

ARTICLE

Cash transfers, migration, and gender norms

Melissa Hidrobo¹ | Valerie Mueller²  | Shalini Roy¹¹Poverty, Health, and Nutrition Division, IFPRI, Washington, District of Columbia, USA²School of Politics and Global Studies, Arizona State University and IFPRI, Phoenix, Arizona, USA**Correspondence**Valerie Mueller, School of Politics and Global Studies, Arizona State University and IFPRI, Phoenix, AZ 85297, USA.
Email: vmuelle1@asu.edu**Abstract**

Although migration remains crucial for economic development, financial constraints may limit individual ability to migrate. A recent literature demonstrates that social protection programs encourage migration; however, how norms shape the migration decision of women and men are rarely considered. Analysis of 2209 panel households (2014–2016) in Mali suggests that men predominantly move for employment, whereas women move to rural areas for marriage and urban areas for employment. We then test, in the context of a large-scale randomized controlled trial, how a cash transfer (CT) program in Mali affects the migration patterns of men and women. We find the probability of rural–rural migration among men in beneficiary households increases by 0.9 percentage points (an effect size of 100%), whereas the probability of rural–urban migration among women decreases by 0.2 percentage points (an effect size of 50%). We find no impacts on average women’s rural–rural migration or men’s rural–urban migration. However, women in less poor beneficiary households are more likely to engage in rural–rural migration as a result of the CT, whereas women in poorer beneficiary households realize no immediate impact. Our findings indicate that the provision of cash potentially fosters investment in profitable endeavors outside of subsistence agriculture for men but may also affect the marital migration of women.

We thank three anonymous referees and editor Marc Bellemare for their insightful comments while the manuscript was under review. The manuscript also benefitted from the excellent research assistance of Sayahnika Basu, Bianca Navia, and Qing Zhong. This work was undertaken as part of, and funded by, the CGIAR Research Program on Policies, Institutions, and Markets (PIM) led by the International Food Policy Research Institute (IFPRI). PIM is in turn supported by the CGIAR Trust Fund, the Australian Centre for International Agricultural Research, the Belgian Development Cooperation, the Government of Canada, Irish Aid, The Ministry of Foreign Affairs of the Netherlands, and UKaid. The opinions expressed here belong to the authors, and do not necessarily reflect those of PIM, IFPRI, or the CGIAR.

This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

© 2021 The Authors. *American Journal of Agricultural Economics* published by Wiley Periodicals LLC on behalf of Agricultural & Applied Economics Association.

KEYWORDS

cash transfers, gender, Mali, migration, norms

JEL CLASSIFICATION

J6, Q12, R23

1 | INTRODUCTION

Migration remains crucial for economic development, as it offers workers in low- and middle-income countries opportunities to diversify and increase their income (Beegle et al., 2011; Bryan et al., 2014). Remittances also provide households with the financial capital needed for farm and non-farm investments (Lim & Basnet, 2017; Yang, 2008). An emerging literature suggests that access to credit remains an important barrier to migration (Angelucci, 2015; Hughes, 2019; Stecklov et al., 2005), as engaging in such a strategy requires having sufficient resources to afford public transport, housing, and the costs of finding a job at the destination (Orrenius & Zavodny, 2005; McKenzie and Rapoport, 2007; Munshi & Rosenzweig, 2016; Imbert & Paap, 2020).

Our evaluation aims to offer evidence from Mali on the relationship between constraints on income and migration. Only a small number of studies from Africa have examined the extent to which the provision of cash transfers (CTs) (Mueller et al., 2020) and cash-for-work programs alter migration patterns (Gazeaud et al., 2021; Hoddinott & Mekasha, 2020). Context and program design are important factors in such studies. For example, poor road infrastructure can limit the options of where migrants may travel and prevent the return of successful migrants with information about employment (Bryan et al., 2014). In Mali, security issues related to conflict may also limit where migrants travel (Hoogeveen et al., 2019). Conditionalities such as a requirement to participate in public works may change dynamics around migration—particularly employment migration—in ways that differ from unconditional CTs.

Migration patterns also vary by gender, and, thus, the impact of the CT will have disparate effects on men and women. The literature has largely ignored these differences, with the exception of Hughes (2019). She emphasizes the importance of assessing CTs through a gender lens, particularly when receiving transfers requires the physical presence of women as named beneficiaries or as the individuals responsible for ensuring children satisfy educational conditions of a program. In our context, men of the household were the primary recipients of the CT, however, the demographics and social norms in Mali also provide justification for differentiating effects by gender.

In this paper, we descriptively assess gender patterns of migration in Mali and then take advantage of the randomized rollout of Mali's CT program to investigate how relaxing income constraints affects the migration patterns of men and women. We find that men move largely for employment reasons. The dominant form of migration for men appears to be from rural areas to other rural areas. We observe that the relationship between baseline consumption and the rural–rural migration of men has a strong inverted U shape; at low levels of consumption, migration increases until a threshold, after the threshold is met, migration decreases. This is consistent with the migration of men being a normal good (Clemens and Mendola, 2020). In contrast, younger women mainly move to rural areas for marriage or to urban areas for service and domestic sector employment. Marriage traditions dictate that brides move in with their grooms' families following their unions. There are strong social norms which discourage the migration of women for employment reasons, and thus any migration for employment is likely considered a necessity and inferior good.¹

The above descriptive findings suggest that the migration patterns of men and women are likely to be affected quite differently from a cash transfer program. Assuming the rural–rural migration of men is considered a normal good, then receipt of the CT would increase such migration rates. Given preferences regarding women's immobility, we might witness fewer women, in contrast, moving for

employment purposes to urban areas as a result of the CT. In accordance with these hypotheses, we find that a CT increases men's likelihood of moving from a rural location to another rural location by 0.9 percentage points, an effect size of 100% relative to the control mean rural–rural migration at baseline. We further witness a 0.2 percentage-point reduction in the rural–urban migration of women as a result of the CT, which is equivalent to a 50% reduction relative to the control mean of the outcome at baseline. There are no significant effects on the rural–rural migration of women nor the rural–urban migration of men on average.

We further investigate heterogeneous migration impacts of CT receipts by baseline wealth. For men, impacts on rural–rural migration are concentrated in the bottom four wealth quintiles, consistent with the inverted-u hypothesis above. For women, impacts on rural–rural migration are concentrated in the top wealth quintile. Supplementary analysis suggests that CTs have dynamic effects on marriage market outcomes. On the one hand, CTs might reduce child marriage as poor parents of young women may no longer need the bride price to help smooth their consumption (Corno et al., 2020). On the other hand, men may be more able to pay the bride price, thus the demand for wives increases. Although we lack the ability to look at impacts on marriage (as we do not know the marital status of individuals that left the household), we have data on bride price and find that CTs increased the likelihood that bride prices were paid and the amount paid. The bride price effects are larger among less poor, beneficiary households.

This paper proceeds as follows. Section 2 weaves insights from the longitudinal study on gendered patterns of migration with existing findings from the qualitative literature. Section 3 describes the CT program in Mali that we study, the national government's "*Filets Sociaux (Jigisémèjiri)*," as well as the randomized design for its rollout. Section 4 summarizes the data that we use for our analysis and provides descriptive statistics. Section 5 presents our empirical approach to examine the effect of the *Jigisémèjiri* CT program on migration. Section 6 presents results of these analyses, and Section 7 concludes.

2 | BACKGROUND

Our knowledge of migration and gender norms in Mali is primarily based on qualitative research, performed at least 15 years ago in a handful of villages (De Haan et al., 2002; Findlay, 1994; Hertrich & Lesclingand, 2012, 2013).² These studies are crucial for contextualizing what underlies the diverse migration patterns witnessed in more current data and, more importantly, to inform how a CT may or may not enhance those patterns. In what follows, we use the data from our longitudinal survey to describe the current patterns of migration among beneficiary households in Mali and draw from the earlier literature to provide a deeper understanding of the basis for these decisions with respect to optimizing income and marital decisions.

Annual migration rates among individuals in our sample are rather low at around 1.5 to 1.9% (Figure A1).³ Annual migration rates are higher for young men, reaching around 4%; in contrast, annual migration rates of men and women greater than 48 years old is near zero (Figure A2). The most frequent pattern of migration is to move to a location within Mali (Figure A3).⁴ Men mainly migrate for employment (Figure A4). The migration of men is more widely recognized by their households as instrumental for their livelihoods and asset accumulation. Previous studies note that migrant men obtain informal contracts with cattle breeders to shepherd cattle in exchange for wages and acquire free oxen for their families (Hertrich & Lesclingand, 2012, 2013), whereas others engage in seasonal wage labor, factory work, or artisanal activities to provide income auxiliary to agriculture and agro-pastoralism (De Haan et al., 2002).⁵

In contrast, women migrate for a variety of reasons (Figure A4). Most women move to rural areas for marital reasons (including divorce and separation) and urban areas for employment (Figure A5). In general, social norms do not support the practice of premarital migration out of fear that the unsupervised behavior and actions of young women might undermine future marital

arrangements (Grosz-Ngaté, 2000; Hertrich & Lesclingand, 2012, 2013). Women who migrate prior to marriage are mainly motivated by the need to acquire money to afford their wedding goods, or *trousseau* (De Haan et al., 2002; Grosz-Ngaté, 2000; Hertrich & Lesclingand, 2012, 2013). As the range of goods have expanded over time, more women migrate because their mothers are unable to provide the resources required for them to marry (Grosz-Ngaté, 2000).

We estimate a linear probability model using our longitudinal data to extrapolate important correlates of migration in recent years. Given the low prevalence of international migration in the sample, we focus on internal migration patterns. Details of the linear probability model are included in Section 2 of the Appendix. For men, a common thread across models is that having worked in casual labor inclines them to engage in internal, rural–rural, and rural–urban migration (Figure 2). Those engaged in casual labor may have transferable skills for the type of work demanded of migrants and may also have the additional flexibility to search for seasonal work than others obliged to fulfill longer term contracts.

The type of households that engage in migration for employment has been typically relatively poor (De Haan et al., 2002; Findlay, 1994). Estimates from our linear probability models of migration suggest the relationship between the rural–rural migration of men, specifically, and baseline consumption resembles an inverted U (Figure 3). According to De Haan et al. (2002), wealthy households are reluctant to send their children to migrate for employment, as it signals an incapacity to maintain the members’ needs.

In addition to wealth, constraints on labor may play a significant role in whether a household participates in migration. Cultural practices dictate that at least one man is present in the household during the dry season (Grosz-Ngaté, 2000). This has important consequences not only on the propensity of male migration across households but also the attributes of male migrants relative to other household members. Among households that rely on migration as a source of income, those with an ample number of young men will often alternate who migrates as an equitable gesture, whereas those facing labor constraints instead release men who lack skills valuable to household production (De Haan et al., 2002). For men, we are unable to detect an association between migration and the number of working aged men in the household (Figure 3). However, the migration of women does appear correlated with the demographic composition of the household. In particular, female migration increases with the number of adult women in the household but decreases with the number of adult men in the household. The number of women in the family may increase the pressure for marriage as dependents do not contribute to household income (Vogl, 2013).

3 | THE “FILETS SOCIAUX (JIGISÉMÈJIRI)” PROGRAM

In 2014, the Government of Mali began implementing its national CT program, “Filets Sociaux (Jigisémèjiri),” that aims at reducing poverty and improving human capital accumulation through CTs, accompanying measures (AM), and preventive nutrition packages (PNP). The CT consisted of unconditional transfers of 30,000 FCFA paid every three months to the head of the household (the equivalent of USD 20/month, or 9% of the beneficiary household’s monthly consumption).⁶ Heads of households (often male) were delivered the CT in person at a central location in the village by bank and program staff. The AM consisted of two voluntary training/communication activities per month organized by nongovernmental organizations (NGOs) on priority themes covering social protection, income generating activities, education, maternal and child health, and nutrition including infant and young child feeding. The AM was open to all household members and all community members regardless if they qualified for the CT component. The PNP distributions, provided by the World Food Program, consisted of two types of fortified flour (Supercereals CSB+ and CSB++) for children 6–59 months old and pregnant and lactating women. Although the CT and AM components were rolled out at the end of 2014, and beneficiaries received the program for 3 years, the PNP was rolled out in 2018, for only one year (for more details see Hidrobo et al., 2018, 2019).

Household eligibility for the CT component was based on a combination of geographical- and community-based targeting. In particular, circles and communes were chosen based on geographical targeting using poverty maps. All villages within the communes were then given a quota of households that were eligible, based on population size. Community-based targeting was used to select households within villages based on four criteria related to (1) food insecurity, (2) agricultural capacity, (3) “reliability” of income, and (4) household composition (at least 3–10 household members total, with at most one or two working adults).

In order to evaluate the impact of the Jigisémèjiri program a cluster randomized evaluation was conducted by the International Food Policy Research Institute (IFPRI) and the Institut de Recherche pour le Développement (IRD) in the five southern regions of Mali: Kayes, Koulikoro, Mopti, Sikasso, and Segou. Across 96 communes, 76 were randomly assigned to start receiving the CT and AM components in 2014–2015 (early treatment) and 20 were assigned to start receiving the CT and AM components in 2016–2017 (late treatment). Then, within a subset of 19 early treatment communes deemed more nutritionally vulnerable, villages were randomly assigned to either receive the PNP component for one year or not to receive it.⁷ Randomization of communes to the early and late treatment groups was stratified by region. Descriptive evidence from self-reports reveals that adherence to the treatment assignment for the CT component was high—97% of households assigned to the early treatment group had received a CT, whereas no household in the late treatment group had yet received a CT in 2016 (Hidrobo et al., 2018). Take-up of the AM component among the early treatment group was lower than receipt of the CT, whereby only 60% of households reported attending at least one session.

For the purpose of this study, we focus on the migration impact of the CT program between the period of 2014 and 2016. Over this time frame, households in the communes randomly assigned to the early treatment group (henceforth referred to as treatment) received the CT and AM components, whereas households in communes randomly assigned to the late treatment group (henceforth referred to as control) did not. The randomization of beneficiary households allows us to provide internally valid estimates of the effect of CT receipts on migration through comparisons of the outcomes across the two groups.

4 | DATA

The analysis uses panel household survey data collected for the purpose of conducting an impact evaluation of the Jigisémèjiri program. Three rounds of data were collected in September 2014–February 2015 (baseline), August–November 2016 (midline), and August–November 2018 (endline). The baseline sample of households consisted of 3080 in 90 communes spanning five regions (Sikasso, Koulikoro, Kayes, Ségou, and Mopti). The geographic dispersion of the households reflects the stratification of treatment across five regions: 700 control households and 2310 treatment households were surveyed in 19 and 71 communes, respectively at baseline. Concerns over safety prevented data collection in six of the original 96 communes.

There are two key features of the analytical sample worth noting that warrant discussion of the external and internal validity of our findings. First, the household listing only included those that were eligible for the CT program. Households were therefore randomly selected to be interviewed based on the listing of eligible beneficiaries. An additional restriction was imposed to include households that had at least one child between the ages of 6 and 23 months at baseline. The emphasis of having children in the sample was based on recent evidence that suggests social protection interventions largely benefit the nutrition outcomes of children within the “first 1000 days” of their lives (Hidrobo et al., 2015). Given the sample is likely unrepresentative of the broader population of Mali, our findings may only be generalizable to poor rural households with young children in southern Mali.

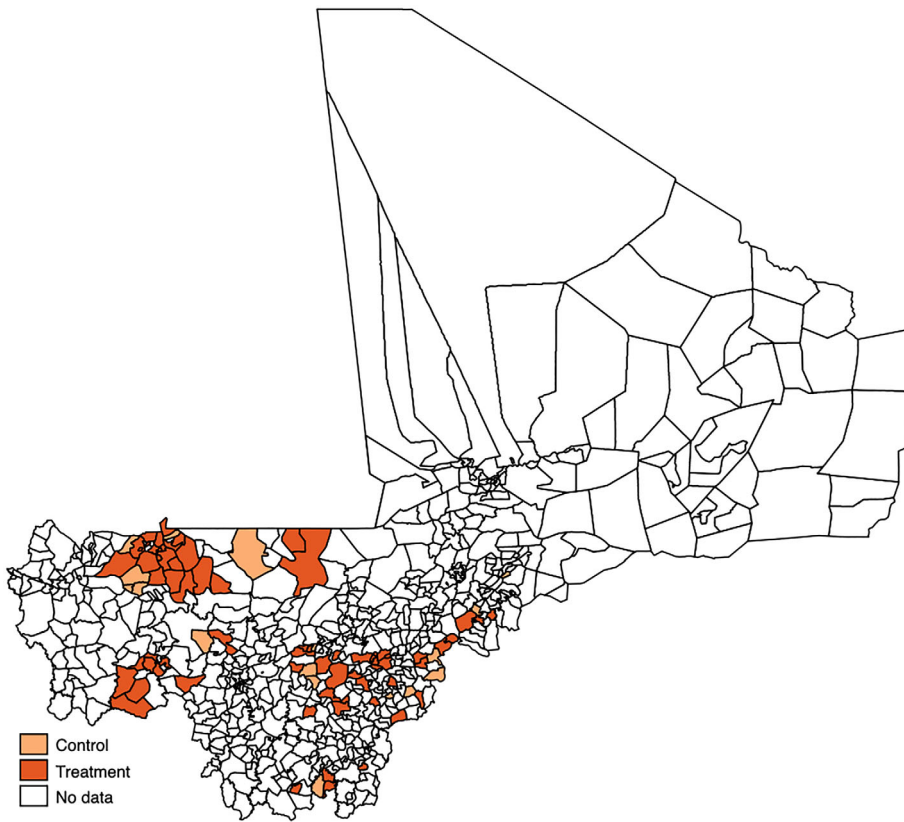


FIGURE 1 Treatment and control communes in Mali cash transfer program, 2014–2016

Second, the panel households used in the analysis consist of a fraction of the original households surveyed at baseline. Of the 3080 households surveyed at baseline, 2560 were randomly designated to be interviewed subsequently. In actuality, 89% of the planned 2560 panel households were surveyed at both midline and endline. Attrition was mostly due to security concerns in six communes that could not be interviewed at endline. We further restrict the sample used in the final analysis to households with members between the ages of 15 and 48 at endline and who had non-missing per capita food consumption data at baseline (excluding an additional 3% of households). Earlier work on migration in Mali indicates the odds of moving is greatest within this age range (Hertrich & Lesclingand, 2012, 2013). The final sample is 2209 households distributed over 19 control communes and 65 treatment communes as depicted in Figure 1. These households include 3438 men and 4321 women who were present at baseline and in the 15 to 48 age group at endline.

Table 1 provides baseline statistics that describe the individuals' attributes, their household composition and wealth, and features of their residential location. Fifty-seven percent of the sample is female. The male sample is much younger. For example, 41.1% of men are in the lowest, omitted age category of 15–18 years old compared to 26.1% of women. The majority of the male sample are sons of the head of household (60.6%), whereas the women in our sample are mainly spouses (38.4%), daughters (16.8%), or daughters-in-law (26.7%). Men are more likely to be single compared to women (27% compared to 9%) and more likely to have had some formal schooling (28% compared to 14%). These features of the sample are consistent with the discrepancy in ages by gender as well as the inherent norms regarding patrilocal and polygamy in rural Mali.⁸

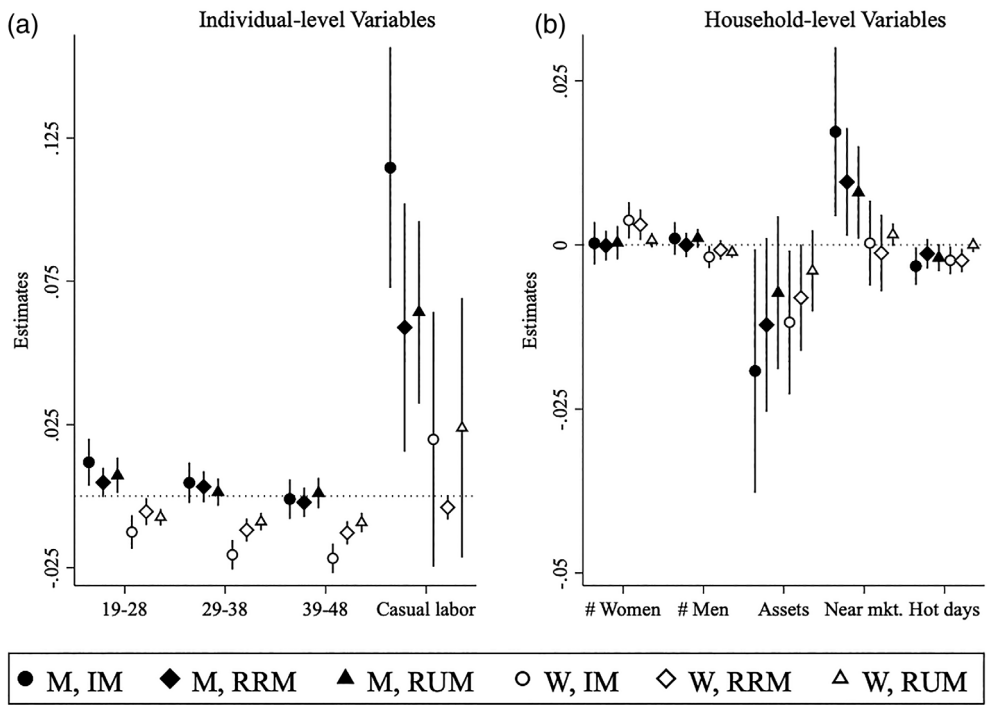


FIGURE 2 Associations between migration and individual and household characteristics *Note:* The figures present the 90% confidence intervals for the coefficient estimates from six linear probability regression models of the internal migration (IM), rural–rural migration (RRM), and rural–urban migration (RUM) of men (M) and women (W). The coefficient estimates are taken from the Appendix S1 (Tables A1 and A2). Details of the models are provided in the Appendix S1, Section 2

4.1 | Defining migration

At endline only, we administer a migration module that asks about the migration of each baseline household member (15 years or older at endline) since 2014 (right before the introduction of the CT program). We ask detailed information pertaining to each migration episode defined as migrating outside of his/her village for at least three months. We create five binary migration outcomes based on the information provided, whether the individual migrated at least once in year t , whether the individual migrated at least once within Mali in year t , whether the individual migrated abroad at least once in year t , whether the individual migrated to a rural destination in Mali at least once in year t , and whether the individual migrated to an urban destination in Mali at least once in year t . We limit our focus to moves that occurred between baseline and midline (2014, 2015, and 2016), because CTs were apportioned to households in the control group after 2016 (see Section III).⁹ Table 2 reveals that annual migration rate for the sample used in the analysis is around 2% (2.9% for men and 1.2% for women).

4.2 | Internal validity

We investigate whether the reduction in sample size due to attrition, restrictions on age, and the availability of baseline consumption data compromises the experimental design. We estimate a relationship between attrition and the treatment using a linear probability model (LPM) where a binary attrition variable is assigned a value of one if the baseline household was designated part of the panel but was not interviewed at midline or endline. We estimate two versions of the LPM. The first version includes the treatment indicator, an indicator for PNP village eligibility, and region fixed effects. The second version

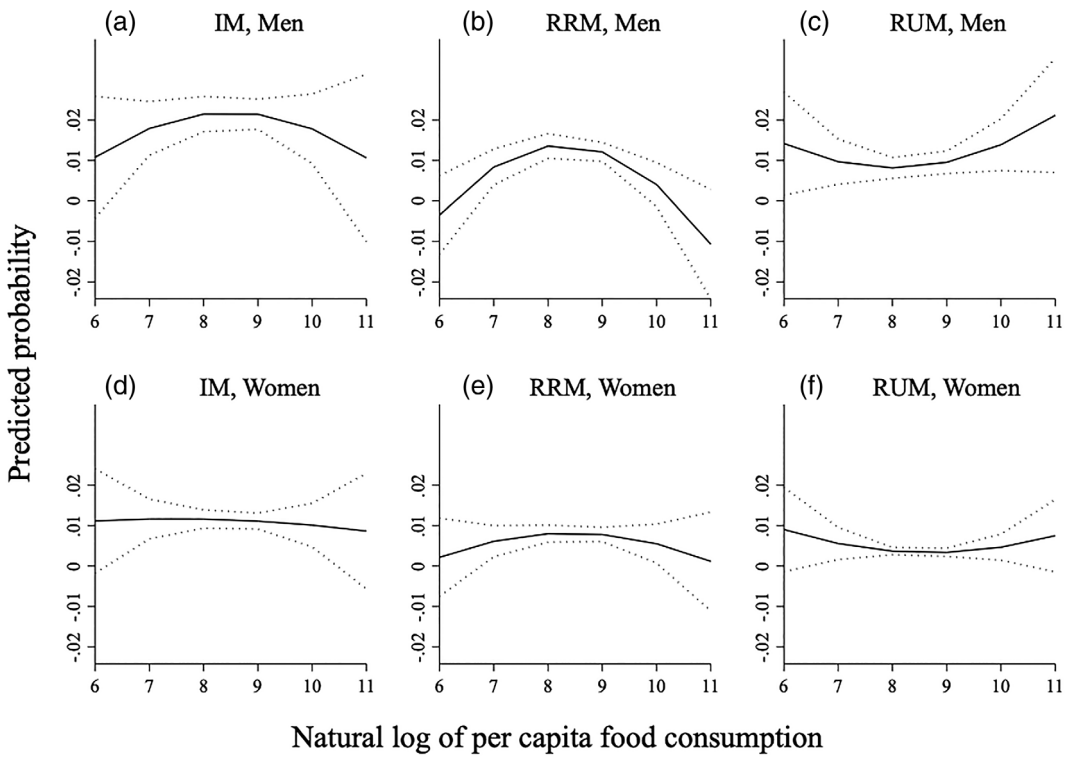


FIGURE 3 Associations between migration and consumption *Note:* The figures present the 90% confidence intervals for the coefficient estimates from six linear probability regression models of the internal migration (IM), rural–rural migration (RRM), and rural–urban migration (RUM) of men and women. The coefficient estimates are taken from the Appendix S1 (Tables A1 and A2). Details of the models are provided in the Appendix S1, Section 2

adds baseline household variables to the first version of the model (household size, the numbers of female and male household members ages 15 to 48, and a housing asset index). We find that attrition is not correlated with treatment (Table A3). We also estimate the same LPMs replacing the dependent attrition variable with one that captures whether the household is not in the final sample for any reason. The dependent variable in these models assigns a value of one if the household attrited from the sample at midline or endline or was dropped due to the restrictions of individual age, or missing data on baseline household consumption. Results from the second set of models connote that the probability of a household not being in the final sample is also uncorrelated with the treatment (Table A3).

We additionally demonstrate that the sample of men, women, and men and women combined have similar baseline characteristics and outcomes across treatment and control groups. The results from the balancing tests are displayed in Tables A4–A6. F statistics testing the joint significance of the variables show that p -values for the tests well exceed 0.1 for the pooled sample and subsamples of men and women. T statistics that test the difference in variables' means across the treatment and control groups also indicate that the samples are equivalent in terms of their demographic and wealth composition, and migration behavior at baseline (Table A4). Balance across covariates and the migration outcomes persist upon conducting these tests by men and women separately (Tables A5 and A6).

4.3 | Empirical approach

Given the limited migration abroad, we limit our analysis to migration within Mali and estimate the intent-to-treat effect (ITT) of *Jigisemejiri* on internal migration, rural–rural migration, and

TABLE 1 Summary statistics of individual and household characteristics (ages 15–48 at endline)

	<u>Men</u>	<u>Women</u>	<u>All</u>
Migration years in sample	2014–6	2014–6	2014–6
Female	0.000	1.000	0.568
15–18	0.411	0.261	0.326
19–28	0.206	0.336	0.280
29–38	0.254	0.303	0.282
39–48	0.129	0.099	0.112
Can read and write	0.281	0.119	0.189
Attended some formal schooling	0.276	0.135	0.196
Single	0.266	0.092	0.167
Individual is head	0.158	0.012	0.075
Individual is head's spouse	0.006	0.384	0.221
Individual is head's child	0.606	0.168	0.357
Individual is head's child-in-law	0.002	0.267	0.153
Individual is head's grandchild	0.080	0.042	0.059
Individual is head's sibling	0.075	0.007	0.036
individual is head's sibling-in-law	0.001	0.075	0.043
Individual is head's nephew/niece	0.055	0.025	0.038
Agriculture	0.806	0.658	0.722
Casual laborer	0.011	0.003	0.006
Self-employed	0.023	0.008	0.014
Commerce and trade	0.009	0.021	0.016
Student	0.064	0.028	0.043
Domestic work	0.019	0.223	0.135
Other labor activity	0.068	0.060	0.063
Household size	12.333 (5.649)	12.194 (5.659)	12.254 (5.655)
No. of female hh members ages 15 to 48	2.475 (1.465)	2.674 (1.491)	2.588 (1.483)
No. of male hh members ages 15 to 48	2.183 (1.448)	1.760 (1.377)	1.943 (1.423)
Housing asset index	0.265 (0.179)	0.263 (0.179)	0.264 (0.179)
Natural log of per capita food consumption (CFAs)	8.477 (0.713)	8.494 (0.709)	8.487 (0.711)
Hours hhs in commune spend reaching the nearest market	0.634 (0.376)	0.639 (0.385)	0.637 (0.381)
Monthly average of annual precipitation, 100 mm	1.781 (0.595)	1.770 (0.602)	1.775 (0.599)
Maximum average monthly temperature, 10°C	3.364 (0.116)	3.369 (0.119)	3.367 (0.118)
Minimum average monthly temperature, 10°C	2.163 (0.125)	2.164 (0.125)	2.164 (0.125)

(Continues)

TABLE 1 (Continued)

Migration years in sample	Men	Women	All
	2014–6	2014–6	2014–6
Number of 10 days with temperature above 35°C	1.075 (1.437)	1.132 (1.481)	1.107 (1.463)
Treatment	0.774	0.778	0.776
PNP village	0.155	0.163	0.160
Koulikoro	0.110	0.103	0.106
Segou	0.283	0.266	0.273
Sikasso	0.186	0.183	0.185
Mopti	0.062	0.061	0.061
Person-years	10,314	13,563	23,877

Note: Standard deviations in parentheses for continuous variables. All variables are extracted from the baseline survey, except the climate variables, which vary by year. The above table provides descriptive statistics for the pooled sample of men and women. The pooled samples include 3438 men, 4521 women, and 7959 men and women. The table excludes indicators for whether the individual is missing information on literacy (0.001 of pooled sample), formal schooling (0.001 pooled sample), and marital status (20% of pooled sample). Observations in the pooled sample is missing information on marital status because they were too young to be asked (<15 years old) at baseline.

TABLE 2 Summary statistics of migration outcomes (ages 15–48 at endline)

Migration years in sample	Men	Women	All
	2014–6	2014–6	2014–6
Migrate	0.029	0.012	0.019
Moves within Mali	0.021	0.011	0.015
Moves abroad	0.008	0.001	0.004
Moves to rural destination in Mali	0.012	0.008	0.009
Moves to urban destination in Mali	0.009	0.004	0.006
Moves for work	0.022	0.003	0.011
Moves for marriage, divorce, or separation	0.000	0.007	0.004
Moves for schooling	0.003	0.001	0.002
Moves to follow or visit family	0.001	0.001	0.001
Moves for other or unknown reason	0.003	0.001	0.001
Person-years	10,314	13,563	23,877

Note: We define migration using a binary variable, where a person receives a value of one in a given year if s/he moved at least once during that year. The above provides descriptive statistics for the pooled sample of men and women. The pooled samples include 3438 men, 4521 women, and 7959 men and women.

rural–urban migration of individual i from household h from region j in year t . The ITT can be measured by simply comparing the means of the migration outcomes across the treatment and control groups due to the randomization of the beneficiaries into the program between baseline and midline. However, adjusting the estimate using a regression approach can improve the precision of the ITT. We therefore apply the following regression to estimate the ITT:

$$M_{ihjt} = \alpha_t + \alpha_j + \beta T_h + \gamma PNP_h + \varepsilon_{ihjt} \quad (1)$$

where T_h is an indicator that equals one if household h was assigned to an early treatment commune. The estimate of the ITT effect is $\hat{\beta}$, which is conditional on the regional and year indicators (α_j and α_t) as well as eligibility into the PNP. Standard errors are clustered at the commune level.¹⁰

Estimates of the ITT effects allow us to examine our main hypothesis that the employment migration of men is considered a normal good, whereas the employment migration of women is considered an inferior good. Thus, we would expect a positive income shock (such as a receipt of the CT) to increase investments in the rural–rural migration of men (the predominant form of employment migration for men) and decrease the participation of women in rural–urban migration (the predominant form of employment migration for women).

5 | RESULTS

5.1 | Intent-to-treat effects of the CT on migration

We first provide the estimates of the ITT effects of the CT program on the internal migration, rural–rural, and rural–urban migration outcomes of men and women in Table 3. The results indicate that the CT program increases rural–rural migration by 0.4 percentage points. When we restrict the focus to men, the point estimate increases to 0.9 percentage points. This effect size is 100% relative to the control mean rural–rural migration for men at baseline. There is no average effect of the receipt of CTs on the rural–rural migration of women. However, the CT reduces the rural–urban migration of women by 0.2 percentage points, a reduction of 50%. The effects of the CT on the rural–rural migration of men and rural–urban migration of women are consistent with the employment migration of men being a normal good and the employment migration of women being an inferior good.

We compute Type-S and Type-M error statistics to illustrate that the main findings in Table 3 are not driven by chance (Gelman & Carlin, 2014). The probability that the ITT effect on the rural–rural migration of men is the opposite sign (Type-S error) is 0.00, and the factor by which the magnitude of the effect size might be exaggerated (Type-M) is 1.09. Similarly, the ITT effect on the rural–urban migration of women does not appear sensitive to Type-S or Type-M errors (S-error = 0.00, M-error = 1.39).

TABLE 3 Intent-to-treat effects of cash transfer on migration outcomes

	All	Men	Women
Internal migration	0.002 (0.003)	0.007 (0.005)	−0.002 (0.002)
Control mean of outcome	0.013	0.020	0.008
<i>N</i>	23,782	10,234	13,548
Rural–rural migration	0.004 (0.002)*	0.009 (0.003)***	−0.000 (0.002)
Control mean of outcome	0.006	0.009	0.004
<i>N</i>	23,639	10,141	13,498
Rural–urban migration	−0.002 (0.002)	−0.002 (0.004)	−0.002 (0.001)*
Control mean of outcome	0.007	0.011	0.004
<i>N</i>	23,557	10,112	13,445

Note: Unit of analysis is person-year. International migrants excluded from all of the analysis here. Internal migration is a binary variable, where a person receives a value of one in a given year if s/he moved at least once during that year to a location within Mali. Rural–rural migration is a binary variable, where a person receives a value of one in a given year if s/he moved at least once during that year to a rural location within Mali. In the rural–rural migration regressions, rural–urban migrant observations are excluded. Rural–urban migration is a binary variable, where a person receives a value of one in a given year if s/he moved at least once during that year to an urban location within Mali. In the rural–urban migration regressions, rural–rural migrant observations are excluded. Non-migrants receive a value of zero in all three binary migration variables. Region fixed effects and an indicator for PNP village eligibility included in all regressions. Commune-clustered standard errors reported in parentheses. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

We next examine whether the effects of the CT differed by baseline employment. Those engaged in casual labor, for example, may face lower constraints to engaging in migration than those tied to managing farm or non-farm enterprises. In Table 4, the results show that the impacts of the CT on men's rural-rural migration are concentrated among casual workers. Although only 1.1% of our male sample reported primarily working in casual labor at baseline (Table 1), the results in Table 4 suggest the migration effects are much larger for them compared to men working in agriculture (the omitted category). Having access to the CT increases their mobility by 9.1 percentage points (F statistic p -value = 0.005). We also observe a statistically significant effect on the treatment coefficient among men who reported studying at baseline on rural-urban migration. However, we cannot reject that the combined effect of the treatment and the treatment interacted with the study indicator is equal to zero according to the F test (p -value = 0.165). Finally, women in beneficiary households engaged in other labor activities at baseline were more likely to migrate to rural destinations. We are unable to reflect on these estimates, as they include a few women that are salaried, and, for the majority of individuals reporting the other category, there are no details with respect to the type of activities in which they were engaged.

Last, we evaluate whether the effect of the CT varied by baseline consumption.¹¹ Our analysis of the correlates between consumption and migration indicate that the relationship resembles an inverted-U shape for the rural-rural migration of men. We might expect to observe varied effects of the CT among beneficiary households at different places in the consumption distribution, particularly if the employment migration of men is considered a normal good (Clemens and Mendola, 2020). We provide two models in Table 5. The first model compares the migration effect of consumption quintiles 1 through 4 relative to quintile 5 (the omitted category). Because the signs and magnitudes appear similar on the coefficients of the first four consumption quintiles, we also provide a second specification in Table 5 that consolidates the first four consumption quintiles into one indicator. We observe no impacts of the CT on the rural-rural migration of men in the fifth income quintile. In contrast, when we consolidate the lower consumption quintiles into one category, we observe that men from beneficiary households in this category are significantly more likely to migrate to rural destinations as a result of the CT (estimated coefficient of 0.01). The point estimates on the interaction between the lower consumption category and treatment are imprecisely estimated, but we can reject that the additive effect of the coefficients are equal to zero (F statistic p -value = 0.002).

In contrast, the receipt of the CT has opposing effects on women from poor and less poor households. Women in the poorer consumption categories (quintiles 1 through 4) at baseline are significantly more likely to migrate to rural areas in the absence of a CT compared to women in the richest quintile. The estimated coefficient on the low consumption category (quintile 1 through 4) is 0.011 in the last column of Table 5. The point estimate on the variable that interacts the treatment with the low consumption category is -0.013 and significant, which implies the CT offsets the tendency for poor women to migrate to rural areas. Interestingly, the rural-rural migration of women in less poor, beneficiary households increases as a result of the CT (point estimate of 0.01).

5.2 | Marriage markets

Given that the rural-rural migration of women is mainly for marriage, we turn to marriage markets to explain the heterogeneous impacts shown above. Corno et al. (2020) design a general equilibrium model to explain the consequences of negative income shocks on marriage markets in regions where a bride price (payment from groom's family to bride's family) or dowry (payment from bride's family to groom's family) are customary. In their model, marriage payments are a source of consumption smoothing that suggests a direct channel through which CTs may mitigate early age marriage and the associated migration patterns connected with marital contracts. A prediction from the model is that in the context of bride price, parents of poor households are more likely to negotiate marital

TABLE 4 Heterogeneous effects of cash transfer on migration by baseline employment

	Rural–rural migration			Rural–urban migration		
	All	Men	Women	All	Men	Women
Treatment	0.004 (0.002)*	0.008 (0.003)**	0.001 (0.003)	−0.002 (0.002)	−0.002 (0.004)	−0.001 (0.001)
Treatment × Casual Labor	0.066 (0.027)**	0.083 (0.032)**	−0.000 (0.003)	−0.021 (0.033)	−0.001 (0.037)	−0.082 (0.079)
Treatment × Self-Employed	−0.031 (0.021)	−0.028 (0.024)	−0.042 (0.042)	−0.008 (0.038)	−0.015 (0.050)	0.012 (0.012)
Treatment × Trade and Commerce	−0.009 (0.010)	0.013 (0.019)	−0.015 (0.014)	0.002 (0.012)	−0.004 (0.030)	0.010 (0.009)
Treatment × Study	0.005 (0.008)	0.009 (0.009)	−0.006 (0.019)	0.010 (0.009)	0.016 (0.010)*	−0.002 (0.019)
Treatment × Domestic	−0.006 (0.006)	0.001 (0.007)	−0.004 (0.006)	0.000 (0.003)	0.002 (0.005)	−0.000 (0.003)
Treatment × Other Labor Activity	0.013 (0.005)**	0.009 (0.008)	0.016 (0.006)***	0.003 (0.004)	0.005 (0.008)	0.001 (0.006)
Casual laborer	−0.006 (0.002)***	−0.003 (0.003)	−0.006 (0.003)**	0.068 (0.028)**	0.063 (0.029)**	0.078 (0.079)
Self-employed	0.034 (0.020)	0.034 (0.022)	0.035 (0.042)	0.034 (0.035)	0.049 (0.046)	−0.004 (0.001)**
Commerce and trade	0.004 (0.009)	−0.005 (0.003)*	0.010 (0.014)	0.003 (0.008)	0.017 (0.023)	−0.004 (0.001)***
Student	0.005 (0.006)	0.001 (0.006)	0.018 (0.018)	0.009 (0.007)	0.003 (0.007)	0.019 (0.017)
Domestic work	0.004 (0.006)	−0.005 (0.003)*	0.005 (0.006)	−0.004 (0.003)	−0.008 (0.004)*	−0.002 (0.002)
Other labor activity	−0.004 (0.003)	0.001 (0.005)	−0.007 (0.002)***	0.001 (0.003)	−0.002 (0.007)	0.005 (0.005)
R ²	0.00	0.01	0.00	0.01	0.01	0.01
N	23,639	10,141	13,498	23,557	10,112	13,445
F test (p-value): T + T × casual = 0	0.013	0.005	0.776	0.478	0.924	0.295
F test (p-value): T + T × SE = 0	0.200	0.368	0.328	0.800	0.736	0.375
F test (p-value): T + T × trade = 0	0.568	0.283	0.289	0.966	0.851	0.358
F test (p-value): T + T × study = 0	0.267	0.064	0.758	0.318	0.165	0.867
F test (p-value): T + T × domestic = 0	0.647	0.222	0.517	0.483	0.869	0.436
F test (p-value): T + T × other = 0	0.001	0.055	0.002	0.844	0.721	0.894

Note: Unit of analysis is person-year. Omitted employment category is agriculture. We define rural–rural (rural–urban) migration using a binary variable, where a person receives a value of one in a given year if s/he moved at least once during that year to a rural (urban) location in Mali. Non-migrants receive a value of zero for the binary variable. International migrant observations omitted from the analysis. Rural–urban (rural–rural) migrants are omitted from the rural–rural (rural–urban) regressions. Commune-clustered standard errors reported in parentheses. Region fixed effects and an indicator for PNP village eligibility included. * $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

TABLE 5 Effects of cash transfer on rural–rural migration, by baseline consumption quintile

	All	Men	Women	All	Men	Women
Treatment	0.007 (0.003)**	0.003 (0.005)	0.010 (0.003)***	0.007 (0.003)**	0.003 (0.005)	0.010 (0.003)***
Treatment × Consumption, 1 quintile	−0.005 (0.004)	0.005 (0.007)	−0.012 (0.004)**			
Treatment × Consumption, 2 quintile	−0.004 (0.005)	0.006 (0.007)	−0.013 (0.007)*			
Treatment × Consumption, 3 quintile	−0.004 (0.004)	0.008 (0.008)	−0.013 (0.004)***			
Treatment × Consumption, 4 quintile	−0.004 (0.005)	0.008 (0.007)	−0.013 (0.007)*			
Natural log of per capita food consumption, 1 quintile	0.003 (0.003)	−0.003 (0.005)	0.008 (0.003)**			
Natural log of per capita food consumption, 2 quintile	0.008 (0.005)*	−0.000 (0.006)	0.014 (0.005)***			
Natural log of per capita food consumption, 3 quintile	0.004 (0.003)	−0.004 (0.006)	0.010 (0.003)***			
Natural log of per capita food consumption, 4 quintile	0.004 (0.004)	−0.003 (0.005)	0.010 (0.007)			
Treatment × Consumption, quintile 1–4				−0.004 (0.003)	0.007 (0.006)	−0.013 (0.003)***
Consumption, quintile 1–4				0.005 (0.002)*	−0.003 (0.005)	0.011 (0.002)***
R^2	0.00	0.00	0.00	0.00	0.00	0.00
N	23,639	10,141	13,498	23,639	10,141	13,498
F test (p -value): T + T × Cons., quintile 1 = 0	0.426	0.102	0.629			
F test (p -value): T + T × Cons., quintile 2 = 0	0.568	0.073	0.611			
F test (p -value): T + T × Cons., quintile 3 = 0	0.305	0.033	0.426			
F test (p -value): T + T × Cons., quintile 4 = 0	0.496	0.029	0.648			
F test (p -value): T + T × Cons., quintile 1–4 = 0				0.176	0.002	0.276

Note: Unit of analysis is person-year. We define migration using a binary variable, where a person receives a value of one in a given year if s/he moved at least once during that year to a rural location in Mali. Non-migrants receive a value of zero for the binary variable. International and rural–urban migrant observations omitted from the analysis. The above provides regression results for the pooled sample of men and women. The pooled samples include 3437 men, 4521 women, and 7958 men and women. Commune-clustered standard errors reported in parentheses. Region fixed effects and an indicator for PNP village eligibility included.

* $p < 0.1$ ** $p < 0.05$ *** $p < 0.01$.

contracts for young daughters when faced with a negative income shock. The implication for a positive income shock, such as a CT, is that it would reduce child marriage of daughters and, hence, migration. Our results are consistent with the model's predictions; the CT reduces the need for poorer women to migrate to rural areas for marriage.

For less poor women, one potential explanation for why we witness increases in migration as a result of the CT is that it may provide the means to wealthier beneficiary households to dissolve perilous unions (Bobonis, 2011). Husbands may utilize the resources to find a new partner and relinquish wives from their marital obligations. Discontented wives can additionally afford the transportation to return to their maternal homes. A second explanation is that assortative matching practices¹² and the scarcity of eligible bachelors from similar wealth backgrounds within a community might increase the likelihood that women from less poor, beneficiary households engage in rural–rural migration for marriage. Wealthier grooms in communities that receive the CT may be less likely to need a transition period to earn money to pay off the bride price. Under these circumstances, we might also observe an increase in the rural–rural migration of women from less-poor beneficiary households. Unfortunately, we are limited in our ability to directly test impacts of the CT on divorce or marriage given that we do not have the marital status of everyone in the household. However, we have data on completion of payment on bride prices and the bride price amount, and thus investigate the impacts of the CT on these demand side indicators.

At midline, the completion of the bride price payment and the total payment contributions to date were collected from 1770 female household heads or spouses of household heads.¹³ Eighty-five percent of women in the control households had already fulfilled their bride price obligations, which suggests that information regarding newly formed unions is likely underrepresented.¹⁴ Nevertheless, the intent-to-treat effects of the CT on these outcomes may shed light on the potential for CTs to affect the marriage debt of grooms. The estimates in Table 6 illustrate that bride price payments are significantly more likely to be paid in full by 7 percentage points among beneficiary households. There is also evidence that the bride price payment amount increased as a result of the CT. The last three columns of Table 6 investigate whether impacts on bride price differ by wealth. The results show that the impact of the CT on the fulfillment of bride price payment was indeed greater among less poor, beneficiary households, but the interaction of treatment with wealth is not significant.

These findings suggest complex interactions between the impact of the CT on the rural–rural migration of women, marriage, and wealth. Women from poor beneficiary households may be less likely to migrate for marriage due to declines in consumption smoothing practices or higher bride price payments within the community reducing the necessity to marry grooms external to the community. Women from less poor, beneficiary households may be more likely to move to rural areas,

TABLE 6 Effects of cash transfer on marriage-related outcomes

	Fully paid	Bride price	Wins. bride price	Fully paid	Bride price	Wins. bride price
Treatment	0.071 (0.036)*	19,632.106 (9843.141)**	14,716.618 (8759.855)*	0.083 (0.048)*	18,920.046 (14,963.151)	18,389.912 (14,124.398)
Treatment × Cons., quintile 1–4				−0.017 (0.046)	922.835 (14,495.161)	−4719.546 (14,036.316)
Cons., quintile 1–4				−0.005 (0.044)	−652.078 (11,197.926)	594.737 (10,971.482)
R ²	0.02	0.10	0.13	0.02	0.10	0.13
N	1770	1070	1070	1770	1070	1070
Control mean	0.85	90,105.77	89,384.62			
F test (p-value): T + T × Cons, quintile 1–4 = 0				0.085	0.059	0.143

Note: In the third column, the outcome was winsorized by 2.5% at each tail. Bride price values are reported in CFA. Commune-clustered standard errors in parentheses. Region fixed effects and PNP village eligibility included. * $p < 0.1$ ** $p < 0.05$, *** $p < 0.01$.

as grooms from less-poor, beneficiary communes are able to satisfy the financial conditions of the marital contract sooner. Although these offer plausible mechanisms for the heterogeneity in the impact of CTs on women's rural-rural migration, we are unable to conclusively rule out other possible channels.

6 | CONCLUSION

A consensus among scholars has emerged that migration may be constrained by a variety of factors in low- and middle-income countries. Financing migration requires access to credit (Angelucci, 2015), as resources are required to afford public transport, housing, or the costs of finding a job at the destination (Orrenius & Zavodny, 2005; McKenzie and Rapoport 2007; Imbert & Paap, 2020). Risk-averse households favor low-risk, low-return investments out of fear of falling below a consumption threshold (Bryan et al., 2014; Gazeaud et al., 2021). More often, internal migration is employed to smooth consumption (Lee, 2021), given local labor shortages (Jessoe et al., 2016), moorings (Kosec et al., 2018), and social norms (Fernando, 2020) rendering the departure of working-age household members undesirable.

We take advantage of a RCT of a national CT program in Mali to explore the role of income availability in influencing decisions to move. We find that in the context of Mali, women and men migrate for different reasons, and therefore the anticipated CT effects will differ by gender. Men mainly migrate for employment reasons, and women mainly migrate to rural areas for marriage and urban areas for employment. Consistent with Clemens and Mendola (2020), we find that the migration of men resembles a normal good; the demand for rural-rural migration tends to increase with baseline consumption until a specific threshold then declines following that threshold. In contrast, there are strong social norms that discourage the migration of women for employment reasons, and thus any migration for employment is likely considered a necessity and inferior good. Taking advantage of the randomized design of Mali's CT program, we then test, in this setting, how a CT program affects the migration patterns of men and women. We find that the likelihood of rural-rural migration of men on average increases upon the receipt of the CT. In contrast, we witness a reduction in the rural-urban migration rates of women as a result of the CT.

There are a few limitations in our ability to tease out the precise mechanisms underlying the observed migration effects. For example, we cannot rule out empirically that the accompanying measures play some role in the retention of women; however, it seems unlikely to drive migration decisions because it was not required and not highly attended among women that did not migrate. Our findings appear more in line with ethnographic research that describes the primary motivation for the employment migration of women prior to marriage as being able to raise money to finance their wedding goods. Second, our data limit our ability to conclusively attribute the cause of women from poor (less poor) beneficiary households being less (more) likely migrate to rural destinations. Women in poor beneficiary households may be less inclined to engage in marriage as a consumption smoothing practice or enticed to stay due to the increase in eligible grooms. The availability of suitable partners locally may have minimal consequences on women in less, poor beneficiary households if assortative matching is common. For this subpopulation of women, the likelihood of rural-rural migration may increase as grooms are able to complete their bride price payments. Third, our findings on the relationship between the demand for the migration of men and women may be sensitive to the duration of the income shock. We are unable to test explicitly whether the employment migration of women remains an inferior good under changes to permanent income.

Although the effects of CTs on migration are rather large, the annual migration rates remain low in absolute terms. One possibility is that the migration rates are lower bound estimates, as communes where migration may have been higher were dropped due to security issues. It is additionally possible that the returns to employment migration may not merit the costs to all rural workers (Hamory et al., 2021; Lagakos et al., 2020). Men with previous experience in casual employment were much more inclined to migrate than the average working man. The skills among those who

work in casual labor may be more transferable and valuable outside of the community. As we did not stratify treatment by baseline employment, discretion is advised when interpreting the job-differentiated effects. Future research would benefit from embedding a test (in the experimental design) of the importance of worker attributes on the potential of the CT program to improve the occupational mobility of subsistence households.

Finally, the composition of the labor market may constrain the choices available to would-be migrants. Local pull factors may confine workers to their community in the absence of mechanization on farms (Bustos et al., 2016). Periodic demand for labor locally may influence whether workers decide to migrate for employment (Jagnani et al., 2021). Additionally, the temporal volatility of labor markets attracting workers outside of the community offers another dimension, which may affect the program's effectiveness. Beneficiary households may be more responsive to the CT when wages are at premium, when employment at destinations is presumably greater. Future work in which combines experimental data with rich information on the main sources of export commodities and temporal variation in prices can enhance our understanding of the relative contributions of both supply-side and demand-side barriers to migration. Such work can also inform under what circumstances internal migration may contribute to economic development.

ORCID

Valerie Mueller  <https://orcid.org/0000-0003-1246-2141>

ENDNOTES

- ¹ Although there remains a debate over whether changes in transitory or permanent income are more relevant for consumer demand in different economic settings (Jappelli & Pistaferri, 2010), we employ the standard definition of an inferior good as one for which demand decreases as income rises. We borrow this terminology from a related cash transfer literature that investigates consumer demand responses to short-term income shocks (Kenkel et al., 2014).
- ² Conflict migration receives increasing attention given the civil war and presence of insurgent groups in the North (Hoogeveen et al., 2019). We focus on voluntary patterns of migration given the geographic focus of the rural South, here and elsewhere in the literature.
- ³ Our sample statistics are consistent with those produced using nationally representative data. Bell et al. (2015) compute a migration rate of under 10% for Mali, defining internal migration over a five-year period. This would suggest an annual average migration rate of 2%. The annual migration rate in Mali is the lowest of all of the African countries covered in the Bell et al. (2015) study, where Burkina Faso (4%) was the lowest after Mali and Zambia the highest (16%).
- ⁴ Although the focus here is on internal migration, there is a longstanding tradition of seasonal migration to work on cocoa and coffee plantations in Côte d'Ivoire during the dry season (Martin et al., 2002). Over 300 million USD remittances were received in 2015 from Côte d'Ivoire alone (IMF, 2018).
- ⁵ Newly married men also tend to migrate to provide labor for their wives' families within a year after the marriage as a form of payment for their bride (Hetrich and Lesclingand, 2012).
- ⁶ In 2014, the exchange rate was 494.415 CFAs per USD (FAO 2020).
- ⁷ The number of communes in each treatment arm was determined by the government of Mali. In particular, the government specified that (1) out of 96 eligible communes, only 20 communes would be retained as a control group that would not receive the interventions until two years after the initial program roll-out, and (2) among the remaining 76 communes, the government would purposively select 19 communes in which PNP could be delivered, in consultation with a national technical committee.
- ⁸ Patrilocality refers to the custom where women reside with their husband's family after marriage.
- ⁹ The migration literature often uses retrospective information to define migration over periods of five years or less. Most studies rely on census information, where individuals are asked to recollect whether they moved to their current destination from another location in the last five years (Minnesota Population Center, 2020). A few exceptions exist where researchers interview migrants at their origin (prior to their move) and destination (following their move), as part of an ongoing longitudinal study (e.g. Beegle et al., 2011). Recall bias present in migration histories can create measurement error in the migration outcomes (Smith & Thomas, 2003). Smith and Thomas (2003) indicate recall bias is less of a concern when moves are salient and connected to important stages of the life cycle, such as marriage or a change in a job. They further elaborate upon the conditions where recall bias on employment migration will be lower, such as when departures occur over an extended period of time or at a destination distant to the origin. Because women and men are mainly moving for marriage and employment, respectively, and the migration history focuses on episodes that last three months or longer, we expect the presence of measurement error in our migration outcomes to be limited.

- ¹⁰ We evaluate yearly migration because the reason for migration might vary with every migration episode and because we observe how migration varies with exogenous time-varying factors (Figure 2 and Tables A1 and A2). However, our results are robust to an alternative specification where the outcome is any migration over the period of 2014–2016.
- ¹¹ We performed similar analysis using the rural–urban migration outcome. We lack power to detect any meaningful results (not shown here).
- ¹² Assortative matching practices have been documented in the African settings, causing women from less poor households to obtain unions only with men from less poor households (Fafchamps & Quisumbing, 2005).
- ¹³ Two thousand and thirty two of the 2209 households had a woman report marital information in the relevant module. Within this sample, 1770 brides from 1766 households report whether the bride price was paid. Although only one woman was intended to be surveyed per household, four households are documented to have interviewed two women.
- ¹⁴ Unions may be made prior to full payment of bride price, as some households agree to pay in installments and couples even have kids prior to the fulfillment of the financial obligation (Horne et al., 2013).

REFERENCES

- Angelucci, Manuela. 2015. “Migration and Financial Constraints: Evidence from Mexico.” *Review of Economics and Statistics* 97: 224–8.
- Beegle, Kathleen, Joachim De Weerd, and Stefan Dercon. 2011. “Migration and Economic Mobility in Tanzania: Evidence from a Tracking Survey.” *Review of Economics and Statistics* 93(3): 1010–33.
- Bell, Martin, Elin Charles-Edwards, Philipp Ueffing, John Stillwell, Marek Kupiszewski, and Dorota Kupiszewska. 2015. “Internal Migration and Development: Comparing Migration Intensities around the World.” *Population and Development Review* 41(1): 33–58.
- Bobonis, Gustavo. 2011. “The Impact of Conditional Cash Transfers on Marriage and Divorce.” *Economic Development and Cultural Change* 59(2): 281–312.
- Bryan, Gharad, Shyamal Chodwhury, and Ahmed Mushfiq Mobarak. 2014. “Under-Investment in a Profitable Technology: The Case of Seasonal Migration in Bangladesh.” *Econometrica* 82: 1671–748.
- Bustos, Paula, Bruno Caprettini, and Jacopo Ponticelli. 2016. “Agricultural Productivity and Structural Transformation: Evidence from Brazil.” *American Economic Review* 106(6): 1320–65.
- Corno, Lucia, Nicole Hildebrandt, and Alessandra Voena. 2020. “Age of Marriage, Weather Shocks, and the Direction of Marriage Payments.” *Econometrica* 88(3): 879–915.
- Clemens, Michael Andrew and Mendola, Mariapia, Migration from Developing Countries: Selection, Income Elasticity, and Simpson’s Paradox. IZA Discussion Paper No. 13612, Available at SSRN: <https://ssrn.com/abstract=3679018>
- De Haan, Arjan, Karen Brock, and Ngolo Coulibaly. 2002. “Migration Livelihoods and Institutions: Contrasting Patterns of Migration in Mali.” *Journal of Development Studies* 38(5): 37–58.
- Fafchamps, Marcel, and Agnes Quisumbing. 2005. “Assets at Marriage in Rural Ethiopia.” *Journal of Development Economics* 77(1): 1–25.
- Fernando, A. Nilesh. 2020. “Shackled to the Soil? Inherited Land, Birth Order, and Labor Mobility.” *Journal of Human Resources*. 0219–10014R2. <https://doi.org/10.3368/jhr.57.2.0219-10014R2>
- Findlay, Sally E. 1994. “Does Drought Increase Migration? A Study of Migration from Rural Mali during the 1983–1984 Drought.” *International Migration Review* 28(3): 539–53.
- Gazeaud, Jules, Eric Mvukiyeye, and Olivier Sterck. 2021. “Cash Transfers and Migration: Theory and Evidence from a Randomized Controlled Trial.” *Review of Economics and Statistics*: 1–45. https://doi.org/10.1162/rest_a_01041
- Gelman, Andrew, and John Carlin. 2014. “Beyond Power Calculations: Assessing Type S (Sign) and Type M (Magnitude) Errors.” *Perspectives on Psychological Science* 9(6): 641–51.
- Grosz-Ngaté, Maria. 2000. “Labor Migration, Gender, and Social Transformation in Rural Mali.” In *Democracy and Development in Mali*, edited by R. James Bingen, David Robinson, and John M. Staatz, 87–101. East Lansing: Michigan State University Press.
- Hertrich, Véronique, and Marie Lesclingand. 2012. “Adolescent Migration and the 1990s Nuptiality Transition in Mali.” *Population Studies* 66(2): 147–66.
- Hertrich, Véronique, and Marie Lesclingand. 2013. “Adolescent Migration in Rural Africa as a Challenge to Gender and Intergenerational Relationships: Evidence from Mali.” *Annals of the American Academy* 648: 175–88.
- Hamory, Joan, Marieke Kleemans, Nicholas Li, and Edward Miguel. 2021. “Reevaluating Agricultural Productivity Gaps with Longitudinal Microdata.” *Journal of the European Economic Association* 19(3): 1522–55.
- Hidrobo, Melissa, Shalini Roy, Malek Abu-Jawdeh, Lieven Huybregts, Eric Sessou, and Yves Kameli. 2015. *Filets Sociaux (Jigisémèjiri) Program Baseline Report*. Washington, DC: International Food Policy Research Institute.
- Hidrobo, Melissa, Shalini Roy, Lieven Huybregts, Leila Njee-Bugha, Eric Sessou, and Yves Kameli. 2018. *Filets Sociaux (Jigisémèjiri) Program Midline Report*. Washington, DC: International Food Policy Research Institute.
- Hidrobo, Melissa, Shalini Roy, Lieven Huybregts, Leila Njee-Bugha, Naureen Karachiwalla, and Yves Kameli. 2019. *Filets Sociaux (Jigisémèjiri) Program Endline Report*. Washington, DC: International Food Policy Research Institute.

- Hoddinott, John, and Tseday J. Mekasha. 2020. "Social Protection, Household Size, and its Determinants: Evidence from Ethiopia." *Journal of Development Studies* 56(10): 1818–37.
- Hoogeveen, Johannes G., Mariacristina Rossi, and Dario Sansone. 2019. "Leaving, Staying or Coming Back? Migration Decisions during the Northern Mali Conflict." *Journal of Development Studies* 55(10): 2089–105.
- Horne, Christine, F. Nii-Amoo Dodoo, and Naa Dodua Dodoo. 2013. "The Shadow of Indebtedness: Bridewealth and Norms Constraining Female Reproductive Autonomy." *American Sociological Review* 78(3): 503–20.
- Hughes, Christina. 2019. "Reexamining the Influence of Conditional Cash Transfers on Migration from a Gendered Lens." *Demography* 56: 1573–605.
- Imbert, Clément, and John Paap. 2020. "Costs and Benefits of Rural-Urban Migration: Evidence from India." *Journal of Development Economics* 146: 102473.
- International Monetary Fund (IMF). 2018. "Staff Report for the 2018 Article IV Consultation and Third Reviews under the Arrangement under the Extended Credit Facility and Extended Arrangement under the Extended Fund Facility, and Request for Modification of a Performance Criterion." IMF Country Report No. 18/182. May 14, 2020. <https://www.imf.org/~media/Files/Publications/CR/2018/cr18182.ashx>.
- Jagnani, Maulik, Christopher B. Barrett, Yanyan Liu, and Liangzhi You. 2021. "Within-Season Producer Response to Warmer Temperatures: Defensive Investments by Kenyan Farmers." *Economic Journal* 131(633): 392–419.
- Jappelli, Tullio, and Luigi Pistaferri. 2010. "The Consumption Responses to Income Changes." *Annual Review of Economics* 2: 479–506.
- Jessoe, Katrina, Dale T. Manning, and J. Edward Taylor. 2016. "Climate Change and Labor Allocation in Rural Mexico: Evidence from Annual Fluctuations in Weather." *Economic Journal* 128: 230–61.
- Kenkel, Donald, Maximilian D. Schmeiser, and Carly Urban. 2014. "Is Smoking Inferior? Evidence from Variation in the Earned Income Tax Credit." *Journal of Human Resources* 49(4): 1094–120.
- Kosec, Katrina, Hoseana Ghebru, Brian Holtemeyer, Valerie Mueller, and Emily Schmidt. 2018. "The Effect of Land Access on Youth Employment and Migration Decisions: Evidence from Rural Ethiopia." *American Journal of Agricultural Economics* 100(3): 931–54.
- Lagakos, David, Samuel Marshall, Ahmed Mushfiq Mobarak, Corey Vernot, and Michael E. Wagh. 2020. "Migration Costs and the Observational Returns to Migration in the Developing World." *Journal of Monetary Economics* 113: 138–54.
- Lee, Yu Na. 2021. "Does Aversion to Price Risk Drive Migration? Evidence from Rural Ethiopia." *American Journal of Agricultural Economics* 103(4): 1268–93.
- Lim, Sokchea, and Hem C. Basnet. 2017. "International Migration, Workers' Remittances and Permanent Income Hypothesis." *World Development* 96: 438–50.
- Martin, Philip, Susan Martin, and Patrick Weil. 2002. "Best Practice Options: Mali." *International Migration* 40(3): 87–102.
- Mckenzie David, Rapoport Hillel. 2007. Network effects and the dynamics of migration and inequality: Theory and evidence from Mexico. *Journal of Development Economics* 84(1): 1–24. <http://dx.doi.org/10.1016/j.jdeveco.2006.11.003>
- Minnesota Population Center. 2020. *Integrated Public Use Microdata Series, International: Version 7.3 [Dataset]*. Minneapolis, MN: IPUMS. <https://doi.org/10.18128/D020.V7.3>
- Mueller, Valerie, Clark Gray, Sudhanshu Handa, and David Seidenfeld. 2020. "Do Social Protection Programs Foster Short-Term and Long-Term Migration Adaptation Strategies?" *Environment and Development Economics* 25(20): 135–58.
- Munshi, Kaivan, and Mark Rosenzweig. 2016. "Networks and Misallocation: Insurance, Migration, and the Rural-Urban Wage Gap." *American Economic Review* 106(1): 46–98.
- Orrenius, Pia, and Madeline Zavodny. 2005. "Self-Selection among Undocumented Immigrations from Mexico." *Journal of Development Economics* 78: 215–40.
- Smith, James P., and Duncan Thomas. 2003. "Remembrances of Things Past: Test-Retest Reliability of Retrospective Migration Histories." *Journal of the Royal Statistical Society A* 166(part 1): 23–49.
- Stecklov, Guy, Paul Winters, Marco Stampini, and Benjamin Davis. 2005. "Do Conditional Cash Transfers Influence Migration? A Study Using Experimental Data from the Mexican Progresa Program." *Demography* 42: 769–90.
- Vogl, Tom S. 2013. "Marriage Institutions and Sibling Competition: Evidence from South Asia." *Quarterly Journal of Economics* 128(3): 1017–72.
- Yang, Dean. 2008. "International Migration, Remittances and Household Investment: Evidence from Philippine Migrants' Exchange Rate Shocks." *Economic Journal* 118: 591–630.

SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

How to cite this article: Hidrobo, Melissa, Valerie Mueller, Shalini Roy. 2021. "Cash transfers, migration, and gender norms." *American Journal of Agricultural Economics* 1–19. <https://doi.org/10.1111/ajae.12261>