my household
    I gave the meal away to people who do not live in my household
    Other (specify)

How helpful were the **prepared meals** that you received last week?
    Extremely helpful
    Quite helpful
    Slightly helpful
    Neither helpful or unhelpful
    Slightly unhelpful
    Quite unhelpful
    Extremely unhelpful

Did the receiving **prepared meals** make you feel poorer or richer?
    I felt much poorer
    I felt a little poorer
    I felt neither poorer nor richer
    I felt a little richer
    I felt much richer

Overall, to what extent did receiving **prepared meals** cost or save time over the last week?

-3	-2	-1	0	1	2	3
Cost a lot of time overall	Cost a moderate amount of time overall	Cost a bit of time overall	Did not cost or save time overall	Saved a bit of time overall	Saved a noderate amount of time overall	Saved a lot of time overall

[IF COST TIME]

How much time **DURING THIS PAST SEVEN DAYS** did it <u>cost you</u> to receive the prepared meals? (*FO: ask open ended first and prompt with the categorical responses, if necessary).*

ˆ	0 minutes	ˆ	10-12 hours
ˆ	1-4 minutes	ˆ	13-15 hours
ˆ	5-9 minutes	ˆ	16-18 hours
ˆ	10-19 minutes	ˆ	19-21 hours
ˆ	20-39 minutes	ˆ	22-29 hours
ˆ	40-59 minutes	ˆ	30-39 hours
ˆ	1-3 hours	ˆ	40-49 hours
ˆ	4-6 hours	ˆ	50 hours or more
ˆ	7-9 hours		

[IF SAVED TIME]

How much time **DURING THIS PAST SEVEN DAYS** did it <u>save you</u> to receive the **prepared meals**? (*FO: ask open ended first and prompt with the categorical responses, if necessary).*

ˆ	0 minutes	ˆ	10-12 hours
ˆ	1-4 minutes	ˆ	13-15 hours
ˆ	5-9 minutes	ˆ	16-18 hours
ˆ	10-19 minutes	ˆ	19-21 hours
ˆ	20-39 minutes	ˆ	22-29 hours
ˆ	40-59 minutes	ˆ	30-39 hours
ˆ	1-3 hours	ˆ	40-49 hours
ˆ	4-6 hours	ˆ	50 hours or more
ˆ	7-9 hours		

How did you do spend the additional time you saved as a result of receiving **prepared meals**?
[FO: write down respondent's open-ended answer]

_____

_____

[FO: code open-ended response into ONE CATEGORY below that best represents how the respondent spent the additional time]
  Not Applicable – the participant said it did not save time
  Socializing
  Relaxing
  Hobbies
  Praying/Meditation
  Eating
  Exercising
  Watching TV
  Sleeping
  Shopping
  Preparing Food
  Housework
  Working
  Commuting
  Nothing

[If "laundry"]

Did you fill your laundry bag with anybody else's clothing (beside your own)?
YES   NO

[If YES to "Did you fill your laundry bag with anybody else's clothing (beside your own)?"]
Whose clothing did you add to your laundry bag (besides your own)? *[Free recall, multiple answer; FO to select all that apply]*
  Spouse/husband
  Children
  Other relatives
  Neighbors
  Friends
  Other (specify)

How helpful was the **laundry service** that you received last week?
  Extremely helpful
  Quite helpful
  Slightly helpful
  Neither helpful or unhelpful
  Slightly unhelpful
  Quite unhelpful
  Extremely unhelpful

Did the receiving the **laundry service** make you feel poorer or richer?

> I felt much poorer
> I felt a little poorer
> I felt neither poorer nor richer
> I felt a little richer
> I felt much richer

Overall, to what extent did receiving the **laundry service** cost or save time over the last week?

-3	-2	-1	0	1	2	3
Cost a lot of time overall	Cost a moderate amount of time overall	Cost a bit of time overall	Did not cost or save time overall	Saved a bit of time overall	Saved a moderate amount of time overall	Saved a lot of time overall

[IF COST TIME]

How much time **DURING THIS PAST SEVEN DAYS** did it <u>cost you</u> to receive the **laundry service**? (*FO: ask open ended first and prompt with the categorical responses, if necessary*).

˄ 0 minutes	˄ 10-12 hours
˄ 1-4 minutes	˄ 13-15 hours
˄ 5-9 minutes	˄ 16-18 hours
˄ 10-19 minutes	˄ 19-21 hours
˄ 20-39 minutes	˄ 22-29 hours
˄ 40-59 minutes	˄ 30-39 hours
˄ 1-3 hours	˄ 40-49 hours
˄ 4-6 hours	˄ 50 hours or more
˄ 7-9 hours	

[IF SAVED TIME]

How much time **DURING THIS PAST SEVEN DAYS** did it <u>save you</u> to receive the **laundry service**? (*FO: ask open ended first and prompt with the categorical responses, if necessary*).

ˇ	0 minutes	ˇ	10-12 hours
ˇ	1-4 minutes	ˇ	13-15 hours
ˇ	5-9 minutes	ˇ	16-18 hours
ˇ	10-19 minutes	ˇ	19-21 hours
ˇ	20-39 minutes	ˇ	22-29 hours
ˇ	40-59 minutes	ˇ	30-39 hours
ˇ	1-3 hours	ˇ	40-49 hours
ˇ	4-6 hours	ˇ	50 hours or more
ˇ	7-9 hours		

How did you do spend the additional time you saved as a result of receiving the **laundry service**? *[FO: write down respondent's open-ended answer]*

_____

_____

[FO: code open-ended response into ONE CATEGORY below that best represents how the respondent spent the additional time]

Not Applicable – the participant said it did not save time
Socializing
Relaxing
Hobbies
Praying/Meditation
Eating
Exercising
Watching TV
Sleeping
Shopping
Preparing Food
Housework
Working
Commuting
Nothing

[If "in-kind"]

Did you share the food/ingredients you received with anyone else (besides yourself)?
YES   NO

[If YES to "did you share the food/ingredients with anyone else"] Who did you share with?
[Free recall, multiple answer; FO to select all that apply]
    Spouse/husband
    Children
    Other relatives
    Neighbors
    Friends
    Other (specify)

[If YES to "did you share the food/ingredients with anyone else"] Please describe how you used
this food? *[Free recall; FO to code responses into categories provided]*
        I consumed this food with members of my household
        I consumed this food with people who do not live in my household
        I gave the food away to members of my household
        I gave the food away to people who do not live in my household
        Other (specify)

How helpful was **the food** that you received last week?
        Extremely helpful
        Quite helpful
        Slightly helpful
        Neither helpful or unhelpful
        Slightly unhelpful
        Quite unhelpful
        Extremely unhelpful

Did the receiving **the food** make you feel poorer or richer?
        I felt much poorer
        I felt a little poorer
        I felt neither poorer nor richer
        I felt a little richer
        I felt much richer

Overall, to what extent did receiving **food** cost or save time over the last week?

-3	-2	-1	0	1	2	3
Cost a lot of time overall	Cost a moderate amount of time overall	Cost a bit of time overall	Did not cost or save time overall	Saved a bit of time overall	Saved a moderate amount of time overall	Saved a lot of time overall

[IF COST TIME]

How much time **DURING THIS PAST SEVEN DAYS** did it <u>cost you</u> to receive the food? (*FO: ask open ended first and prompt with the categorical responses, if necessary).*

ˆ	0 minutes	ˆ 10-12 hours
ˆ	1-4 minutes	ˆ 13-15 hours
ˆ	5-9 minutes	ˆ 16-18 hours
ˆ	10-19 minutes	ˆ 19-21 hours
ˆ	20-39 minutes	ˆ 22-29 hours
ˆ	40-59 minutes	ˆ 30-39 hours
ˆ	1-3 hours	ˆ 40-49 hours
ˆ	4-6 hours	ˆ 50 hours or more
ˆ	7-9 hours	

[IF SAVED TIME]

How much time **DURING THIS PAST SEVEN DAYS** did it <u>save you</u> to receive the **food**? (*FO: ask open ended first and prompt with the categorical responses, if necessary).*

ˆ	0 minutes	ˆ 10-12 hours
ˆ	1-4 minutes	ˆ 13-15 hours
ˆ	5-9 minutes	ˆ 16-18 hours
ˆ	10-19 minutes	ˆ 19-21 hours
ˆ	20-39 minutes	ˆ 22-29 hours
ˆ	40-59 minutes	ˆ 30-39 hours
ˆ	1-3 hours	ˆ 40-49 hours
ˆ	4-6 hours	ˆ 50 hours or more
ˆ	7-9 hours	

How did you do spend the additional time you saved as a result of receiving **this food**? *[FO: write down respondent's open-ended answer]*

_____

_____

[FO: code open-ended response into ONE CATEGORY below that best represents how the respondent spent the additional time]

Not Applicable – the participant said it did not save time
Socializing
Relaxing
Hobbies
Praying/Meditation
Eating
Exercising
Watching TV
Sleeping
Shopping
Preparing Food
Housework
Working

Commuting
Nothing

[If "unconditional cash transfer"]

Did you share the cash you received with anyone else (besides yourself)?
YES   NO

[If YES to "did you share cash with anyone else"] Who did you share with? *[Free recall, multiple answer; FO to select all that apply]*
    Spouse/husband
    Children
    Other relatives
    Neighbors
    Friends
    Other (specify)

[If YES to "did you share the cash with anyone else"] Please describe how you shared this cash. *[Free recall; FO to code responses into categories provided]*
    I did not share the cash with anyone else
    I shared the cash with members of my household
    I shared the cash with people who do not live in my household
    I gave the cash away to members of my household
    I gave the cash away to people who do not live in my household
    Other (specify)

[IF respondent DOES NOT answer "I did not share the cash with anyone else"] How much of the KSH 700 did you keep or spend yourself?
_____ [integer]

[IF respondent DOES answer "I shared the cash with anyone else"] How much of the KSH 700 did you keep or spend on others?
_____ [integer]

How helpful was **the cash** that you received last week?
    Extremely helpful
    Quite helpful
    Slightly helpful
    Neither helpful or unhelpful
    Slightly unhelpful
    Quite unhelpful
    Extremely unhelpful

Did the receiving **the cash** make you feel poorer or richer?
    I felt much poorer
    I felt a little poorer

I felt neither poorer nor richer
I felt a little richer
I felt much richer

Overall, to what extent did receiving **cash** cost or save time over the last week?

-3	-2	-1	0	1	2	3
Cost a lot of time overall	Cost a moderate amount of time overall	Cost a bit of time overall	Did not cost or save time overall	Saved a bit of time overall	Saved a moderate amount of time overall	Saved a lot of time overall

[IF COST TIME]

How much time **DURING THIS PAST SEVEN DAYS** did it <u>cost you</u> to receive the cash?
(*FO: ask open ended first and prompt with the categorical responses, if necessary).*

- ˄ 0 minutes
- ˄ 1-4 minutes
- ˄ 5-9 minutes
- ˄ 10-19 minutes
- ˄ 20-39 minutes
- ˄ 40-59 minutes
- ˄ 1-3 hours
- ˄ 4-6 hours
- ˄ 7-9 hours

- ˄ 10-12 hours
- ˄ 13-15 hours
- ˄ 16-18 hours
- ˄ 19-21 hours
- ˄ 22-29 hours
- ˄ 30-39 hours
- ˄ 40-49 hours
- ˄ 50 hours or more

[IF SAVED TIME]

How much time **DURING THIS PAST SEVEN DAYS** did it <u>save you</u> to receive the **cash**?
(*FO: ask open ended first and prompt with the categorical responses, if necessary).*

- ˄ 0 minutes
- ˄ 1-4 minutes
- ˄ 5-9 minutes
- ˄ 10-19 minutes
- ˄ 20-39 minutes
- ˄ 40-59 minutes
- ˄ 1-3 hours
- ˄ 4-6 hours
- ˄ 7-9 hours

- ˄ 10-12 hours
- ˄ 13-15 hours
- ˄ 16-18 hours
- ˄ 19-21 hours
- ˄ 22-29 hours
- ˄ 30-39 hours
- ˄ 40-49 hours
- ˄ 50 hours or more

How did you do spend the additional time you saved as a result of receiving **this cash**? *[FO: write down respondent's open-ended answer]*

_____

_____

[FO: code open-ended response into ONE CATEGORY below that best represents how the respondent spent the additional time]

        Not Applicable – the participant said it did not save time
        Socializing
        Relaxing
        Hobbies
        Praying/Meditation
        Eating
        Exercising
        Watching TV
        Sleeping
        Shopping
        Preparing Food
        Housework
        Working
        Commuting
        Nothing

[All participants]

Time-Use PAST 7 DAYS
[Questions about the last week and next week]

Please take a moment to think about the **PAST SEVEN DAYS**. On a typical day in the past seven days, did you spend any time on the following activities?

Commuting(YES/NO)
        If YES: how many hours have you spent on this_____

Working (YES/NO)
        If YES: how many hours have you spent on this_____

Shopping (YES/NO)
        If YES: how many hours have you spent on this_____

Preparing Food (YES/NO)
        If YES: how many hours have you spent on this_____

Doing Housework, NOT including laundry (e.g. doing dishes, cleaning, tidying, repairing things around the home, repairing clothing, disposing of garbage, fetching water, etc.) (YES/NO)

If YES: how many hours have you spent on this____

Doing laundry (YES/NO)
If YES: how many hours have you spent on this____

Taking care of your children (e.g. taking care of your own children, or others' children, taking your own or others' children to appointments) (YES/NO)
If YES: how many hours have you spent on this____

Eating (YES/NO)
If YES: how many hours have you spent on this____

Praying/Worshipping/Meditating (YES/NO)
If YES: how many hours have you spent on this____

Socializing (YES/NO)
If YES: how many hours have you spent on this____

Watching TV (YES/NO)
If YES: how many hours have you spent on this____

Nap/Resting (YES/NO)
If YES: how many hours have you spent on this____

Computer/Internet/Email (YES/NO)
If YES: how many hours have you spent on this____

Relaxing (YES/NO)
If YES: how many hours have you spent on this____

On the phone (YES/NO)
If YES: how many hours have you spent on this____

Intimate relations (YES/NO)
If YES: how many hours have you spent on this____

Exercising (YES/NO)
If YES: how many hours have you spent on this____

Hobbies (YES/NO)
If YES: how many hours have you spent on this____

Waiting (e.g. in a line; for a Matatu; etc.) (YES/NO)
If YES: how many hours have you spent on this____

Doing Nothing

If YES: how many hours have you spent on this____

Other 1 (specify):

If YES: how many hours have you spent on this____

Other 2 (specify):

If YES: how many hours have you spent on this____

How many hours of sleep did you get on a typical day in the past week? _____

Now I would like to ask you questions about how you spent money in the PAST SEVEN DAYS. Do not include business expenses.

In the PAST SEVEN DAYS, has anyone in your household (including both adults and kids) cut the size of their meals or skipped meals?
>Yes
>No

In the PAST SEVEN DAYS, did your household spend any money (or goods) on:

NON-DISCRETIONARY (MANDATORY)

Airtime, internet, other phone expenses
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Travel, transport, commuting (*FO to specify that this DOES NOT include travel for medical reasons. FO to specify that this includes "petrol, road tolls, ferry tolls, taxi, parking charges, city bus, matatu, country bus, boda/piki, train.).*
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Firewood, kerosene, charcoal
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Electricity
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Water
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

House rent
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Fixing home damage or improving or expanding the home
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

School/college fees, uniforms, books, or other supplies
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Medical expenses (including consultation fees, medicines, hospital)
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

DISCRETIONARY

Personal Items *FO to specify this includes haircut, aftershave/body lotion, toothpaste, razors, sanitary pads, hair oil, cosmetics like lipstick, nail polish, eye-liner).*
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Household Items *FO to specify this includes soap, combs, toilet paper/tissue, detergent, dishwashing paste, broom/mop/duster, disinfectant, air freshener, floor polish, insecticide, shoe polish, matchbox, candles, laundry).*
>Yes
>No
>If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Household durables (*FO to specify this includes cutlery, pots/pans, blender, light bulb, cups/glasses/mugs, curtains, carpets, lamps, fans, plates, vases, mirrors, chairs, tables, other furniture, other durable goods?_____*).

        Yes
        No
        If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Clothing and shoes

        Yes
        No
        If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Recreation/entertainment. *FO to specify that this includes "cinema tickets, videos, music/CD's, books/magazines, stadium tickets, concert tickets, park/safari tickets").*

        Yes
        No
        If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Prepared meals. *FO to specify that this includes eating at restaurants or purchasing food to take home (NOT including vouchers in this study)*

        Yes
        No
        If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Laundry service. *FO to specify that this includes paying for anyone else to do laundry or ironing for them (NOT including voucher in this study)*

        Yes
        No
        If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Paying someone else to complete any other household chores for you. *FO to specify that this includes any chores besides cooking and laundry*

        Yes
        No
        If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Any other purchase that you made for the purpose of saving time. *FO: if "yes," record open-ended response*

        Yes
        No

If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

TEMPTATION SPENDING

Lottery tickets/gambling/sportpesa (You)

Yes

No

If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Lottery tickets/gambling/sportpesa (Anyone else in your household)

Yes

No

If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Alcohol or Tobacco (You)

Yes

No

If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Alcohol or Tobacco (Anyone else in your household)

Yes

No

If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

OTHER:

Donation or remittances (e.g. giving money to help others with their expenses - medical expenses, wedding gifts, funeral costs, school fees, etc.)

Yes

No

If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

Any other expenses over 1000 KSH not described above?

Yes

No

If YES: How much in KSH of the household's total resources were spent in this way in the PAST SEVEN DAYS.

What goods do you consume that no one else in the household consumes?

In the PAST 7 DAYS how much, in KSH, of the household's total resources were spent on these purchases?

What goods does your husband/partner consume that no one else in this household consumes?

In the PAST 7 DAYS how much, in KSH, of the household's total resources were spent on these purchases?

Do you own or operate your own business
>   Yes
>   No

IF YES: Have you spent any money on inputs for this business in the PAST 7 days; e.g., inputs, repairs, inventory, staff, delivery).
>   Yes
>   No
>   IF YES: How much in KSH of the household's total resources were spent in this way in
>   the PAST SEVEN DAYS.

Did anything unusual happen in the PAST 7 DAYS?
>   Yes
>   No
>   If YES: Please describe what unusual event happened in the past 7 days.

That is all the questions I have for you today. Do you have any further questions about the study

Thank you for your time!

RA to note any questions.

Appendix D
<u>End of Day Text Messages</u>

Note: Participants in our treatment conditions will receive these text messages at the end of each day on which they received a windfall (i.e. once per week for 3 weeks) to examine the immediate mood benefits of receiving each treatment.

Questions that will be implemented via text message. Items will be presented in a random order.

1. How happy are you right now? 1=Not at all; 5=Extremely

2. How stressed are you right now? 1=Not at all; 5=Extremely

3. How satisfied are you right now? 1=Not at all; 5=Extremely

References

[1] Katz, S. J., & Hofer, T. P. Socioeconomic disparities in preventive care persist despite universal coverage: breast and cervical cancer screening in Ontario and the United States. *JAMA* **272**, 530-534 (1994).

[2] Peters, D. H., Garg, A., Bloom, G., Walker, D. G., Brieger, W. R., & Rahman, M. H. Poverty and access to health care in developing countries. *Annals of the New York Academy of Sciences* **1136**, 161-171 (2008).

[3] Feehan, M., Morrison, M. A., Tak, C., Morisky, D. E., DeAngelis, M. M., & Munger, M. A. Factors predicting self-reported medication low adherence in a large sample of adults in the US general population: a cross-sectional study. *BMJ Open 7*, e014435. (2017)

[4] Evans, D. K., & Popova, A. Cash transfers and temptation goods: a review of global evidence. *The World Bank* (2014).

[5] Kim, J., Sorhaindo, B., & Garman, E. T. Relationship between financial stress and workplace absenteeism of credit counseling clients. *Journal of Family and Economic Issues* **27**, 458-478 (2006).

[6] Brown, J. K., Zelenska, T. V., & Mobarak, M. A. Barriers to adoption of products and technologies that aid risk management in developing countries. *World Bank* (2013).

[7] Burchardt, T. Time and income poverty. *Houghton Street, London: Joseph Rountree Foundation* (2008)

[8] Vickery, C. The time-poor: A new look at poverty. *Journal of Human Resources* 27-48 (1977).

[9] Goodin, R. E., Rice, J. M., Parpo, A., & Eriksson, L. *Discretionary time: A new measure of freedom*. (Cambridge University Press, 2008)

[10] OECD. Gender, Institutions, and Development Database (2014).

[11] Abdourahman, O. Time Poverty: A Contributor to Women's Poverty? Analysis of Time-Use Data in Africa. In *Mainstreaming Unpaid Work* Chapter 8 (Oxford University Press, 2017)

[12] Hirway, I. *Mainstreaming Unpaid Work: Time-use Data in Developing Policies* (Oxford University Press, 2017).

[13] Alderman, H., Gentilini, U., & Yemtsov, R. (Eds.). The 1.5 Billion People Question: Food, Vouchers, Or Cash Transfers? *The World Bank* (2017).

[14] Currie, J., & Gahvari, F. Transfers in cash and in-kind: Theory meets the data. *Journal of Economic Literature* **46**, 333-83 (2008).

[15] Hidrobo, M., Hoddinott, J., Peterman, A., Margolies, A., & Moreira, V. Cash, food, or vouchers? Evidence from a randomized experiment in northern Ecuador. *Journal of Development Economics* **107**, 144-156 (2014).

[16] Das, J., Do, Q. T., & Özler, B. Reassessing conditional cash transfer programs. *The World Bank Research Observer* **20**, 57-80 (2005).

[17] Khera, R. Trends in diversion of grain from the public distribution system. *Economic and Political Weekly*, 106-114 (2011).

[18] Khera, R. Cash vs. in-kind transfers: Indian data meets theory. *Food Policy,* **46**, 116-128 (2014).

[19] Sheikh, R. I. *Energy and Women's Economic Empowerment: Rethinking the Benefits of Improved Cookstove Use in Rural India* (Doctoral dissertation, Georgetown University, 2014).

[20] Whillans, A.V., Dunn, E.W., Smeets, P., Bekkers, R., & Norton, M. I. Buying time promotes happiness. *Proceedings of the National Academy of Sciences* **114**, 8523-8527 (2017).

[21]Haushofer, J., & Shapiro, J. The short-term impact of unconditional cash transfers to the poor: experimental evidence from Kenya. *The Quarterly Journal of Economics* **131**(4), 1973-2042 (2016).

[22] Shapiro, J. Cash or Stuff: Benchmarking Aid Programs with Preference-Based Approach (2017).

[23] Khera, R. Trends in diversion of grain from the public distribution system. *Economic and Political Weekly*, 106-114 (2011).

[24] Khera, R. Cash vs. in-kind transfers: Indian data meets theory. *Food Policy,* **46**, 116-128 (2014).

[25] Shah, A. K., Mullainathan, S., & Shafir, E. Some consequences of having too little. *Science* **338**, 682-685 (2012).

[26] Mani, A., Mullainathan, S., Shafir, E., & Zhao, J. Poverty impedes cognitive function. *Science* **341**, 976-980 (2013). cf. Camerer, C. F., Dreber, A., Holzmeister, F., Ho, T. H., Huber, J., Johannesson, M., ... & Altmejd, A. Evaluating the replicability of social science experiments in Nature and Science between 2010 and 2015. *Nature Human Behavior* **1** (2018).

[27] Haushofer, J., & Fehr, E. On the psychology of poverty. *Science* **344**(6186), 862-867 (2014).

[28] Pepper, G. V., & Nettle, D. The behavioral constellation of deprivation: causes and consequences. *Behavioral and Brain Sciences*, **40** (2017).

[29] Shafir, E., & Mullainathan, S. *Scarcity: Why having too little means so much* (NY Times Books, 2013).

[30] Diener, E. Subjective well-being: The science of happiness and a proposal for a national index. *American Psychologist* **55**, 34 (2000).

[31] Lerner, J. S., Small, D. A., & Loewenstein, G. Heart strings and purse strings: Carryover effects of emotions on economic decisions. *Psychological Science*, **15**, 337-341 (2004).

[32] Lyubomirsky, S., King, L., & Diener, E. The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin* **131**, 803 (2005).

[33] Mogilner, C., Whillans, A., & Norton, M. I. *Time, Money, and Subjective Well-Being. Handbook of Well-Being.* (Noba Scholar Handbook series: Subjective well-being, 2018).

[34] Bhanot, S. P., Han, J., & Jang, C. Workfare, wellbeing and consumption: Evidence from a field experiment with Kenya's urban poor. *Journal of Economic Behavior & Organization* **149**, 372-388 (2018).

[35] Baird, S., De Hoop, J., & Özler, B. Income shocks and adolescent mental health. *Journal of Human Resources* **48**, 370-403 (2013).

[36] Blattman, C., Fiala, N., & Martinez, S. Generating skilled self-employment in developing countries: Experimental evidence from Uganda. *The Quarterly Journal of Economics* **129**, 697-752 (2013).

[37] Mogilner, C. The pursuit of happiness: Time, money, and social connection. *Psychological Science* **21**, 1348-1354 (2010).

[38] Bianchi, E. C., & Vohs, K. D. Social class and social worlds: Income predicts the frequency and nature of social contact. *Social Psychological and Personality Science*, **7**, 479-486 (2016).

[39] Wagenmakers, E. J., Wetzels, R., Borsboom, D., & Van Der Maas, H. L. Why psychologists must change the way they analyze their data: the case of psi: comment on Bem (2011). *Journal of Personality and Social Psychology* **100**, 426-432 (2011).

[40]Whillans, A. V., Dunn, E. W., & Norton, M. I. Overcoming barriers to time-saving: reminders of future busyness encourage consumers to buy time. *Social Influence* **13**, 117-124 (2018).

[41] Liberman, N., & Trope, Y. The psychology of transcending the here and now. *Science* **322**, 1201-1205 (2008).

[42] Rogers, T., & Bazerman, M. H. Future lock-in: Future implementation increases selection of 'should'choices. *Organizational Behavior and Human Decision Processes* **106**, 1-20 (2008).

[43]Milkman, K. L., Beshears, J., Choi, J. J., Laibson, D., & Madrian, B. C. Using implementation intentions prompts to enhance influenza vaccination rates. *Proceedings of the National Academy of Sciences* **108**, 10415-10420 (2011).

[44] Alatas, Vivi, Ririn Purnamasari, Matthew Wai-Poi, Abhijit Banerjee, Benjamin A. Olken, and Rema Hanna. "Self-targeting: Evidence from a field experiment in Indonesia." *Journal of Political Economy* 124, no. 2 (2016): 371-427.

[45] Diener, E., Wirtz, D., Biswas-Diener, R., Tov, W., Kim-Prieto, C., Choi, D. W., & Oishi, S. New measures of well-being. In *Assessing well-being*, 247-266 (Springer, 2009).

[46]Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. The satisfaction with life scale. *Journal of Personality Assessment* **49**, 71-75 (1985).

[47] Diener, E. Assessing subjective well-being: Progress and opportunities. *Social Indicators Research* **31**, 103-157 (1994).

[48] Diener, E., Suh, E. M., Lucas, R. E., & Smith, H. L. Subjective well-being: Three decades of progress. *Psychological Bulletin* **125**, 276 (1999).

[49] Sheldon, K. Individual daimon, universal needs, and subjective well-being: Happiness as the natural consequence of a life well lived. 119-137 (American Psychological Association, 2013).

[50] Cohen, S., Kamarck, T., & Mermelstein, R. A global measure of perceived stress. *Journal of Health and Social Behavior* 385-396 (1983).

[51] Cohen S, Williamson G. Peceived stress in a probability sample if the United States. In: Spacapan S, Oskamp S, eds. *The social psychology of health*. Newbury Park: Sage (1988).

[52] Whillans, A. V., Pow, J., & Norton, M. I. Time-Saving Purchases Promote Relationship Satisfaction. (2017). *Harvard Business School Working Paper*.

[53] Kagan, J. An overly permissive extension. *Perspectives on Psychological Science* **11**, 442-450 (2016).

[54] Schumm, W. R., Scanlon, E. D., Crow, C. L., Green, D. M., & Buckler, D. L. Characteristics of the Kansas Marital Satisfaction Scale in a sample of 79 married couples. *Psychological Reports* **53**, 583-588 (1983).

[55] Spanier, G. B. Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family*, 15-28 (1976).

[56] Raven, John. "The Raven's progressive matrices: change and stability over culture and time." *Cognitive psychology* 41, no. 1 (2000): 1-48.

[57] Henik, A. and Tzelgov, J., 1982. Is three greater than five: The relation between physical and semantic size in comparison tasks. *Memory & cognition*, *10*(4), pp.389-395.

[58] Davidson, Matthew C., Dima Amso, Loren Cruess Anderson, and Adele Diamond. "Development of cognitive control and executive functions from 4 to 13 years: Evidence from manipulations of memory, inhibition, and task switching." *Neuropsychologia* 44, no. 11 (2006): 2037-2078.

[59] Hardisty, D. J., Thompson, K. F., Krantz, D. H., & Weber, E. U. (2013). How to measure time preferences: An experimental comparison of three methods. *Judgment and Decision Making*, *8*(3), 236-249.

[60] Nelson, L. D., & Norton, M. I. From student to superhero: Situational primes shape future helping. *Journal of Experimental Social Psychology* **41**, 423-430 (2005).

[61] Zauberman, G., Kim, K. B., Malkoc, S. A., & Bettman, J. R. Discounting time and time discounting: Subjective time perception and intertemporal preferences. *Journal of Marketing Research* **46**, 543-556 (2009).

[62] Strathman, A., Gleicher, F., Boninger, D. S., & Edwards, C. S. The consideration of future consequences: weighing immediate and distant outcomes of behavior. *Journal of Personality and Social Psychology* **66**, 742 (1994).

[63] Smeets, P., Whillans, A. V., Bekkers, R., & Norton, M. Time Use and Happiness of Millionaires. (2018). *Harvard Business School Working Paper*.

[64] Whillans, A. V., & Dunn, E. W. Identifiable Service Provider Effect: When Guilt Undermines Consumer Willingness to Buy Time. (2018). *Harvard Business School Working Paper*.

[65] Dunn, E. W., & Weidman, A. C. Building a science of spending: Lessons from the past and directions for the future. *Journal of Consumer Psychology* **25**, 172-178 (2015).

[66] Kumar, A., & Gilovich, T. To do or to have, now or later? The preferred consumption profiles of material and experiential purchases. *Journal of Consumer Psychology* **26**, 169-178 (2016).

[67] Weidman, A. C., & Dunn, E. W. The unsung benefits of material things: Material purchases provide more frequent momentary happiness than experiential purchases. *Social Psychological and Personality Science* **7**, 390-399 (2016).

[68] Richard, F. D., Bond Jr, C. F., & Stokes-Zoota, J. J. One hundred years of social psychology quantitatively described. *Review of General Psychology* **7**, 331 (2003).

[69] Rouder, J. N., Morey, R. D., Speckman, P. L., & Province, J. M. Default Bayes factors for ANOVA designs. *Journal of Mathematical Psychology* **56**, 356-374 (2012).

[70] Love, J., Selker, R., Marsman, M., Jamil, T., Dropmann, D., Verhagen, A. J., & Wagenmakers, E. J. JASP (Version 0.7)[computer software]. Amsterdam, the Netherlands: JASP Project (2015).