Reducing Migration Uncertainty: The Impact of an Income Smoothing Program for Kenyan Migrants*

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Abstract

Migration to cities can be a gamble for the rural poor in developing countries: a trade-off between potential higher urban income and foregone rural earnings. This paper tests whether mitigating short-term income loss associated with migration can induce more young rural Kenyans to move to cities. In rural Kenya, I offer 700 young male workers across 111 randomized villages access to an income smoothing program, which provides workers 4 USD for each day of unemployment, conditional on migration to Nairobi. Access to the conditional unemployment insurance more than triples the migration rate over seven months and results in more persistent moves, even after the program ends. These migration effects are also larger than those of an unconditional cash transfer in a complimentary treatment arm. The unemployment benefits program induces migrants who were more risk averse and from a more varied baseline income distribution, suggesting that a safety net may lower the opportunity cost and perceived risk of migrating. Overall, the evidence shows that when migration risks are insured, more rural workers are willing to take the gamble of urban migration in pursuit of higher long-term earnings.

Keywords: Migration, Unemployment, Social Safety Net, Informal Work

JEL Codes: J61, J64, O15, O17

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1 Introduction

In developing countries, migration to cities is often a gamble for the rural poor: a move has the upsides of improved standard of living and higher income potential but the downsides of missed rural earnings, relocation costs, and separation from home communities. Foundational models that characterize migration in developing countries (Todaro (1969), Harris and Todaro (1970)) emphasize that rural-urban migration is driven by location income differentials. In these models, urban wage is an expected value, dependent on unemployment levels. When uncertainty about urban employment increases, expected urban wage decreases and rural-urban migration rates fall.

The informal nature of most jobs in Kenya (Sitati and Onsomu (2023)) necessitates in-person search and strong job networks to secure employment. The difficulties of finding urban work are exacerbated for rural migrants, who often have little to no savings to replace rural income while job searching in cities (Deaton (1991), Banerjee and Duflo (2007)). Individuals living in their home villages are deterred from moving by the uncertainty of employment, especially when they lack a sure urban job contract waiting for their arrival. However, it's unlikely that a person will develop a strong urban network, capable of providing a viable long-term job, if they remain in their village. Thus, a dilemma arises where migrants do not want to move without urban job security, but job security is only possible by moving and strengthening urban job skills and networks.

For this study, I investigate whether a migration conditional unemployment benefits program can encourage rural-urban migration and support migrants as they transition to urban employment. The goal of this program was to help smooth income during periods of unemployment for Nairobi migrants in order to prolong their move and result in more permanent migration. I evaluate the impacts of the unemployment benefit program using a randomized controlled trial, with pure control and cash transfer arms serving as benchmarks. I conducted this large-scale experiment with 1,300 young adult men in 111 villages in rural Western Kenya and tracked their migration, employment and income over the course of a year, paired with a follow-up survey 1.5 years after the conclusion of the unemployment benefits.

Per the models of Harris and Todaro (1970), we would expect more rural-urban movement if migrants had access to financial support as they settled in cities, as this program would raise the value of migrating and expected urban income. I observe this pattern in the data: over the seven

months of the unemployment benefit program availability, the rate of migration to Nairobi tripled (15.8% migration rate compared to 4.7% in control). Notably, these moves were not temporary and migrants remained in Nairobi even after the program ended (17.5% of the insurance arm lived in Nairobi 1.5 years following the close of the program, compared to 10.4% of control). Thus, the program was both effective at encouraging migration and enabling migrants to stay in the city.

Examining the profile of migrants adds support to the Harris and Todaro (1970) motivation. Using a certainty equivalent exercise conducted in the baseline survey, I show that migrants under the unemployment benefit program are more risk averse than those in the other arms. I also show that the program induced migrants who came from a more diverse distribution of baseline incomes, compared to control. The participants' choice to migrate suggests that the unemployment benefits reduced the opportunity cost and risks of moving by smoothing income during potential negative urban employment shocks.

In addition to pure control, I include a study arm where rural workers receive an unconditional cash transfer delivered at the same time as the start of the unemployment program. Unconditional cash transfers are now a common policy tool in developing countries, so it is useful to study the impacts of a cash transfer in a migration context. The cash, which is approximately equal in size to the maximum net gain directly from the unemployment program, removes any initial liquidity constraints for moving, such as transport fares and search costs, and could be used to smooth variability in urban income streams. While there is a significant increase in migration to Nairobi in this group compared to control seven months into the study (9.5% migration rate compared to 4.7% in control), this difference diminishes greatly two months later. At that same 1.5 year later benchmark, there was no statistically significant difference between the proportion of the cash transfer group or control living in Nairobi. The closing gap in migration rates between the control and cash transfer arms suggests that the cash transfer treatment accelerated the migration timeline for workers who already had intentions to move, instead of inducing a group to move who wouldn't have otherwise.

A key concern about encouraging migration is that urban migrants may not improve their living standards or income in the city, compared to their baseline in rural villages. I find a positive treatment effect on housing quality in the unemployment benefit group; urban migrant housing is more likely to have finished walls, finished floors, and piped water connection. However, I also

observe a 10% increase in reported stress, affirming that moves to cities can be mentally taxing. At this time, there is suggestive evidence that the Nairobi migrants make more on average than both their own rural baseline income and their rural counterparts' current income. This wage difference doesn't happen instantly upon arrival in the city, but instead grows overtime as migrants find urban employment.

The experiment began in rural Western Kenya, where participants across the three arms were invited to the study under the qualification that they were male, between the ages of 18-35, owned a mobile phone, and had some interest in migrating. This demographic is the most mobile, and thus most likely to migrate, or in the case of the cash transfer arm, use the cash to migrate. In the villages selected for the unemployment benefit program, participants were informed that they could collect 500 KSH (about 4 USD, the daily urban wage for this sample), on the weekdays they were unemployed at the research team's office in Nairobi. However, participants incurred a cost to collect the benefits: they spent money and time to travel to the office in Nairobi's central business district. Additionally, recipients were not given unlimited days of benefits as each was restricted to 15 total collections.

The secondary treatment arm provides a benchmark to the unemployment benefits program by easing liquidity constraints through a singular, unconditional cash transfer. Individuals in this group were given a lump sum of 6,500 KSH (50 USD) with strong encouragement to use the funds for transport and initial relocation costs related to moving. The size of the transfer was equalized to the maximum net gain for an individual in the benefits group, or the total amount one could collect from the unemployment program minus the initial cost of transport to Nairobi. In the pure control arm, participants are surveyed at the same frequency as the other arms, but are not given any incentives to migrate.

The positive and persistent migration results under the unemployment benefits program add to the growing body of evidence on the barriers to migration in developing countries by showing that wage uncertainty is a deterrent against moving. Previous studies have established liquidity constraints, missing formal insurance networks, absence of rural land rights, and lack of information as impediments to migration (Bryan et al. (2014), Munshi and Rosenzweig (2016), De Janvry et al. (2014), Baseler (2023)). I differentiate my work from this previous literature by (1) focusing on incentivizing permanent migration, (2) choosing the target demographic for migration as the

sample population, and (3) designing and testing a new, creative policy to understand whether the uncertainty about income in urban locations is a significant barrier to rural-urban migration.

In the seminal bus ticket experiment Bryan et al. (2014), the authors encourage seasonal migration during agricultural lean seasons by providing transportation fare to major cities in Bangladesh. My program differs because it is intended to encourage permanent migration beyond the lean season, hence the unemployment program is available for an extended amount of time. The income smoothing program should improve outcomes once a participant reaches the destination by providing a safety net that enables migrants to stay in the city longer, in contrast to a bus ticket which simply removes an initial liquidity constraint. Additionally, my cash transfer amount is greater in size than a bus ticket. This available liquidity can increase the runway a migrant has to build on their job networks and find lasting employment in the city.

Another departure from previous work is my choice to conduct the study with individuals in the demographic most inclined to migrate permanently, as opposed to selecting the head of the household as the target respondent. Other migration experiments approach the household head for study participation, but I wanted to convey the study information directly to young males, who in the Kenyan context are more likely to migrate. Finally, in this experiment I test a prototype for a policy that has not been explored before, but is supported by evidence from structural estimation (Munshi and Rosenzweig (2016)) and survey data (Imbert and Papp (2020)) that shows social safety nets which reduce income risk can incentivize migration for welfare gains.

My results contrast with a subset of the migration literature which finds that rural-urban income gains are much smaller, if not zero, when analyzing panel data with individual level fixed effects (Hamory et al. (2021), Alvarez (2020)). The key distinction here is that panel data analysis essentially reports observational returns to migration, i.e. the returns on individuals who choose to move, but a randomized experiment creates exogenous variation which can be used to identify the causal effect of migrating. In my study, I find suggestive evidence that there are income gains to migration and potential for greater wage growth in cities.

This experiment also contributes to the work that studies job search interventions in developing countries (Alfonsi et al. (2024), Abebe et al. (2021), Abel et al. (2022)), as this program could be tailored to existing informal workers in cities, not just new migrants. Franklin (2018), who reduces search costs with an experiment in Addis Ababa for unemployed youth, suggests that the

creation of an unemployment insurance program, which is very rare in developing countries, can help improve job search and job match outcomes in cities. This project is the first prototype for such insurance programs and future work will refine and explore the impact of this policy for a broader set of urban workers.

The remainder of this paper is organized as follows. Section 2 outlines a theoretical framework to provide intuition for the experiment. Section 3 describes the setting, while details of the experimental design are outlined in Section 4. Section 5 presents the main findings of the study and Section 6 concludes.

2 Theoretical Framework

In this section, I describe a model of a rural worker's location and consumption decisions in discrete time, following a generalized Roy model.

2.1 Setup

There are two possible locations a worker can choose between in the model: rural or urban. All workers begin at the rural origin, and then choose their location for period 1. In period 2, rural workers have the option to move to the city, while migrants in the city can choose to remain or to return to the rural origin. Workers maximize their current utility and next period's discounted utility following CRRA preferences, choosing their consumption level c according to:

$$u(c) = \frac{c^{1-\sigma}}{1-\sigma}$$

At $t = 1$ workers face the budget constraint

$$c_1 + A_2 = A_1 + y_l - m_u \cdot k_u$$

where A represents the assets (in liquid cash) that individuals can carry from one period to another and y_l the income the worker recieves dependent on location (r, rural, or u, urban). For simplicity, and to better follow the development context, there is no investment to grow assets, nor borrowing to increase consumption. m_u is an indicator for whether the worker decides to move to the city

for period 2 and pay migration cost k_u, (which also includes the higher costs of urban living.) At $t = 2$, workers consume all resources:

$$c_2 = A_2 + y_l - m_l \cdot k_l$$

where m_l is an indicator for moving to location l, either rural or urban. If no movement, then $m_l = 0$. Rural households in period 2 could decide to move urban and pay the urban moving cost, or urban workers could decide to return to their rural origin and pay the return cost k_r. Assume $k_u > k_r$ (moving to the city is more costly than returning to the village).

Individuals are endowed with a skill vector $\{s_r, s_u\}$, representing their productivity of labor in rural and urban locations. For now, I make no assumptions on the distribution of skills, except that moments of the distributions exist, and that the distributions are continuous and differentiable. Workers earn income according to the wage of the location, scaled by their skill:

$$y_r = w_r s_r \qquad\qquad y_u = w_u s_u$$

Initial urban employment is stochastic. For a new migrant to the city, there is probability $\lambda \in (0, 1)$ that they find a job. For simplicity, once employed, there is no separation. If a new migrant is not employed upon entry to the urban labor market, they earn no urban labor income in that period. In the next period they again have probability λ of a job match.

2.2 Value Functions

Let $V_t^S(A)$ denote the value function in period t given assets A at the beginning of the period and entry state $S \in \{R, UE, UU\}$, where R is rural, UE is urban employed, and UU is urban unemployed.

Period 2: Workers in each state maximize the following functions before period 2 and decide their location before urban job matches are realized, with assets (liquid cash on hand) A_2 rolled over from the previous period. A rural worker can decide to remain rural or migrate to the city with some probability λ of urban employment. An employed migrant in the city can choose between staying in their urban job or returning home, and an unemployed migrant in the city can choose

between staying and facing the same probability λ of urban employment or return home.

$$V_2^R(A_2) = \max\Big\{ \underbrace{u\big(A_2 + y_r\big)}_{\text{stay rural}},\ \underbrace{\lambda\, u\big(A_2 + y_u - k_u\big) + (1-\lambda)\, u\big(A_2 - k_u\big)}_{\text{migrate to city}} \Big\}, \tag{2.1}$$

$$V_2^{UE}(A_2) = \max\Big\{ \underbrace{u\big(A_2 + y_u\big)}_{\text{stay urban}},\ \underbrace{u\big(A_2 + y_r - k_r\big)}_{\text{return rural}} \Big\}, \tag{2.2}$$

$$V_2^{UU}(A_2) = \max\Big\{ \underbrace{\lambda\, u\big(A_2 + y_u\big) + (1-\lambda)\, u\big(A_2\big)}_{\text{stay in city}},\ \underbrace{u\big(A_2 + y_r - k_r\big)}_{\text{return rural}} \Big\}. \tag{2.3}$$

Period 1: All workers start rural before $t = 1$, endowed with assets A_1, and choose whether to remain rural or migrate to the city. They move before the period starts and receive income in their location.

For a worker who stays rural in period 1:

$$V_1^R(A_1) = \max_{A_2 > 0}\ u\big(c_1^R\big) + \beta\, V_2^R(A_2). \tag{2.4}$$

For a worker who migrates to the city in period 1, paying urban migration cost k_u and facing entry employment risk λ:

$$V_1^U(A_1) = \max_{A_2 > 0}\ \lambda\Big[\, u(c_1^{UE}) + \beta\, V_2^{UE}(A_2)\,\Big] + (1-\lambda)\Big[\, u(c_1^{UU}) + \beta\, V_2^{UU}(A_2)\,\Big]. \tag{2.5}$$

Thus the period 1 value function is:

$$V_1(A_1) = \max\big\{\, V_1^R(A_1),\ V_1^U(A_1)\,\big\}. \tag{2.6}$$

2.3 Migration Decision

Define the returns to migrating to the city at $t = 1$ as:

$$\Delta(A_1; s_r, s_u) \equiv V_1^U(A_1) - V_1^R(A_1), \tag{2.7}$$

where V_1^U and V_1^R are given by (2.5) and (2.4), with $y_r = w_r s_r$ and $y_u = w_u s_u$. Then the optimal location choice at $t = 1$ is

$$m_u^*(A_1; s_r, s_u) = \begin{cases} 1 & \text{if } \Delta(A_1; s_r, s_u) \geq 0, \\ 0 & \text{if } \Delta(A_1; s_r, s_u) < 0. \end{cases} \tag{2.8}$$

That is, workers will only migrate to the city, if and only if the expected current utility plus discounted future utility from migrating exceeds the utility of staying rural.

2.4 Comparative Statics and Thresholds

Under CRRA utility and budget constraints with no borrowing, the returns to migration are: strictly increasing in s_u and w_u, increasing in A_1 when $y_u > y_r$, and strictly increasing in λ, the probability of finding urban employment.

For a given (s_r, s_u), there exists an *asset threshold* A_1^* such that a worker with that skill set will always migrate if $A_1 \geq A_1^*(s_r, s_u)$. Alternatively, for a given (A_1, s_r), there exists an *urban skill threshold* such that a worker with that asset level and rural skill level will always migrate if $s_u \geq s_u^*(A_1, s_r)$.

2.5 Policy Implications

Now suppose a worker could be allocated into one of two policies in period 1: a one time unconditional cash transfer (UCT), or unemployment insurance (UI) conditional on migrating to the city. Both policies are available only in period 1. They are told their policy assignment before period 1 and before they make their location decision. The UI only affects the state of urban unemployment, while the UCT will increase assets in all states.

Unconditional Cash Transfer

Under the UCT, assets in period 1 increase by g, regardless of migration choice:

$$A_1^{UCT} = A_1 + g$$

The UCT relaxes a liquidity constraint for migration and would shift the migration threshold $A_1^*(s_r, s_u)$ downward, enabling some workers to move who would not otherwise have the means. However, since the transfer increases assets in all states, this will raise rural consumption and reduce the relative gains from urban migration, muting the UCT's effect on migration.

Conditional Unemployment Insurance

The unemployment insurance, b, only affects the state of urban unemployment, making the consumption of the unemployed urban migrant in period 1:

$$c_1^{UU,UI} = A_1 - k_u + b$$

This raises the value of urban migration $V_1^U(A_1)$, by reducing the risk of urban unemployment.

Migration Effects

Both policies lower (directly or indirectly) the asset (and skill) threshold where a worker is indifferent between migrating or remaining rural, which will in effect increase urban migration flows. The UI raises the value of migrating where the marginal utility is highest, in the state of urban unemployment, while the UCT raises utility for urban and rural locations. Thus the relative returns to migration, and the migration flows, are slightly dampened under the UCT policy compared to the UI. Further versions of this model will show how the possibility to return affects the asset/skill threshold, as well as how time in the city can improve the job matching rate.

3 Setting

Kenya is well-suited as a setting to study rural-urban migration among young adult males. With a large population under 35 (almost 80% of the total population (UNDP (2013)) and high rural underemployment, many young adults experience strong incentives to leave their villages in search of urban employment. As the largest city in Kenya, Nairobi serves as the economic hub for the country and is the most common destination for internal migrants (Mulatya et al. (2021)).

Informal work represents 83% of total employment in Kenya (Sitati and Onsomu (2023)) and

is the most common labor choice for rural migrants with high school education or less. In-person presence is necessary for workers to secure employment as these jobs, which tend to be manual labor or construction work, are very rarely posted online. Although all participants in this study have a phone, and many have smartphones, nearly all of the jobs pursued are found through in person search and connections. Unless a migrant is aware of a potential job contract before moving, it is imperative that they visit work sites in person to secure employment. It is common for a worker to line up at a work site in the morning, with the potential to be picked by the foreman for that day's tasks. These informal jobs often start as daily contracts. As a migrant develops a relationship with the foreman or improves their skills needed for urban jobs, they increase their likelihood of landing longer term job contracts.

Rural households have limited liquid cash savings across developing countries, including Kenya (Collins et al. (2009), Dupas and Robinson (2013), Kansikas et al. (2023)). When workers move to the city, they must draw on the cash they do have as they search for work. Transport to Nairobi is about 15% of the monthly expenditure in my sample. When workers move to Nairobi, they spend 40% more than those who remain rural, driven by higher housing, food and transport costs. I confirmed the above features of the migrant labor market in focus groups, and then designed the unemployment benefit program to address these needs.

4 Experimental Design

I test two policy prototypes, conditional unemployment benefits and an unconditional cash transfer, in an experiment with 1,300 rural workers from Western Kenya to understand the effect of the programs on migration decisions. The 111 villages selected for the study are from Siaya county, each with a variation in distance to the closest towns. Travel time from the study area to Nairobi is around nine hours by bus.

Each village was randomly assigned to one of three groups: primary incentive (migration unemployment benefits), secondary incentive (unconditional cash grant) or control. On the first visit to each village, the study team performed a census activity to list all eligible participants. From those lists, randomly selected individuals were invited to join the study. Eligibility was determined by three criteria: (1) male, between the ages of 18-30, (2) owns a smartphone and (3) not currently

enrolled in school. These criteria represent the population most likely to migrate, a targeting strategy that is beneficial for the validity of the results and the power of the study. Figure A1 captures the study randomization.

The listing activity and the baseline survey took place in person in November and December of 2023. From January to June of 2024, all study participants were frequently contacted to answer a short phone survey, once every four to six weeks. The income support program in Nairobi was available from the start of the phone surveys in January to the end of the endline surveys in July. Endline surveys were also conducted over the phone because of the migratory nature of the sample. A follow-up phone survey was held at the end of August to assess the continuing impact of the program after it had ended, and another survey round occurred in November 2024, one year since the baseline survey. Figure A2 displays the study timeline.

The average age of the sample is 25 years old and around 38% are married. 50.5% have completed secondary school, and at the time of the baseline survey, 35% were working in a wage job. This demographic is relatively mobile: 65% of participants had ever moved at baseline. See Table A1 for overall summary statistics.

4.1 Balance and Attrition

The sample is generally balanced across key baseline characteristics. Table A2 in the Appendix shows these tests for balance, displaying mean and mean comparisons between each of the three study arms. There are small differences in average age, proportion married, and history of migrating in the study arms. Although the mean age and the likelihood of marriage is lower for the benefit treatment group compared to the cash transfer and the control groups, the magnitude of the differences are relatively small. And while the control group is a few percentage points more likely to have had migration experience compared to the benefit group, it again is a relatively small difference. These differences arise from random chance, and not from any actions in participant selection. I include these variables as controls in my regression analysis, as pre-specified, and do not find significant changes from their inclusion.

I have achieved high tracking rates across the study, reaching over 90% of individuals from all three study arms at the endline survey. There are no significant differences in rates of attrition across the treatment groups. Table A3 provides an overview of rates of attrition at various points

of the study. Only 1% of the sample was unreachable after baseline. The research team visited the resident villages of this 1%, and generally found that these respondents had left the village for another rural location and no other residents knew of their whereabouts. Table A4 shows that there were no significant effects of treatment assignment on attrition.

4.2 Study Arms

Primary Incentive - Migration Unemployment Benefits

I test the relationship between migration choices and employment activity by designing a social safety net for rural migrants who choose to move to Nairobi. Individuals in this treatment, the migration unemployment benefit program, were randomly selected at their rural village and invited to move to Nairobi. In Nairobi, they then had the option to collect financial support on the days they were without work. The rationale here is that workers may quickly run out of savings in the city before they find a stable job, but the cash from this program will extend the number of days they can spend searching for employment. The most effective search happens in person, which is why participants must travel to Nairobi to collect. Migrants may reduce their work or search effort if given a long term payout, so each participant was granted only 15 days of unemployment benefits. They could collect the benefits on any weekday, in any pattern. This flexibility aligns with the often day-to-day nature of informal job contracts.

This program was designed to be both cost-minimizing and targeted, reaching the migrants with the greatest need - specifically those that were unemployed or had insufficient income in the city. Anticipating the difficulty in verifying unemployment for informal work, the collections were intentionally designated to be in person, during the work day, as opposed to sent via mobile money. Since collections were scheduled for the middle of the day, participants would find it very difficult to collect and work on the same days. To collect the benefits, participants traveled to the program's office in Nairobi's central business district. Official identification of each participant was confirmed during their first collection. To dissuade changes in collection behavior around the conclusion of the program (namely participants bunching their collections at the end to maximize their gains from the program), participants were promised their remaining sum when the program closed, dependent on living in Nairobi for four weeks. The majority of respondents received the remainder of their sum at the conclusion of the program because they had lived in Nairobi for a significant time.

Due to budget and logistic constraints, the migration unemployment benefit program was made available only in Nairobi. Location flexibility was not a primary issue as Nairobi is the most popular migrant destination.

Secondary Incentive - Unconditional Cash Transfer

This arm of the study tests how easing liquidity constraints affects migration and employment among a second group of participants by providing a one time cash transfer. Unconditional cash transfers are now a common policy tool in developing countries, so including this arm provides a useful benchmark. The cash transfer removes any initial liquidity constraints for moving, such as transport fares, and could be used to smooth variability in initial urban income streams.

I designed this incentive to be equivalent in size to the maximum net gain for a participant in the unemployment benefit program. A person who moves in the Benefit group spends 1,000 KSH on transport to Nairobi, but can collect up to 7,500 KSH, for a total net gain of 6,5000 KSH. Individuals in the unconditional cash transfer group were sent 6,500 KSH (about 50 USD) via M-PESA (Kenya's primary mobile money provider) at the time of their first high-frequency phone survey. This cash disbursement was coordinated to happen at approximately the same time as when the first participants in the unemployment benefit program moved to Nairobi. Those in the rural cash transfer group were encouraged over the phone and via text message to use the money for migration, since they expressed an interest in migrating during participant solicitation.

The inclusion of this arm allows for the comparison of two induced migrant groups: one that draws on the unemployment benefits program when needed, and another that arrives with a larger buffer stock of savings to smooth their income on their own terms. Although all participants expressed interest in migrating at the beginning of the study, I did not expect a 100% migration rate. In the context of this study, rural individuals face a variety of competing demands where a windfall of cash could be spent. On the day the cash is sent, some may find its best use is for an immediate household need, such as investment on the household farm, instead of using the money to move to Nairobi. I chose not to have the lump sum available in Nairobi, conditional on migration, out of concern for the number of individuals who would move for the cash and return immediately to their home village, which would make interpretation of the results difficult.

5 Results

I show that a social safety net can increase and prolong migration by demonstrating that treated respondents have improved migration outcomes as measured at the endline survey. I estimate intent-to-treat (ITT) effects on endline survey outcomes. Specifically, I estimate:

$$y_i = \alpha_0 + \alpha_1 \text{UnemploymentBenefit}_i + \alpha_2 \text{CashTransfer}_i + \lambda y_{i0} + \beta X_i + \epsilon_{iv} \tag{5.1}$$

where y_{it} is an outcome for individual i. UnemploymentBenefit and CashTransfer represent indicators for assignment to the respective treatment group. X is a vector of pre-specified baseline controls, which include respondent age, marital status, indicators for completed secondary school, engaged in wage employment at baseline, self-employed at baseline, indicator for children, history of any migration, history of Nairobi migration, and whether they have an above average number of connections in Nairobi. y_{i0} is the outcome at baseline if available, and ϵ is the error term. Errors are clustered at the village level.

5.1 Migration

The migration rate to Nairobi tripled in the unemployment benefit group while the program was available, from January to July 2024, as shown in Table 1. The unemployment benefit treatment increases the likelihood of ever moving to Nairobi during the incentive period by 10.9 percentage points, over a mean of 4.7% in the control group, a 200% increase in the probability of moving to Nairobi (Table 1, row 1). There is still a significant increase in migration rates when restricting the outcome to whether a respondent is currently living in Nairobi at the time of the endline survey, at 8.3 percentage points higher (Table 1, row 5). I find that the treatment effect of moving to Nairobi persists, even when the unemployment benefit program ended. One month following the conclusion of the unemployment benefits program, there were 70% more migrants in the benefits group who remained in Nairobi compared to the control group (Table A6, row 1).

There is a significant increase in migration to Nairobi, both cumulatively and at the time of endline, for the cash transfer arm, albeit smaller than the treatment effect of the conditional unemployment benefits. The one time cash transfer increases the probability of ever moving to

Table 1: Effect of Treatment on Migration at Endline

	ITT		**ITT w/controls**		
	(1) Benefits	(2) Cash	(3) Benefits	(4) Cash	(5) Control Mean
Cumulative Effect					
Ever moved to Nairobi	0.110***	0.038*	0.109***	0.045*	0.047
	(0.021)	(0.021)	(0.022)	(0.023)	(0.213)
Ever moved to urban area	0.106***	0.012	0.103***	0.022	0.120
	(0.029)	(0.027)	(0.028)	(0.027)	(0.326)
Ever moved from BL county	0.121***	0.004	0.116***	0.016	0.127
	(0.031)	(0.029)	(0.030)	(0.029)	(0.334)
Ever moved during the study	0.120***	−0.022	0.115***	−0.008	0.182
	(0.037)	(0.035)	(0.036)	(0.035)	(0.386)
Status at Endline					
Currently in Nairobi	0.085***	0.038**	0.083***	0.044**	0.036
	(0.018)	(0.017)	(0.018)	(0.018)	(0.188)
Currently in urban area	0.092***	0.012	0.086***	0.021	0.087
	(0.025)	(0.023)	(0.024)	(0.024)	(0.283)
Currently outside of Baseline county	0.108***	0.012	0.101***	0.021	0.095
	(0.027)	(0.024)	(0.027)	(0.024)	(0.293)
Currently moved from Baseline residence	0.119***	−0.007	0.112***	0.006	0.153
	(0.034)	(0.030)	(0.033)	(0.030)	(0.360)
N	1193	1193	1193	1193	275
Controls?	n	n	y	y	

Note: Controls include the following, which were pre-specified: respondent age, marital status, has completed secondary school, indicator for wage employment at baseline, self-employment at baseline, respondent has at least one child, has history migrating, history migrating to Nairobi, and has above average number of connections in Nairobi. "Ever moved" indicators represent whether the respondent moved to the location any time during the study period. Endline occured following the conclusion of the unemployment benefit program, in July 2024.

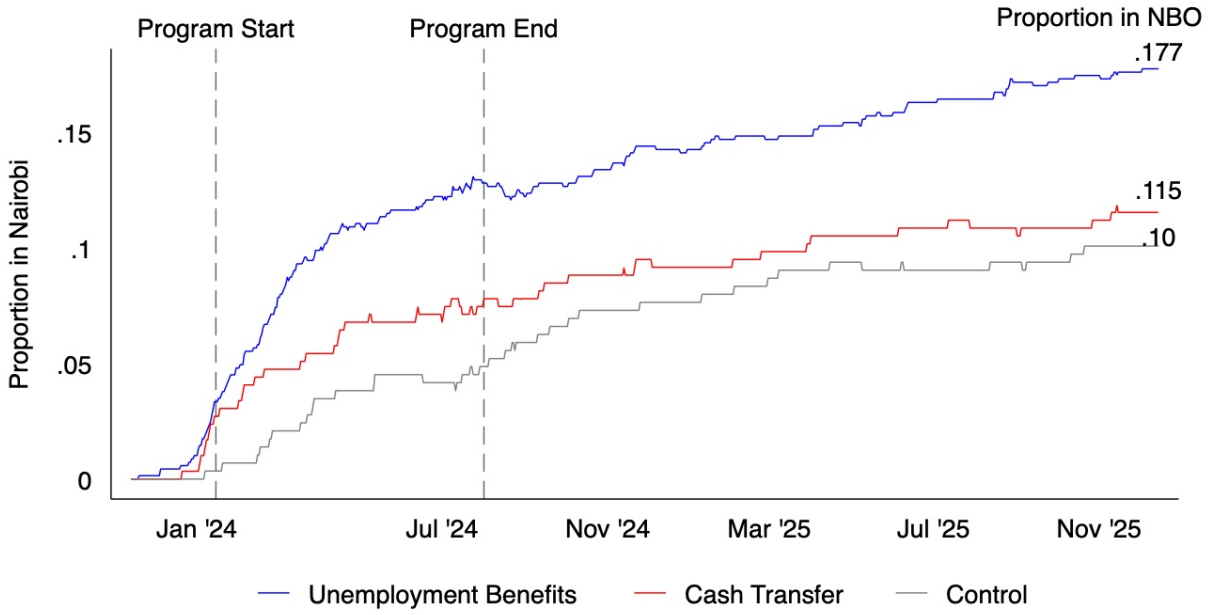
Nairobi during the incentive period by 4.5 percentage points, a 100% increase over a control mean of 4.7% (Table 1, row 1).

Figure 1 shows the proportion of each study arm living in Nairobi from the start of the study (November 2023) through the latest round of data collection (November 2025). Members of the unemployment benefit group begin moving immediately (although the program did not begin until January 2024) and at a constant rate for four months. Participants in the unconditional cash group also quickly move to Nairobi, but at a lower rate. Migration to Nairobi among the control group is much more gradual. The proportions in Nairobi from each group remains constant for

several months, starting in May 2024. Ten months after the start of the study, in August and September, migration in control begins to reach the level in the cash transfer group. The shrinking difference in migration rates between these two groups is an indication that the unconditional cash transfer may have only moved forward the timing of migration for those that moved to Nairobi. These individuals may have already had intentions to move before they enrolled in the study, and the cash transfer accelerated their timeline by providing the liquidity needed to move. On the other hand, the persistent gap in migration between the unemployment benefits group and control shows that the benefits may have induced individuals who would not have otherwise moved. These participants were not given any liquidity up front to move, but the guarantee of a safety net made Nairobi migration more appealing. It is also encouraging that there is not a dramatic drop in number of participants living in Nairobi following the close of the program; those that moved to Nairobi had intentions to stay there. Data collected in November 2024 shows that migration to Nairobi in all three groups continued to increase, but the gap between the proportion of the unemployment benefits group in Nairobi to the proportion of control and cash transfer persisted.

Concerns that the location of the unemployment benefit program, Nairobi, displaced migration from other cities are not supported by the data. The significant effect of the unemployment benefits on migration remains, even when expanding the dependent migration variable to include all urban centers in Kenya; the increase in migration to Nairobi did not come at the expense of a decrease in migration to other locations for those in the unemployment benefit group (Table 1, row 2). Further, there are migration treatment effects in the unemployment benefits group to other rural villages (Table 1, row 3). In other words, despite an incentive to migrate to Nairobi, some participants in the benefits group chose to move elsewhere. Anecdotally, some participants moved to Nairobi for the program and then continued on to a different city or location after they secured employment elsewhere. Hypothetically, this program encouraged and motivated rural workers to consider urban job prospects and networks that they would not have considered if they had remained in their villages. There are no significant results for migration to other destinations besides Nairobi among the cash group (Table 1, columns 2 and 4). There was no incentive to misreport location at the time of the survey.

Figure 1: Proportion of Study Arm in Nairobi Over Time



5.2 Employment

Unemployment programs are often criticized for disincentivizing work because they make the state of unemployment more attractive. In this study, the data shows no major movement in the percent of individuals holding a job in the past 30 days in either treatment group, at the time of the endline survey (Table 2, row 1). The unemployment program remained open during the administration of the endline survey, so any increase in unemployment in response to the program would be captured in this data. Given the standard US unemployment literature which assumes that workers eligible for unemployment insurance would work less, a null result here is evidence to the contrary. Since the sample population is a prime work-age demographic and nearly all individuals are active in at least one of the three possible work categories, household agriculture, self-employment, and wage employment, this result is reasonable. These results are shown in Table 2. I define household agriculture as a respondent performing any agricultural activities for their household, which includes

crop farming, livestock, poultry and fish tending. Self-employment is defined as running a business to earn a living, while wage employment is working for pay under an employer.

Table 2: Effect of Treatments on Employment at Endline

	ITT		**ITT w/controls**		
	(1) Benefits	(2) Cash	(3) Benefits	(4) Cash	(5) Control Mean
Labor Choices in past 30 days					
Any Employment	−0.011	0.008	−0.006	0.004	0.942
	(0.017)	(0.019)	(0.016)	(0.017)	(0.235)
Worked in Non-Agriculture in last 30 days	−0.001	−0.006	0.002	−0.011	0.764
	(0.031)	(0.040)	(0.032)	(0.039)	(0.426)
Worked in HH Agriculture	−0.095***	0.027	−0.087***	0.015	0.731
	(0.035)	(0.038)	(0.032)	(0.035)	(0.444)
Worked in Self-Employment	0.035	0.063*	0.030	0.048	0.186
	(0.027)	(0.034)	(0.024)	(0.032)	(0.390)
Worked in Wage Employment	−0.053*	−0.056*	−0.045	−0.049	0.693
	(0.028)	(0.031)	(0.028)	(0.032)	(0.462)
Job Search Activity					
Actively searching for a job	0.024	−0.008	0.032	−0.001	0.624
	(0.034)	(0.037)	(0.033)	(0.037)	(0.485)
Total hours spent searching for jobs	0.552	−1.042	0.566	−0.842	8.686
	(0.791)	(0.902)	(0.794)	(0.939)	(11.993)
N	1193	1193	1193	1193	275
Controls?	n	n	y	y	

Note: Controls include the following, which were pre-specified: respondent age, marital status, has completed secondary school, indicator for wage employment at baseline, self-employment at baseline, respondent has at least one child, has history migrating, history migrating to Nairobi, and has above average number of connections in Nairobi.

As expected, there is a significant treatment effect of the benefits program on working in household agriculture, a decrease of 9 percentage points (Table 2, row 3): for individuals who move to Nairobi it is impossible for them to work in household agriculture. There appears to be a positive effect on the unconditional cash transfer group for working in self-employment. Recent literature on the effects of cash transfers (e.g. Egger et al. (2022)) also documents that unconditional cash grants leads to business creation.

There are few differences in job search activity across the treatment groups. There is a slight observable increase in hours spent searching for jobs in the benefits group (3%) and a small decrease

in hours spent searching (11.4%) for the cash group, but these results are not statistically significant (Table 2, row 7). Although I observe that pariticpants in Nairobi search for work more than those who remained rural (Table 4), the change is not large enough to translate to a statistically significant treatment effect.

5.3 Income

I next examine income results, to determine whether the unemployment program or the unconditional cash transfer influenced income streams in any way. Table 3 presents ITT results on the difference of respondent incomes at the endline survey, compared to baseline. I show differences as opposed to levels or logs in income to account for underlying differences in baseline income, as well as reports of zero income. Although there is not a statistically significant impact of the benefits program on the total difference in income (Table 3, row 1), there is a large increase in wage earnings for the benefits group (Table 3, row 4). The drop in household agriculture employment is reflected in the significant decrease in agricultural income from household farming within the benefits group (Table 3, row 2). This shift in the source of income streams is logical: if a larger fraction of the benefits group live in cities, they physically are unable to work on their household farms and the employment that they have, if they can find the work, would come from informal wage jobs.

Additionally, it is not very surprising that there are no large total income effects. If participants move to Nairobi without a sure job contract, it takes time to build job networks and establish contracts that guarantee consistent income. This is not to say that migrants are making less in the city than the village. The results in the table reflect the treatment effect on the *differences* in earnings from baseline to endline. Although the overall treatment effect is negative and small, when compared to control, there is still a positive difference in income earned over the seven months.

I look at median income trends over time for each of the three groups (control, unemployment benefits, cash transfer), separated by participants who move to Nairobi and participants that remain rural, and find that Nairobi migrants earn more than rural counterparts one year since the start of the study (Figure A4). The difference in income between Nairobi and rural is most prounounced in the control group. I hypothesize that the difference in income between rural-urban is smaller in the benefit group because this incentive induced migrants who would not have otherwise moved. Some of these migrants were successful in finding employment, others were not.

Table 3: Effect of Treatments on Income Difference Since Baseline

	ITT		**ITT w/controls**		
	(1) Benefits	(2) Cash	(3) Benefits	(4) Cash	(5) Control Mean
Diff. in Monthly Earnings since Baseline					
Total Monthly Income	−414.332	−913.146	−587.634	−922.418	4564.327
	(1267.109)	(1386.804)	(1124.543)	(1351.665)	(19427.132)
Household Ag. Income	−1663.429**	−737.981	−1625.683**	−747.422	843.782
	(791.198)	(945.529)	(732.832)	(930.635)	(13006.491)
Self-employment Profits	222.095	92.412	423.554	398.616	−927.636
	(479.368)	(512.946)	(401.226)	(417.408)	(7169.559)
Wage Earnings	1027.002	−267.577	614.495	−573.612	4648.182
	(909.981)	(1092.103)	(823.064)	(1066.727)	(12536.474)
N	1193	1193	1193	1193	275
Controls?	n	n	y	y	

Note: Controls include the following, which were pre-specified: respondent age, marital status, has completed secondary school, indicator for wage employment at baseline, self-employment at baseline, respondent has at least one child, has history migrating, history migrating to Nairobi, and has above average number of connections in Nairobi. Monetary results are reported in KSH. Agriculture income equals agricultural sales from household farms, if the respondent worked on the farm. Self-employment is categorized as running one's own business, while in wage employment one reports to a boss.

5.4 Quality of Life

One concern about rural-urban migration is that a migrant's quality of life may suffer due to worse living conditions or strains on physical and mental health. I find that access to the unemployment benefits program increased the quality of housing as measured by respondent reports about their current residence. When comparing the unemployment benefits to control, there is a 28% increase in respondents who live in housing with finished walls, an 11% increase in the number with finished floors, a 58% increase in the number with a piped water connection, and more than double have a piped toilet facility (Table A7, columns 1 and 3). In the Kenyan context, walls are classified as finished if they are made of iron, cement, or brick. Finished floors are either cement or tiled. The implication here is that the results are driven by the Nairobi migrants from the unemployment benefits group: living in Nairobi leads to better housing. I would not expect the treatment effect on housing to arise from those that remain in their rural villages, as it is very difficult to add piped water and piped toilets in the rural setting.

Moving to a new city can be taxing both physically and emotionally. As part of the baseline and endline surveys, I collect detailed information on the health and mental well-being of all study

participants. Table A8 presents ITT results on these outcomes. The health status index, an index of self-reported level of health combined with an index of recent symptoms, shows a positive treatment effect, significant at the 10% level, from the unemployment benefits group (Table A8, row 1). This is driven by both an improved self-reported level of health and a decrease in the index of recent symptoms.

There appears to be a negative, although not statistically significant, effect on respondent's subjective well-being in both the unemployment benefit and cash transfer groups (Table A8, row 4). There is a significant increase of 0.12 SD in respondents' stress levels (Table A8, row 8). This is not too surprising as navigating a new location while trying to find employment can be a very stressful experience. To my knowledge, this is one of the first migration RCTs that looks at the effect of migrating on one's health and well-being. I believe it's important for future migration work to take this into consideration, as even if there are large economic gains to migration the mental toll of such a move may be detrimental to the migrant. While there is an indication of increased stress in this study, the magnitude is small.

5.5 Take-Up

Surprisingly, not all in the unemployment benefit group who moved to Nairobi collected their benefits. In total, 59% of participants in the unemployment benefit treatment who moved to Nairobi came to collect their payments at least once. This represents about 8% of the total unemployment benefit group. The partial take-up is not from lack of information about the program. Participants were given a handout at the baseline survey explaining the benefits program with the contact information for the research team in Kenya. At each follow-up survey for the next six months, if an unemployment benefit participant had not collected at least once, they were reminded of the program and instructed to call with any questions. Those who moved to Nairobi but never collected their benefits reported that they did not have a need for the money.

The average number of days between collections for a given respondent was 6 days. The most common pattern was for a respondent to collect once or twice a week and pause collections when they secured a longer-term job contract. Among those who collected, 52% maxed out their benefits (collected all 15 times), which represents only 4% of the total treatment group. There were no instances of an individual collecting 15 times consecutively and immediately returning to their

home village. In fact, the average number of days between the first and last collections for those that took all of their benefits was 80 days, or 2.6 months. Respondents report using their benefits for transportation costs to look for jobs, training fees, and living expenses (food, rent). These take-up patterns reflect that respondents were not abusing the program. Appendix Table A5 summarizes these statistics.

5.6 Migrant Profile

The migration unemployment benefits program succeeded in increasing migration to Nairobi, as did the rural cash transfer, to a lesser extent. Migrants from all study arms were on average younger, less likely to be married, and more likely to have finished secondary school than their rural counterparts. Table 4 shows this trend by comparing averages of Nairobi migrants (for all three study arms as well as a pooled average) to an average for rural respondents, based on respondent location one year since Baseline. Columns 1, 2, and 3 in Table 4 present Nairobi migrant averages for the Benefits, Cash Transfer, and Control arms respectively. Column 4 is the pooled Nairobi migrant average and Column 5 is the pooled Rural average. Column 6 presents the difference between the pooled Nairobi and pooled Rural average with Column 7 containing the p-values for the differences.

Table 4: Respondent Baseline Averages by Location, 1 year follow-up

	Nairobi				**Rural**		
	(1) Benefits	(2) Cash	(3) Control	(4) Pooled	(5) Pooled	(6) Diff.(N-R)	(7) p-value
Respondent Age	23.43	23.13	23.82	23.43	25.86	-2.549	0.00
	(4.40)	(3.29)	(4.37)	(4.21)	(4.72)	(0.387)	
Married and living with spouse	0.24	0.20	0.18	0.22	0.41	-0.200	0.00
	(0.43)	(0.41)	(0.39)	(0.42)	(0.49)	(0.040)	
Has completed secondary school	0.62	0.67	0.86	0.66	0.50	0.176	0.00
	(0.49)	(0.48)	(0.35)	(0.47)	(0.50)	(0.041)	
Monthly income, BL (wins, KSH)	8345.73	6516.94	10540.15	8307.21	9845.48	-1535.992	0.22
	(15068.56)	(9846.73)	(20990.44)	(15158.70)	(15023.98)	(1240.681)	
Certainty Equivalent, BL	300.81	364.00	367.50	320.87	252.61	69.013	0.00
	(271.49)	(298.42)	(357.87)	(287.97)	(267.92)	(23.165)	
N	119	30	22	171	1000		

Note: Nairobi migrants are classified as having moved to Nairobi during the study time period, between November 2023 and November 2024. Data in this table comes from the Baseline survey. The difference column measures the difference between the pooled Nairobi average and the pooled Rural average. Standard deviations are reported in parentheses.

Those from the control group who moved to Nairobi, a move that is endogenous of their characteristics, had the highest monthly baseline income. As seen in Table 4 Row 4, the average monthly baseline income for control individuals who move to Nairobi is about 10,540 KSH, compared to an average of 9,845 KSH for those that remained rural through the whole study. In the unconditional cash transfer group, those who chose to move to Nairobi reported the lowest baseline monthly income on average (6,516 KSH). This implies that migrants in the cash transfer group were on average more liquidity constrained, and potentially the ones that needed liquidity in order to move. The urban unemployment benefit group, which induced the largest percent share of migrants to Nairobi, has an average monthly baseline income that falls between the other two migrants averages, at 8,345 KSH. Some of these migrants never collected their unemployment benefits, even if they lived in Nairobi, while some collected the full amount. The average migrant in this group does not present as cash constrained as the average migrant in the cash transfer group, but they are also not as wealthy as the average control migrant, who received no incentive or support to migrate.

These results can be interpreted in another lens, by considering propensity to migrate by income group. Figure A3 displays the propensity to migrate within income brackets, separately for each treatment group. The x-axis represents different baseline monthly income groups, ranging from 0 KSH to 16,000 KSH, increasing by increments of 3,200 KSH. To accommodate for outliers, the last income bracket is for those that made 16,000 KSH or higher at baseline, about 10% of the sample. The y-axis reports the proportion in each income group that migrated to Nairobi. In the control group, the most Nairobi migration was observed at the lower end of the income distribution and at the highest incomes.

The Nairobi unemployment benefits induced the most migration, across all income groups. The unconditional cash transfer induced migration between the levels of control and unemployment benefits, with more concentration at the lower end of the income distribution.

The change in propensity to migrate by income group in the unemployment benefits arm demonstrates that the program brought down the opportunity cost of moving. If a worker makes a high (relative) income at home in their village, but moves to the city without a job, they stand to lose more income (a higher opportunity cost) than a person who was unemployed in the village but considering an urban move. The unemployment benefits program was designed to reduce potential loss by mitigating dips in earnings with the guaranteed support. The observed migration response

in this treatment group is evidence that the unemployment benefits reduced the opportunity cost of moving to Nairobi.

Migrants who moved in the benefits group also expressed higher risk aversion at baseline. In the baseline survey, I included a module to determine certainty equivalents of a hypothetical lottery for respondents. They are given a cascading series of questions where they must answer whether they would rather take a sure amount of X KSH, or participate in a 50/50 lottery where they could earn 900 KSH. The last row of Table 4 shows the average certainty equivalents for Nairobi migrants, by study arm, and for the pooled individuals who remained rural. Control migrants in Nairobi expressed the least risk aversion at baseline, with an average certainty equivalent of 367.5 KSH for the 50/50 900 KSH lottery. Migrants from the cash transfer arm were more risk averse, with a CE of 364, and migrants in the benefits group were even more risk averse, with a CE of 300. This pattern suggests that risk aversion does play a role in the migration decision; the more risk averse someone is, the less likely they are to move. The availability of the unemployment benefit program encouraged workers who were more risk averse to experiment with migration.

5.7 Labor in Nairobi

On average, migrants who move to Nairobi earn more by the endline survey than those who remained rural (see Table A9 which presents averages for Nairobi migrants in each study arm with a comparison to the pooled rural average). Nairobi migrants also spend 2 more hours per week on average searching for work, compared to a rural average of 8.5 hours (Row 4, Table A9). This aligns with the lower rate of employment for Nairobi migrants; on average 86% of Nairobi migrants have some form of employment compared to 96% of participants who remained rural (Row 2, Table A9). The discrepancy in employment rate can be explained by (1) the high proportion of workers engaged in household agriculture and (2) the time it takes migrants to improve their job networks and find employment.

Data collected in November 2024 will shed further light on income and labor effects in the city. At the time of writing, the data shows Nairobi migrants make more than their rural baseline income after several months in the city, not instantaneously after moving. This underscores a motivation for the conditional unemployment benefit program: migrants need time to become successful in a new city, but often lack the runway to do so.

5.8 Complier Characteristics

The migration safety net arm in this experiment can be framed as randomly assigning individuals to move to Nairobi with imperfect compliance. Following Imbens and Rubin (1997), I can estimate the characteristics of the compliers in this setting: individuals who moved to Nairobi because of the program but absent that, would have stayed in their village.

I compare the compliers to the always-takers (who move to Nairobi even without the safety net treatment) and the never-takers (who do not move to Nairobi even if assigned to treatment). I exclude the lump sum cash transfer arm from this analysis.

According to observable characteristics, compliers more closely resemble never-takers than always-takers (Table A10). They are a year and a half older on average, more likely to be married, less likely to have completed secondary school, and more likely to have children. Compliers are unique from the other two groups in that they are much more likely to have had a migration spell in Nairobi before the baseline survey, have lower baseline monthly income, and be more risk averse.

6 Conclusion

In this paper, I show evidence that reducing the variability in urban incomes through an unemployment benefit program can increase urban migration rates by as much as 200% and result in persistent moves, even after the program ends. Concerns that inducing migration could lead to lower quality of life are assuaged by the significant positive increase in housing quality within the unemployment benefit group. Migrants who were induced to move from the two treatments had relatively higher baseline income compared to control migrants, a sign that a barrier to migration is the opportunity cost of moving. Both treatments reduced potential income losses of moving by providing liquidity: the unemployment benefits offered minimum income during periods of low employment for Nairobi migrants and the unconditional cash transfer increased cash on hand that migrants could use to smooth their income variability.

Although the unconditional cash transfer initially led to an increase in migration to Nairobi compared to control, this lead reduced significantly over time. In fact, the proportion of the control group living in Nairobi catches up to the proportion of cash transfer Nairobi migrants by nine months after the start of the study. This suggests that the unconditional cash transfer

may have moved up the timeline of migration for workers who were already planning to move, perhaps providing them the cash they needed for transport and housing costs that they had been saving towards. When we consider the cost of each program, the migration each induced and how persistent that migration is, the unemployment program is much more cost-effective and successful.

This research brings valuable evidence to the development literature on how to support both (1) internal migrants in the relocation process and (2) the informal workforce in cities more generally, which is especially vulnerable during economic downturns. The current research on migration flows from rural to urban areas within African countries is limited, despite the importance that the movement of the underemployed agriculture labor force plays in the development and urbanization of a country. Additionally, several Sub-Saharan African countries are looking to provide social protection for their informal workers and are testing programs now (Guven et al. (2021)). These findings can apply to other developing contexts outside of Africa, as this program could be useful to governments who want to encourage out-migration from rural areas affected by severe natural disasters or incentivize in-migration to new economic centers. Future work will test the unemployment benefit program in the context of general urban informal work, as a tool to smooth worker's incomes and support their search for formal employment.

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Appendix A

Appendix Figures

Figure A1: Study Randomization

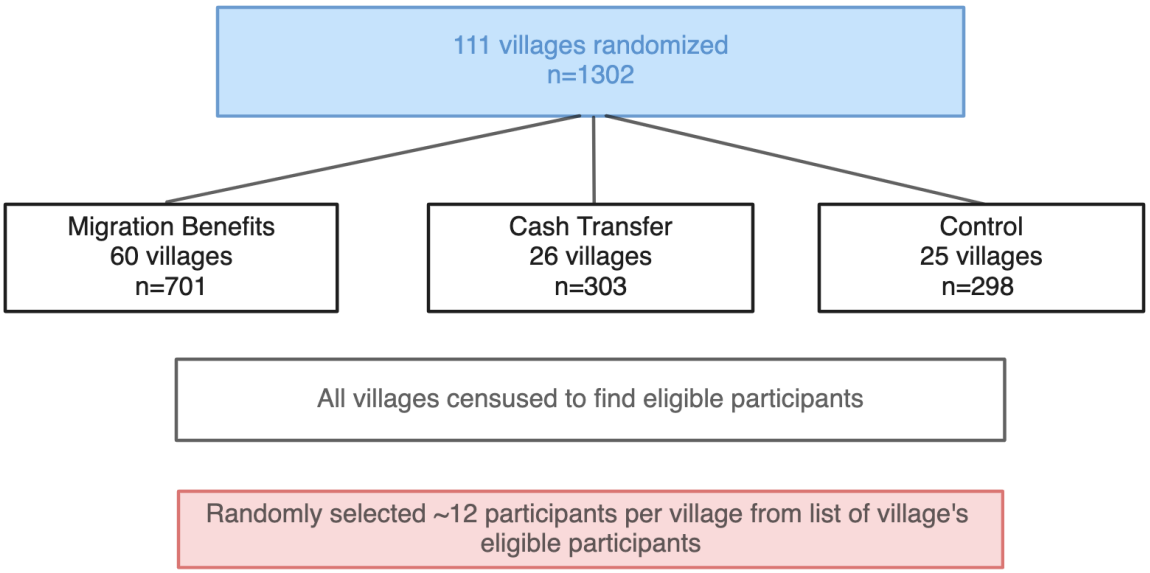


Figure A2: Study Timeline

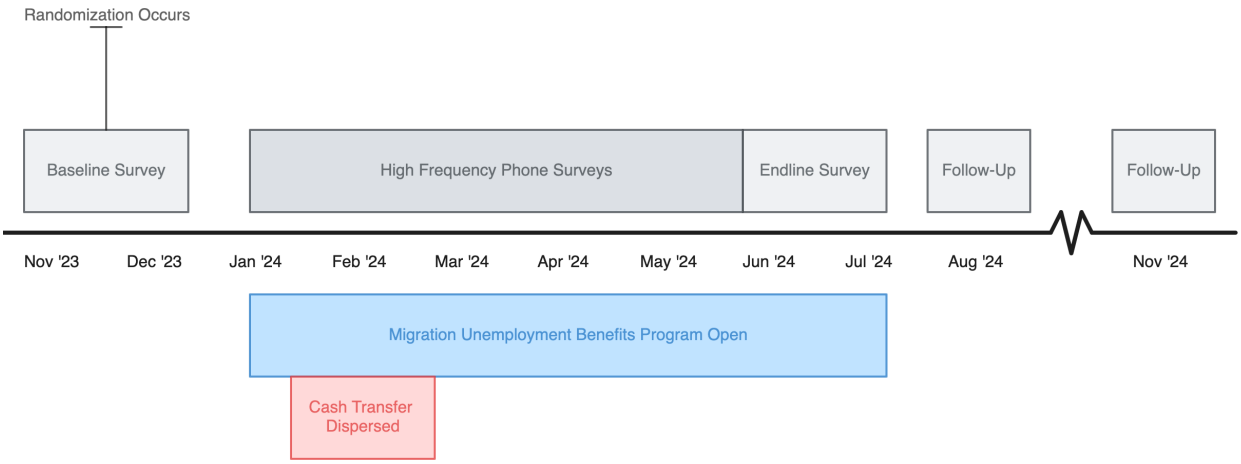
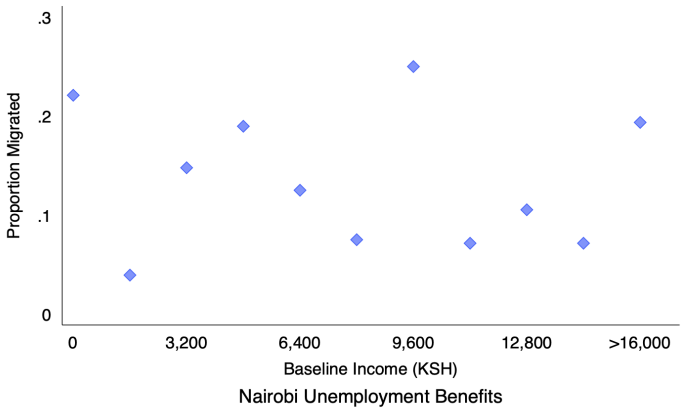
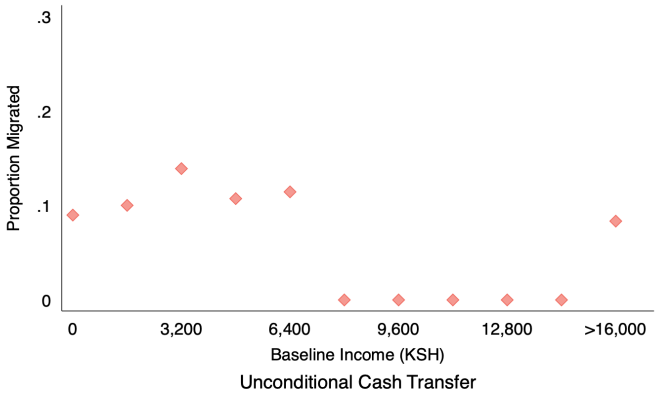


Figure A3: Propensity to Migrate to Nairobi by Income and Treatment Group





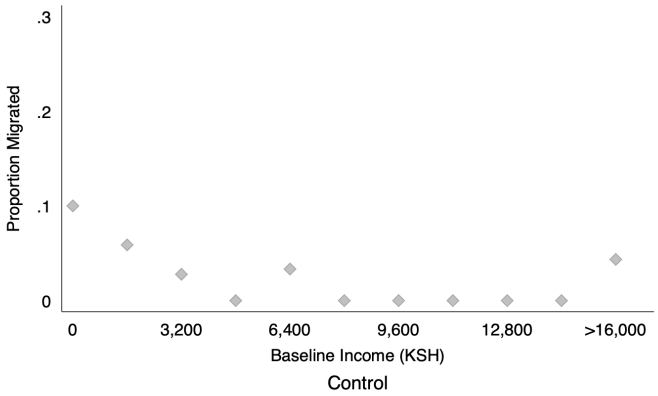
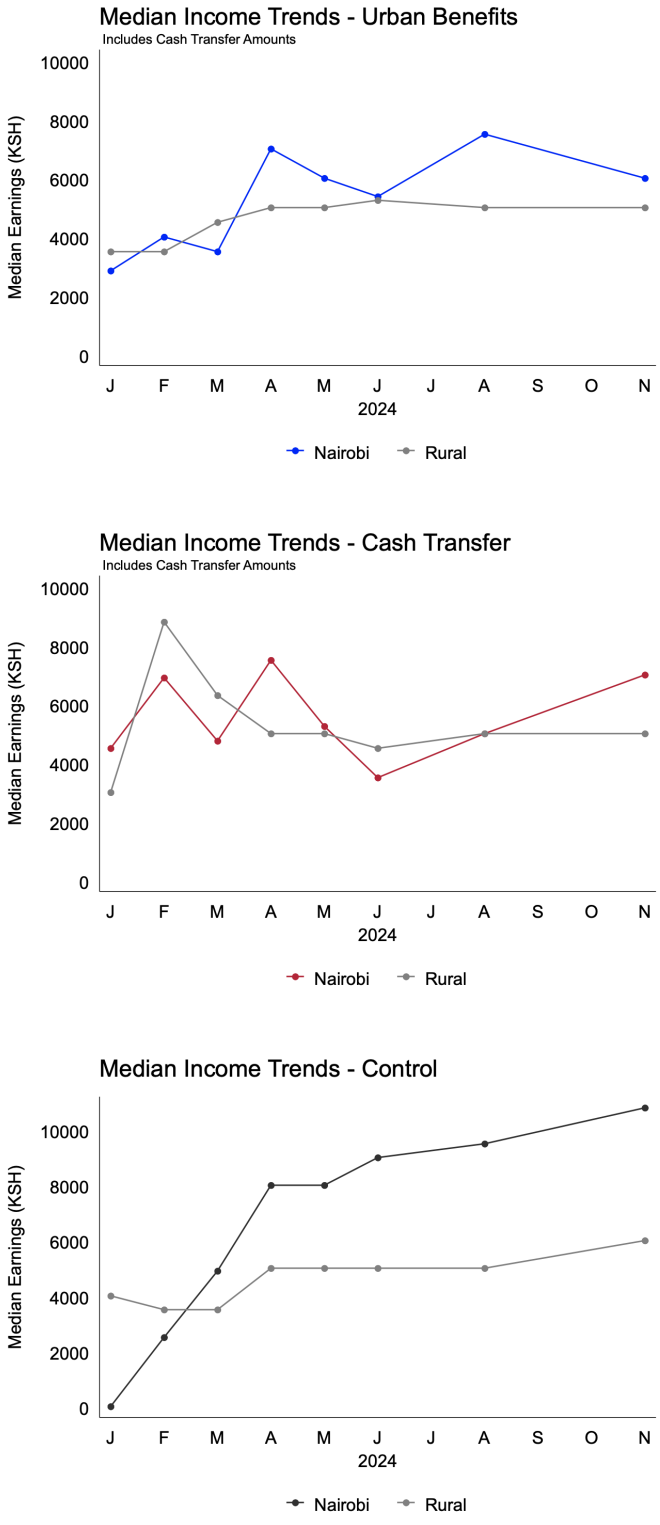


Figure A4: Median Income Trends Over Time



Appendix Tables

Table A1: Participant Characteristics (N=1,303)

	Mean	SD
Age (Years)	25.47	4.77
Married (%)	37.68	48.47
Completed Secondary School (%)	50.54	50.02
Ever Moved	65.31	47.61
Works in wage job	34.84	47.67

Note: This table reports mean and standard deviations of baseline characteristics for the entire sample.

Table A2: Balance of Baseline Characteristics

	Means			**Mean Differences**		
	(1) Benefits	(2) Cash	(3) Control	(4) Diff.(1-2)	(5) Diff.(1-3)	(6) Diff.(2 - 3)
Respondent Age	25.08	26.01	25.84	−0.929***	−0.755**	0.174
	(4.78)	(4.76)	(4.67)	(0.329)	(0.328)	(0.385)
Married and living with spouse	0.35	0.41	0.41	−0.067**	−0.062*	0.005
	(0.48)	(0.49)	(0.49)	(0.033)	(0.033)	(0.040)
Indicator for Employed in wage employment, BL	0.34	0.33	0.39	0.014	−0.045	−0.058
	(0.47)	(0.47)	(0.49)	(0.033)	(0.033)	(0.039)
Number of meals eaten yesterday, BL	2.13	2.13	2.18	−0.007	−0.053	−0.045
	(0.72)	(0.68)	(0.69)	(0.048)	(0.049)	(0.056)
Ever received remittance	0.55	0.57	0.51	−0.021	0.037	0.058
	(0.50)	(0.50)	(0.50)	(0.034)	(0.034)	(0.041)
Number of connections in Nairobi	7.94	8.02	8.39	−0.082	−0.446	−0.364
	(7.67)	(9.15)	(8.33)	(0.578)	(0.558)	(0.737)
Indicator for ever moved, BL	0.63	0.67	0.69	−0.033	−0.055*	−0.022
	(0.48)	(0.47)	(0.46)	(0.033)	(0.033)	(0.038)
Amount of food purchased in last 7 days	2077.00	2105.64	2198.11	−28.637	−121.109	−92.472
	(1399.42)	(1390.35)	(1714.45)	(96.640)	(104.084)	(127.825)
N	703	302	298			

Note: This table reports mean and mean differences of baseline characteristics. Standard deviations are reported in parentheses. Stars report levels of significance in the mean difference columns.

Table A3: Tracking Rates by Survey

	Treatment Group			
	(1) Benefits	(2) Cash	(3) Control	(4) Total
Reached in August Follow Up	586	257	252	1095
	83.36%	85.10%	84.56%	84.04%
Present at Endline	637	281	275	1193
	90.61%	93.05%	92.28%	91.56%
Reached in HF Surveys	692	298	295	1285
	98.44%	98.68%	98.99%	98.62%
Last survey: Baseline	9	3	1	13
	1.28%	0.99%	0.34%	1.00%
Total	703	302	298	1303
	100%	100%	100%	100%

Note: This table reports tracking rates for each survey round.

Table A4: Impact of treatment on response rate

	ITT		
	(1) Benefits	(2) Cash	(3) Control Mean
Last survey: Baseline	0.009	0.007	0.003
	(0.007)	(0.008)	(0.058)
Last survey: High Freq. Phone Surveys	0.008	−0.014	0.067
	(0.017)	(0.021)	(0.251)
Last survey: Endline	−0.006	0.002	0.084
	(0.019)	(0.022)	(0.278)
Reached in August Follow Up	−0.012	0.005	0.846
	(0.025)	(0.030)	(0.362)
N	1303	1303	298

Note: This table reports coefficients and standard errors from the regression of an indicator for "last surveyed on X" on the treatment variable.

Table A5: Migration Unemployment Benefit Take-Up

Total # migrated to Nairobi, Benefits group	101 individuals
# individuals w/ ≥ 1 collection	56 individuals
# who have maxed out collection	29 individuals
Avg days between first and last collection	80 days
Average days between collections	6 days

Table A6: Migration Effects, 9 months since start of the program

	ITT		**ITT w/controls**		
	(1) Benefits	(2) Cash	(3) Benefits	(4) Cash	(5) Control Mean
Status at August Follow-Up					
Currently in Nairobi	0.058***	0.014	0.056***	0.021	0.067
	(0.020)	(0.020)	(0.019)	(0.019)	(0.251)
Currently in urban area	0.062**	0.014	0.057**	0.021	0.116
	(0.028)	(0.030)	(0.028)	(0.028)	(0.320)
Currently outside of Baseline county	0.082***	0.018	0.076***	0.027	0.119
	(0.029)	(0.030)	(0.029)	(0.028)	(0.325)
Currently moved from Baseline residence	0.132***	0.043	0.127***	0.058**	0.149
	(0.034)	(0.031)	(0.031)	(0.028)	(0.357)
N	1139	1139	1139	1139	268
Controls?	n	n	y	y	

Note: The data in this table was collected from the end of August to beginning of September, more than 9 months since the start of the study. The benefits program ended in July.

Table A7: Effect of Treatments on Housing Quality

	ITT		**ITT w/controls**		
	(1) Benefits	(2) Cash	(3) Benefits	(4) Cash	(5) Control Mean
Housing has finished walls	0.102**	−0.008	0.098**	0.013	0.360
	(0.040)	(0.043)	(0.038)	(0.040)	(0.481)
Housing has finished floor	0.062	−0.018	0.058	−0.004	0.498
	(0.043)	(0.045)	(0.041)	(0.041)	(0.501)
Housing has piped water connection	0.091**	0.007	0.089**	0.016	0.164
	(0.040)	(0.042)	(0.041)	(0.041)	(0.371)
Housing has piped toilet facility	0.049***	−0.008	0.046**	−0.003	0.044
	(0.018)	(0.019)	(0.018)	(0.020)	(0.205)
Housing has wired electricity	0.054	−0.049	0.049	−0.036	0.295
	(0.058)	(0.058)	(0.057)	(0.057)	(0.457)
N	1193	1193	1193	1193	275
Controls?	n	n	y	y	

Note: Controls include the following, which were pre-specified: respondent age, marital status, has completed secondary school, indicator for wage employment at baseline, self-employment at baseline, respondent has at least one child, has history migrating, history migrating to Nairobi, and has above average number of connections in Nairobi.

Table A8: Effect of Treatments on Health and Well-Being

	ITT		**ITT w/controls**		
	(1) Benefits	(2) Cash	(3) Benefits	(4) Cash	(5) Control Mean
Health Outcomes					
Health status index	0.108*	−0.128*	0.105*	−0.117	0.023
	(0.060)	(0.075)	(0.062)	(0.076)	(0.960)
Self-reported level of general health	0.089	−0.154**	0.090	−0.138**	4.325
	(0.061)	(0.066)	(0.062)	(0.065)	(0.926)
Index of recent symptoms	−0.083	0.046	−0.077	0.044	−0.035
	(0.064)	(0.082)	(0.067)	(0.084)	(0.898)
Well-Being Outcomes					
Subjective well-being index	−0.102	−0.125	−0.108	−0.111	0.015
	(0.070)	(0.080)	(0.070)	(0.081)	(1.008)
CES-D depression scale (standardized)	0.065	0.050	0.049	0.032	0.000
	(0.077)	(0.084)	(0.079)	(0.086)	(1.012)
Self reported happiness	−0.020	−0.036	−0.032	−0.035	3.168
	(0.047)	(0.051)	(0.046)	(0.051)	(0.594)
Self reported life satisfaction	−0.130	−0.173	−0.137	−0.152	5.927
	(0.142)	(0.165)	(0.138)	(0.160)	(1.838)
Stress index	0.116*	0.150*	0.129*	0.143*	−0.002
	(0.068)	(0.078)	(0.067)	(0.079)	(1.008)
N	1192	1192	1192	1192	274
Controls?	n	n	y	y	

Note: Subjective well-being index is a standardized average of depression, happiness, life satisfaction, and stress, signed so that positive values represent better subjective well-being. CES-D depression scale: higher number represents more indicators for depression. Happiness scale ranges from 1 to 4, with 4 representing very happy. Life-satisfaction scale ranges from 1 to 10 with 10 representing very satisfied. Stress index is a scale score calculated from questions related to stress, standardized to control mean and standard deviation. Higher number indicate more stress.

Table A9: Respondent Labor and Income Averages at Endline, by Location

	Nairobi				Rural		
	(1) Benefits	(2) Cash	(3) Control	(4) Pooled	(5) Pooled	(6) Diff.(N-R)	(7) p-value
Total Monthly Income	10142.35	9658.33	12800.00	10298.90	8142.78	2244.571	0.05
	(8481.03)	(12946.74)	(11333.65)	(9616.52)	(12961.29)	(1157.798)	
Indicator for employed	0.87	0.83	0.85	0.86	0.96	−0.102	0.00
	(0.34)	(0.38)	(0.38)	(0.35)	(0.19)	(0.020)	
Currently working in wage employment	0.78	0.67	0.85	0.77	0.63	0.141	0.00
	(0.42)	(0.48)	(0.38)	(0.42)	(0.48)	(0.044)	
Hours spent searching for work, past week	10.76	8.75	11.77	10.72	8.54	2.238	0.04
	(13.99)	(9.73)	(16.00)	(13.45)	(12.41)	(1.088)	
N	98	24	13	136	1000		

Note: Nairobi migrants are classified as having moved to Nairobi during the study time period. Data in this table comes from the Endline survey. The difference column measures the difference between the pooled Nairobi average and the pooled Rural average. Standard deviations are reported in parentheses.

Table A10: Complier Characteristics

	Full Sample	Always-Takers	Never-Takers	Compliers	Compliers / Full Sample
Share in each population	1.00	0.05	0.84	0.11	.
	.	.	.	.	.
Age	25.27	23.92	25.28	25.80	1.02
Married	0.36	0.15	0.36	0.47	1.28
Completed Secondary	0.53	0.77	0.51	0.59	1.10
Has Children	0.32	0.23	0.33	0.32	0.99
History Nairobi Migration	0.17	0.08	0.15	0.36	2.17
Baseline Monthly Income	10381.49	16723.08	10191.64	9107.84	0.88
Certainty Equivalent	258.58	452.50	255.40	199.45	0.77

Note: