Appendices for Bryan, Chowdhury and Mobarak (2014)

Appendices 1-6

Appendix Tables

Appendix Figures

Appendix 1 Description of 2008 Treatments

Out of the 100 villages selected to participate in the study, 16 (304 households) were assigned to the control group, while the remaining 84 villages (1596 households) were assigned to one of three treatments:

Information (16 villages/304 households): Potential migrants were provided with information on the types of jobs available in each of four areas: Bogra, Dhaka, Munshigonj and Tangail. In addition, they were told the likelihood of finding such a job, and the average daily wage in each job. This information was provided using the following script:

> "We would like to give you information on job availability, types of jobs available and approximate wages in four regions – Bogra, Dhaka, Munshigonj and Tangail. They are not in any particular order. NGOs working in those areas collected this information at the beginning of this month.
>
> Three most commonly available jobs in Bogra are: a) rickshaw pulling, b) construction work, c) agricultural labor. The average wage rates per day are Tk. 150 to 200 for rickshaw pulling, Tk.120 to 150 for construction work, and Tk. 80 to 100 for agricultural laborer. The likelihood of getting such a job in Bogra is medium (not high/not low).
>
> Three most commonly available jobs in Dhaka are: a) rickshaw pulling, b) construction work, c) day labor. The average wage rates per day are Tk. 250 to 300 for rickshaw pulling, Tk.200 to 250 for construction work, and Tk. 150 to 200 for day laborer. The likelihood of getting such a job in Dhaka is high.
>
> Three most commonly available jobs in Munshigonj are: a) rickshaw pulling, b) land preparation for potato cultivation, c) agricultural laborer. The average wage rates per day are Tk. 150 to 200 for rickshaw pulling, Tk.150 to 160 for land preparation, and Tk. 150 to 160 for agricultural laborer. The likelihood of getting such a job in Munshigonj is high.
>
> Three most commonly available jobs in Tangail are: a) rickshaw pulling, b) construction work, c) day laborer in brick fields. The average wage rates per day are Tk. 200 to 250 for rickshaw pulling, Tk.160 to 180 for construction work, and Tk. 150 to 200 for brick field work. The likelihood of getting such a job in Tangail is medium (not high/not low).
>
> Based on the above information, would you/any member of your family like to any of the above location during this monga season? If so, where do you want to go? Note that the job market information given above might have changed or may change in the near future and there is no guarantee that you will find a job, and we're just providing you the best information available to us. Note also that we or the NGOs that collected this information will not provide you with any assistance in finding jobs in the destination."

Cash (37 villages/703 households): Households were read the same script on job availability as given above, and were also offered a cash grant of Taka 600 conditional on migration. This money was provided at the origin prior to migration, and was framed as defraying the travel cost (money for a bus ticket). Migrants had an opportunity to receive Taka 200 more if they reported to us at the destination.

Credit (31 villages/589 households): Households were read the same script on job availability as given above, and were also offered a zero interest loan of Taka 600 conditional on migration. This money was provided at the origin prior to migration, and was framed as defraying the travel cost (money for a bus ticket). Migrants had an opportunity to receive Taka 200 more if they reported to us at the destination. Households were told that they would have to pay back the loan at the end of the Monga season.

Appendix 2 Theory Appendix

In this appendix we describe the behavior of agents in our baseline model using the value functions, policy functions and simulated time series of choices. The appendix documents the facts about the model presented in section 5.1.

Appendix Figure 3 provides plots of two value functions, both for households that have never migrated before. The first function shows the value to a household that is forced to migrate in this period:

$$V_M(x) = \pi_G G(x) + (1 - \pi_G) B(x - F).$$

The second function shows the value to a household that decides not to migrate in this period:

$$V_N(x) = \max_{c \leq x} \left[u(c) + \delta \int_S V\big(y_s + R(x - c)\big) d\mu(s) \right].$$

As is generally the case, V_M crosses V_N once from below. This implies a cutoff level of cash on hand $\tilde{x}$: for cash on hand below $\tilde{x}$ the household does not migrate, for cash on hand greater than $\tilde{x}$ the household does migrate. Because the two value functions cross, the value *V* is not convex, which implies that the household would be risk loving at levels of cash on hand close to $\tilde{x}$. We do not allow households any kind of randomization that would help them take advantage of this non-convexity – this is a feature of most poverty trap models. These issues are explored in detail in Vereshchagina and Hopenhayn (2009).

Appendix Figure 4 displays typical policy functions – consumption as a function of cash on hand – for the model. The first policy function shows consumption for a household that knows it is bad at migrating (c_B), and the second for a household that has never migrated, but that we restrict to not migrate in the current period (c_M). At low levels of cash on hand, both policy functions lie on the 45 degree line – the household spends all that it can. As cash on hand rises, the household that knows it is a bad migrator begins to buffer, consuming less than cash on hand and saving some money to smooth later consumption. This is the standard result following Deaton (1991). Initially, the household that can migrate does the same thing and the two policy functions lie on top of each other. As cash on hand approaches $\tilde{x}$, however, c_M falls below c_B: the household that can migrate begins to save up for migration. Thus, the saving of a potential migrator can be divided into two parts: buffering, and saving up for migration. The figure shows that, for some parameter values, consumption is not a monotone function of cash on hand, a result that is consistent with the findings of Buera (2009). As cash on hand rises past $\tilde{x}$, c_M continues to lie below c_B: we have constrained the household not to migrate in this period so it continues to save in the hope of migrating next period. Finally, there is a level of cash on hand past which $c_M > c_B$ – the household that has never migrated knows that it can migrate next period and it is consequently richer (in expectation) than the household that knows it is bad at migrating.

We are not interested in general results as $t \to \infty$ but rather in the behavior over real world time periods. This behavior is inherently stochastic and best understood by looking at simulations. Appendix Figure 5 shows simulations of cash on hand and consumption for two households with different starting levels of cash on hand (wealth). Both households are assumed to be good migrators. The panel on the left shows cash on hand and the right shows consumption. The cash on hand simulation shows that the wealthier household quickly saves enough to cross the migration threshold, $\tilde{x}$. After crossing the threshold, cash on hand spikes as the household discovers that it is a good migrator. The poorer household never migrates. The consumption simulations shows that the wealthier households consumes less initially – as it saves up – but after crossing the migration threshold has a higher consumption level. In general, our simulations show that households with a lower mean income $\left(E_{\mu}y\right)$ or with a lower starting cash on hand are less likely to cross the threshold for any finite time period, indicating a kind of poverty trap. It is this poverty trap that can potentially explain our experimental results: a portion of households are stuck in a low income situation in which they cannot migrate, but a small intervention can push them to experiment with migration, with potentially high returns.

We can also use the model to consider other comparative statics. Risk aversion appears intuitively linked to aversion to experimentation, but the model suggests that the relationship is more complicated. Simulations show that an increase in risk aversion has three effects. First, increasing risk aversion increases the cost of experimenting with migration and tends to increase $\tilde{x}$ and thus reduce the propensity to migrate. Second, as risk aversion increases, the return to migration increases because migration can be seen as a risk mitigation strategy. Third, for many utility functions (including the one we use for simulations), absolute prudence increases with risk aversion.[1] As a consequence, as risk aversion increases the household engages in more buffer stock saving, implying that the household is more likely to cross any given threshold level of cash on hand. We have not sought a general characterization of which effect dominates, but do observe all three effects in our simulations. Similar effects apply to an increase in the riskiness of income. On the one hand a riskier income means more background risk and, therefore (for specific utility functions) effectively an increase in risk aversion. On the other hand, more risk means more buffer stock savings.

[1] The coefficient of absolute prudence is defined as $\frac{u'''(x)}{u''(x)}$. See Kimball (1990) for a definition of prudence and the relationship to precautionary savings and concepts of risk aversion including decreasing absolute risk aversion.

Appendix 3 Description of Treatments in 2011

In 2011 we conducted one more round of randomized interventions in the same sample of 1900 households (in 100 villages), plus 247 new households in 13 new randomly selected villages from the same two districts (Kurigram and Lalmonirhat). The treatments (most of which encouraged migration, like the 2008 experiments) were randomized at the village level. They were offered in February, 2011, just before the onset of the 2011 "mini-Monga season," which is the pre-harvest lean season associated with the lesser of the two annual rice harvests. The treatments were therefore designed to encourage migration during this lean season. The same organization as in 2008 – PKSF, and their local NGO partners – implemented the treatments. We collected follow up data on all households in 133 villages in July-August 2011.

Controls: All 16 Control villages from the 2008 experiments were retained as a control group in 2011. We also chose not to intervene again in 19 villages that were offered the credit treatment in 2008. These 19 villages are labeled "Impure Control" in the regression table, and they allow us to study the long-run effects of offering migration credit in 2008.

Credit conditional on migration: Sample households in 15 villages received the same zero-interest loan conditional on a household member migrating, as offered in 2008. The credit amount was raised to Tk.800 (~US$10.8) to reflect inflation in the cost of travel since 2008. Households were required to pay back in a single installment in July, at the end of the lean season.

Unconditional credit: To test one of the implications of our model, we offered an *unconditional* zero-interest loan of Tk.800 to sample households in 15 villages. The loan repayment terms were the same as the conditional credit, and no conditionality was attached to the loan.

Conditional Credit with destination rainfall insurance: Sample households in 24 villages were offered the same zero interest Tk.800 (~US$10.8) credit conditional on migration, but the repayment terms were conditioned on rainfall outcomes in one popular migration destination: Bogra. Too much rainfall (and flooding) is a risk in Bangladesh, and can lower migrant earnings, particularly for outdoor work like rickshaw-pulling and construction site work. We purchased 10 years of daily rainfall data from the local meteorological department, imputed the probability distribution of rainy days during the pre-harvest migration period, and calculated the actuarially fair insurance premium and payoff amounts. Our loan contract specified that if rainfall in Bogra for March/April 2011 remained "normal" (4 days or less), the migrants would have to pay back Tk. 950 (~US$12.83). For 5-9 days of rainfall, the repayment requirement would be Tk.714 (~US$9.64). For 10 or more days of rainfall, the repayment requirement was Tk.640 (~US$8.64). The amounts were chosen to make the insurance contract actuarially fair, given historical rainfall data.

Note that this is a loan contract, but the repayment rules introduce a feature of index insurance against too much rainfall.[2] The treatment design takes advantage of the fact that the contract offers differential basis risk for households that differ along identifiable baseline characteristics: those who had a propensity for traveling to Bogra, and non-farmers. Basis risk from the index contract is lower for these two groups.

All treatments described above were proportionally balanced across the Information, Cash and Credit treatments from 2008 (and Control villages from 2008 were retained as long-term controls as described above). In some other sample villages from 2008, we conducted other treatments that are not relevant for the analysis conducted in this paper, and we therefore do not discuss those treatments here.

[2] Note that the contract can be explained to borrowers like a standard credit contract, and the insurance feature is only introduced because the credit repayment is state contingent. This helps to avoid confusion about the concept of insurance (Gine and Yang 2009).

Appendix 4 Risk Aversion, Insurance and Basis Risk

This appendix provides a simple model of basis risk based on Clarke (2011) and uses it to argue that our 2011 insurance experiment can be used to test whether migration is risky and migrants are risk averse.[3]

There are two payoff relevant states $\{L,H\}$ which lead to income at the destination $y_L \leq y_H$. We assume $pr(H) = \pi_y$. There are two rainfall states $\{R_L, R_H\}$ and rainfall insurance makes a payment of *p* in state R_H and costs *c* in state R_L. We denote $pr(R_L) = \pi_R$. This setup leads to four possible states of the world $\{LR_L, LR_H, HR_L, HR_H\}$. Following Clarke we parameterize basis risk with a variable $r = pr(LR_L)$ – that is, the probability that income is low but that the insurance contract does not payout and is in fact costly.[4] This implies that the remaining probabilities are

$$\left\{pr(LR_H) = 1 - \pi_R - r; pr(HR_L) = \pi_R - r;\ pr(HR_H) = \pi_y - \pi_R + r\right\}$$

We assume that *r* depends on the characteristics of the migrator. In particular, we assume:

1. Basis risk is larger for farmers than for non-farmers $r_F > r_{NF}$; and
2. Basis risk is smaller for those that are more likely to migrate to Bogra: $r^B < r^{NB}$.

We make the first assumption because the insurance contract pays in a high rain situation. High rain is likely to reduce income of day laborers who work, for example, pulling rickshaws. For agricultural laborers, however, high rain is potential advantageous as it is likely to increase work. We make the second assumption because the rainfall data is collected in Bogra and will be less accurate in other destinations. This leads to the possibility that we record high rainfall, but there is in fact low rainfall in, for example, Dhaka. We make no assumption about the relative basis risk for those that are farmer going to Bogra versus non-farmers that are not going to Bogra.

We are interested in deriving the relative impact of the provision of insurance on the migration rate. To do so, we suppose that potential migrators all face the same (expected) income given migration (i.e. there is no heterogeneity in the migration process except for *r*), but that

[3] See also Bryan (2012) for an application of the model presented here.
[4] Recall that our insurance project pays out in the high rainfall state.

potential migrators are heterogeneous with respect to their returns to remaining at home.[5] In particular, we assume that the expected utility of remaining at home is migrator specific and given by h_i which we assume to be distributed according to *F*.

Given these assumptions, the portion of potential migrators that migrate without insurance is given by

$$F\left(\pi_y u(y_h) + (1-\pi_y)u(y_L)\right),$$

and with insurance by

$$F\left(ru(y_L-c) + (1-\pi_R-r)u(y_L+p) + (\pi_R-r)u(y_H-c) + (\pi_y-\pi_R+r)u(y_H+p)\right)$$

If *F* does not depend on the type of migrator except, perhaps, through purely horizontal shifts, then the change in the probability of migration (or equivalently the portion of the population migrating) is proportional to

$$\left(ru(y_L-c) + (1-\pi_R-r)u(y_L+p) + (\pi_R-r)u(y_H-c) + (\pi_y-\pi_R+r)u(y_H+p)\right) - \left(\pi_y u(y_H) + (1-\pi_y)u(y_L)\right). \quad (1)$$

Given this setup, we say that migration is risky if $y_H > y_L$. The model implies the following:

Proposition 1 (Basis risk is only relevant if migration is risky). *The portion of people induced to migrate by insurance is decreasing in r if and only if migration is risky and migrators are risk averse.*

Proof. The "only if" follows because *r* drops out of (1) when migration is not risky. The "if" follows because an increase in *r* is a mean preserving spread, so the left hand side of (1) must be decreasing in *r* so long as migrators are risk averse.

This proposition, combined with our assumptions on *r* leads to the following joint test:

[5] This is easily generalized and our regressions presented in the main text allow for differences in the return to migration for farmers, non-farmers and those that are going to Bogra.

Hypothesis 1 (Basis risk implies migration is risky). *If migration is risky, then rainfall insurance will increase migration rates more for those that are migrating to Bogra and more for non-farmers.*

The nature of this hypothesis is that, if the model of basis risk is correct, and our assumptions about the relative amounts of basis risk are correct, then we can infer that migration itself is risky from the results of our insurance experiment. In our empirical implementation we argue that we have plausibly exogenous variation in the propensity to migrate to Bogra. We can also split the sample into farmers and non-farmers, but we see this comparison as more speculative as it is less plausible to argue that the difference is exogenous.

References

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Appendix 5 Calibration Appendix

In this appendix we explore two additional versions of our calibrated model. The results help to understand why the model cannot match the experimental results.

First, we consider a completely static model, where households do not save for migration and do not consider the benefits of ongoing migration when they make their initial migration choice – i.e. they are myopic past the current migration period. Appendix Figure 6 shows results for this static model: the left panel shows the portion of migrants that would be induced assuming no repeat migration and the right panel shows the number of induceable migrants as a function of the time period. Consider first the left panel. The model predicts that with a risk aversion level of $\sigma \approx 1.15$ the incentive would induce about 20% of households to migrate – consistent with our experimental findings. Further, the cash and credit incentives have the same effect, again consistent with our experimental findings. However, the UCT and incentive treatments have similar effects for low levels of risk aversion, and this is not consistent with our results.

The right panel shows that we need to assume a slightly higher risk aversion level to rationalize the data if we account for repeat migration. With a risk aversion level of about 1.65, 40% of the population is induceable after 8 seasons (or 4 years), which corresponds to a 20% treatment effect if the model applies to the poorest half of the sample. If we allow 10 prior years of migration activity, the model suggests that $\sigma \approx 1.7$ would be required to rationalize our treatment effect.[6]

For our second calibration, we continue to assume that there is no savings, but allow households to be forward looking. This has a strong impact on the propensity to migrate. The left panel of Appendix Figure 7 shows the results for the fraction of households induced to migrate by different treatments. Comparing this Figure to the left panel of Appendix Figure 6 shows that for low levels of risk aversion our incentive is actually better at inducing migration when we account for forward looking behavior. This is because, without the repeat migration effect our incentive does not induce all households to migrate. At higher levels of risk aversion this difference is no longer relevant and the repeat migration incentive leads to higher levels of baseline migration and a smaller impact of our incentive. The hump shape occurs because, as risk aversion increases, the value of migration as a risk mitigation activity increases. The figure shows that at some point this effect

[6] This result is very sensitive to the assumption about the distribution of background risk. If we have underestimated the background risk, then greater risk aversion would be needed to rationalize the data.

dominates the other impact of risk aversion, which is to make experimenting with migration less tolerable. The figure suggests that a risk aversion level of 1 is required to rationalize the data if we do not consider the repeat migration effect.

The right panel of Appendix Figure 7 shows the fraction of induceable migrants when households are forward looking, but cannot save up. The hump in the portion of induced migrants in the left panel implies that we need not consider risk aversion levels above about 7 – as σ increases past this point risk aversion in fact reduces the propensity to migrate.[7] After 4 years, 40% of the sample will be induceable if risk aversion is as high as 5. If we consider longer time horizons such as 10 years, then the figure implies that no level of risk aversion is high enough to allow for a large number of induceable migrants.

The results in Appendix Figure 7 may, however, overestimate the importance of migration. Because we do not allow savings, households are unable to buffer, and the value of migration as a risk mitigation strategy is increased. Figure 6 shows the results for the full model, where we allow for both buffer stock savings, and for the agent to save up for migration. The left panel confirms the intuition that savings reduces the value of migration. The right hand panel, however, shows that the ability to save up dominates: once we allow for savings we would need a risk aversion of 11.5 to replicate our treatment effects allowing 4 years of migration activity, and if we allow 10 years of migration activity, even a risk aversion level of 20 is insufficient to rationalize the results.[8]

[7] The hump in the left panel is based on the empirical distribution of consumption levels. For the simulations shown in the right panel we make use of our assumed distribution which leads to a maximal effect of the incentive at a risk aversion level of 7.

[8] These results assume that households begin time with no assets and the lowest possible income shock. We use the model to generate policy functions as well as cutoff values. We then simulate the model for 10,000 households and ask what portion of those 10,000 households have not migrated after t periods. Another way to summarize the results is to say that the distribution of cash on hand implied by the model is insufficiently close to subsistence to support the experimental results.

Appendix 6 Extensions Appendix

This appendix provides additional details on alternative explanations that we have considered.

6.1 Alternative Specifications of the Returns to Migration

It seems clear that the migration process is risky, and *m* is likely stochastic even for good migrators. To assess the importance of this possibility, we re-simulated the model with the assumption that *m* was normally distributed around the mean of 550, with a standard deviation of 100. This additional risk does not appreciably alter the results presented in Figure 6 above.

We also explored a slightly different model, in which migration truncates the distribution of income below, rather than adding to it. We draw on Figure 3 to assume that migration truncates the distribution at around 1100 Taka per household member per month. This model does not perform very differently from our baseline model: it explains the data better if we ignore savings, but once savings is accounted for the results are similar.

6.2 Lowering the Discount Factor

Lowering the discount factor decreases both the willingness to save up for migration, and the extent to which future migration outcomes affect the current choice to migrate. Appendix Figure 8 shows the set of induceable migrants using the full model and setting $\delta = 0.8$. The figure shows that if we are willing to assume a risk aversion level of about 7 we can rationalize the data even with a time horizon of 10 years. Lowering the discount factor even more would allow us to match the experimental results for any level of risk aversion. A similar effect can be achieved if we allow for depreciation in the status of being a good migrator due, for example, to random breakdowns of connections at the destination. However, if we bound the depreciation rate to allow for the small drop in migration rates that we observe between 2008 and 2011, it is still the case that very high levels of risk aversion are required to rationalize the data.

6.3 Dis-utility from Migration

Seasonal migration is probably a somewhat unpleasant experience, because it requires migrants to be separated from family, and share more congested space with other men in cities, often in or around slums with poor access to public services. If this utility cost of migration (not captured in our consumption and earnings data) is high enough, it could explain the initial reluctance to migrate. To assess this possibility we asked 1600 households in our sample a stated preference question in 2011: "Would you prefer to stay at home and earn 70 Taka per day, or to migrate and earn x Taka". We asked for $x \in \{90,110,130,150\}$, and the fraction of respondents who stated they were willing to migrate were {58, 77, 83, 91} respectively. Their responses imply that for every Taka increase in earnings per day at the destination, migration probability increases by 0.5 percentage points. Extrapolating, the respondents would have to be compensated Tk. 15,000 to induce them to migrate for 75 days (which is the average length of migration).[9] These results suggest quite a high utility cost of migration.[10] To incorporate these figures into our quantitative analysis we take a very simple approach: we reduce the return to migration to $m/2$ – an assumption consistent with 70 Taka at home being worth 140 away, towards the high end of the answers we received. The results do not change drastically in the full model (with savings) under this assumption. Migration continues to be a good way to mitigate risk and households will want to save up for it.

6.4 Heterogeneity

Heterogeneity does not seem to be a particularly attractive way to accommodate the data. For example, if we imagine that some households have a high *m* and some a low *m*, this helps us to rationalize the lack of migration for the low *m* households, but makes it even more difficult for the high *m* households.

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[9] We also estimate this "demand curve for staying at home" with a revealed preference approach, using the fact that re-migration in 2009 was strongly responsive to migration earnings in 2008. That analysis suggests that re-migration probability increased by 1.7 percentage points for every 1000 Taka increases in migration earnings. Under some mild assumption, this implies that migrants induced by our treatment in 2008 would have to be compensated Tk. 21,700 to induce them to re-migrate in 2009.

[10] Banerjee and Duflo (2007) arrive at a similar conclusion while describing the lives of the poor – "*Why Don't the Poor Migrate for Longer…given that they could easily earn much more by doing so?*" "*The ultimate reason seems to be that making more money is not a … large enough priority to experience several months of living alone and often sleeping on the ground somewhere in or around the work premises*."

Appendix Table 1. First Stage: Migration as a Function of Treatments in 2008

	Migration in 2008	
Cash	0.169***	0.178***
	(0.045)	(0.044)
Credit	0.164***	0.165***
	(0.044)	(0.044)
Info	-0.012	-0.000
	(0.044)	(0.044)
Sub-district fixed effects?	Yes	Yes
Additional controls?	No	Yes
Observations	1,868	1,824
R-squared	0.101	0.145
1st F-test	12.74	12.58
1st pvalue	0.000	0.000
1st partial R2	0.027	0.028

Robust standard errors in parentheses, clustered by village. *** p<0.01, ** p<0.05, * p<0.1. Table displays first stage results for the regressions displayed in columns 6-7, row 1, of Table 3. First stage for other dependent variables vary slightly depending on the sample used (varies only if observations are missing). The dependent variable is a binary variable equal to 1 if at least one member of household migrated. Additional controls included in column 2 are: household education, proxy for income (wall material), percentage of total expenditure on food, number of adult males, number of children, lacked access to credit, borrowing, total household expenditures per capita measured at baseline, and subjective expectations about Monga and social network support measured at baseline.

Appendix Table 2. Intensive and Extensive Margin Changes due to Incentive (Cash or Credit)

	2008	2009	2011
Total number of migration episodes per household	0.385***	0.186***	0.019
	(0.070)	(0.071)	(0.026)
Total number of migrants per household	0.190***	0.074**	0.071*
	(0.034)	(0.035)	(0.036)
Changes on Intensive Margin			
Total number of migration episodes per household (among migrant households)	0.111	0.110	-0.001
	(0.104)	(0.069)	(0.053)
Total number of migrants per household (among migrant households)	-0.017	-0.009	0.015
	(0.023)	(0.018)	(0.015)
Total number of episodes per migrant	0.127	0.110	-0.021
	(0.097)	(0.067)	(0.041)
Days away per migrant per episode	-11.722**	-2.705	3.336**
	(5.283)	(3.987)	(1.432)
Male	0.016	-0.004	-0.010**
	(0.015)	(0.007)	(0.004)
Age	2.625**	0.128	-0.153
	(1.106)	(1.012)	(0.832)
Migrant is head of household	0.070**	-0.027	-0.004
	(0.032)	(0.028)	(0.019)

Robust standard errors in parentheses, clustered by village. *** p<0.01, ** p<0.05, * p<0.1. Each coefficient entry in the table comes from a separate regression where the dependent variable (in column 1) is regressed on "incentivized" (cash and credit groups in 2008 and 2009; conditional, unconditional credit, cash or rainfall insurance in 2011).

Appendix Table 3. Effects of Migration in 2008 on Consumption in 2008; Sensitivity to Changes in Definition of Household Size

This table explores whether measurement error in migration dates and in household size net of migrants biases our estimates of the effects of migration on per-capita consumption. We conduct a number of sensitivity checks below by varying the definition of household size (the denominator in the dependent variables measuring consumption). We conservatively assume that household members present in the house on the day of the interview were present for the entire prior month to consume the reported expenditures, since this variable is least likely to suffer from measurement error and coding problems. We compute this household size based on different questions in the survey ("who currently lives in the household" as opposed to "who is present on the interview date"). Both ITT and IV results remain statistically significant, but slightly smaller (e.g. 130 or 125 calories rather than 142) in some specifications. Finally, even with the very conservative assumption that migrants never left, migration is estimated to increase consumption by 1169 calories per household (or 292 calories per person, based on 4 household members) per day in the IV or 194 calories per household per day in the ITT. However, this last result, shown in panel E, is no longer statistically significant.

	ITT			ITT	IV	OLS
Dependent Variable	Cash	Credit	Info			
Panel A: household size is based on question Q7 in R2 follow-up survey ("status of household members")						
Consumption of Food	49.674**	48.292**	20.427	39.033*	222.288*	-7.835
	(23.752)	(23.015)	(36.787)	(21.745)	(124.365)	(15.422)
Consumption of Non-Food	35.320**	28.121**	20.817	21.721**	122.929*	32.930***
	(14.941)	(14.046)	(18.860)	(10.348)	(63.274)	(8.621)
Total Consumption	104.162***	86.081***	41.620	75.234**	429.585**	61.339***
	(32.672)	(31.318)	(49.635)	(30.031)	(176.462)	(20.343)
Total Calories (per person per day)	120.927**	111.339**	-66.444	148.964***	869.842***	102.951***
	(54.673)	(51.398)	(68.194)	(42.735)	(243.784)	(38.129)
Panel B: household size is based on Q9 in R2 follow-up survey ("currently present members")						
Consumption of Food	50.506*	46.669*	5.063	46.219*	267.336**	67.936***
	(26.961)	(26.185)	(38.967)	(23.648)	(133.310)	(17.226)
Consumption of Non-Food	29.778**	25.690*	18.536	18.774*	106.119*	45.519***
	(13.686)	(13.495)	(18.144)	(9.917)	(59.272)	(9.152)
Total Consumption	80.085**	71.211**	23.634	64.328**	368.937**	112.357***
	(31.663)	(31.784)	(49.575)	(29.958)	(171.948)	(22.179)
Total Calories (per person per day)	69.645	77.571	-117.409	130.875***	775.485***	218.266***
	(65.251)	(62.278)	(76.655)	(48.946)	(274.635)	(41.640)

Robust standard errors in parentheses, clustered by village. *** p<0.01, ** p<0.05, * p<0.1.

Continued: Appendix Table 3: Effects of Migration in 2008 on Consumption in 2008; Sensitivity to Changes in Definition of Household Size

	ITT			ITT	IV	OLS
Dependent Variable	Cash	Credit	Info			
Panel C: household size is based on the total number of household members at the time of the interview						
Consumption of Food	56.019*	49.215*	21.065	42.498*	243.791*	80.573***
	(28.385)	(27.493)	(40.053)	(24.070)	(132.883)	(16.898)
Consumption of Non-Food	32.313**	27.335**	25.281	17.586*	98.361*	49.524***
	(13.170)	(12.594)	(17.941)	(9.593)	(56.223)	(8.738)
Total Consumption	88.138**	75.440**	46.380	59.440*	337.769**	129.019***
	(34.016)	(33.216)	(51.202)	(30.518)	(170.467)	(21.769)
Total Calories (per person per day)	90.556	91.954	-69.585	125.294***	737.107***	252.609***
	(60.478)	(56.772)	(75.689)	(46.656)	(249.228)	(40.847)
Panel D: household size is based on the total number of household members present in the last 14 days						
Consumption of Food	65.320**	52.001*	16.532	50.952**	294.218**	114.443***
	(29.708)	(29.165)	(40.476)	(24.395)	(130.921)	(17.779)
Consumption of Non-Food	37.317***	28.879**	22.655	22.246**	126.026**	63.824***
	(13.105)	(12.307)	(17.403)	(9.709)	(56.518)	(9.154)
Total Consumption	102.441***	79.753**	39.221	72.541**	415.549**	177.147***
	(35.327)	(34.650)	(51.050)	(30.846)	(167.430)	(22.851)
Total Calories (per person per day)	115.229*	97.084	-83.808	147.739***	872.820***	350.271***
	(65.440)	(63.041)	(77.209)	(48.055)	(243.244)	(41.971)
Panel E: Total monthly consumption per household; no adjustment to household size						
Consumption of Food	68.356	58.472	-29.407	78.084	454.672	-22.104
	(125.876)	(126.579)	(171.409)	(104.435)	(584.120)	(59.784)
Consumption of Non-Food	81.562*	53.790	60.009	39.126	219.877	41.280
	(41.239)	(40.458)	(48.636)	(31.682)	(179.086)	(25.780)
Total Consumption	149.230	108.306	30.727	114.917	660.329	15.572
	(143.280)	(145.175)	(203.232)	(125.865)	(701.793)	(74.566)
Total Calories	-9.354	-21.278	-426.987	193.855	1,169.733	22.695
	(279.707)	(274.067)	(342.132)	(225.931)	(1,245.768)	(166.249)

Robust standard errors in parentheses, clustered by village. *** p<0.01, ** p<0.05, * p<0.1.

Appendix Table 4: Effects of Migration before December 2008 on Consumption Amongst Remaining Household Members

Panel A: 2008 Consumption

	ITT			ITT	ITT	IV	IV	OLS	Mean
	Cash	Credit	Info						
Calories from Protein (per person per day)	2.852*	2.588*	-0.509	2.977**	2.657**	17.442**	15.573**	6.777***	46.51
	(1.557)	(1.571)	(2.089)	(1.287)	(1.273)	(7.064)	(6.830)	(0.992)	
Consumption of Meat	12.325**	6.577	8.163	5.618	5.599	31.857	34.302	3.905	28.26
	(5.489)	(5.402)	(6.667)	(3.755)	(3.726)	(21.549)	(21.399)	(3.923)	
Consumption of Milk and Egg	-0.468	-1.365	0.026	-0.904	-1.318	-5.127	-7.237	1.764	13.06
	(2.256)	(2.334)	(2.401)	(1.563)	(1.544)	(9.107)	(9.052)	(1.679)	
Consumption of Fish	8.979*	12.618**	8.977	6.297	5.193	34.652	28.775	8.901**	71.48
	(4.743)	(5.998)	(6.076)	(4.407)	(4.142)	(24.941)	(22.909)	(3.778)	
Consumption of Childrens' Education	6.146*	7.658**	1.546	6.110**	4.299*	30.848**	21.487	-3.677	18.17
	(3.297)	(3.441)	(3.938)	(2.485)	(2.405)	(14.144)	(13.536)	(2.355)	
Consumption of Clothing and Shoes	0.806	3.199	0.163	1.854	1.581	10.425	8.532	9.987***	38.83
	(2.075)	(1.986)	(2.493)	(1.547)	(1.496)	(8.907)	(8.439)	(1.675)	
Female in HH worked for wages in last 4 months	-0.006	-0.053	-0.055	-0.001	-0.003	0.003	-0.010	-0.016	0.21
	(0.038)	(0.034)	(0.036)	(0.026)	(0.024)	(0.142)	(0.136)	(0.022)	
Children aged 5-18 attended school	0.005	0.007	0.002	0.005	-0.005	0.019	-0.024	-0.001	0.18
	(0.026)	(0.028)	(0.037)	(0.019)	(0.018)	(0.082)	(0.071)	(0.025)	
Agricultural investment	-10.044	-1.163	-8.853	-1.530	1.973	-8.573	9.039	-4.833	40.75
	(27.110)	(24.590)	(30.420)	(16.498)	(15.701)	(93.891)	(90.518)	(20.330)	

Continued: Appendix Table 4: Effects of Migration before December 2008 on Consumption Amongst Remaining Household Members

Panel B: 2009 Consumption

	ITT			ITT	ITT	IV	IV	OLS	Mean
	Cash	Credit	Info						
Calories from Protein (per person per day)	1.507	0.400	-2.060	2.004**	1.569*	10.627**	8.701*	0.391	44.81
	(1.150)	(1.273)	(1.349)	(0.830)	(0.864)	(4.688)	(4.567)	(0.694)	
Consumption of Meat	-2.330	5.010	-2.065	2.141	1.897	10.395	8.961	-2.300	26.72
	(4.558)	(4.587)	(5.343)	(2.953)	(2.926)	(15.922)	(15.436)	(2.919)	
Consumption of Milk and Egg	-0.565	1.074	-5.386*	2.866	2.507	14.295	12.960	0.506	20.27
	(3.096)	(3.194)	(3.126)	(2.029)	(2.090)	(11.418)	(11.417)	(1.451)	
Consumption of Fish	4.802	-4.198	-2.118	1.616	0.982	8.639	7.136	4.231	64.73
	(5.191)	(5.221)	(6.337)	(3.562)	(3.719)	(19.128)	(19.562)	(2.616)	
Consumption of Childrens' Education	-0.169	-0.604	-3.753	1.498	0.106	7.423	0.898	-5.666***	18.15
	(2.743)	(2.775)	(2.979)	(1.766)	(1.611)	(8.782)	(7.802)	(1.683)	
Consumption of Clothing and Shoes	0.945	0.698	0.140	0.760	0.418	3.754	2.462	2.665***	37.08
	(1.283)	(1.316)	(1.315)	(0.780)	(0.815)	(4.396)	(4.365)	(0.851)	
Controls?	No	No	No	No	Yes	No	Yes	No	

Robust standard errors in parentheses, clustered by village. *** p<0.01, ** p<0.05, * p<0.1. Each row is a different dependent variable (listed in column 1). In the IV columns, these dependent variables are regressed on "Migration", which is a binary variable equal to 1 if at least one member of the household migrated and 0 otherwise. The last column reports sample mean of the dependent variable in the control group. All consumption variables are measured in units of Takas per person per month, except Caloric Intake which is measured in terms of calories per person per day. Some expenditure items in the survey were asked over a weekly recall and other less frequently purchased items were asked over a bi-weekly or monthly recall. The denominator of the dependent variable (household size) is the number of individuals who have been present in the house for at least seven days. Female wage labor and children 5-18 attending school are proportions by household based on members home or accounted for at the time of the interview. Additional controls included in columns 5 and 7 were: household education, proxy for income (wall material), percentage of total expenditure on food, number of adult males, number of children, lacked access to credit, borrowing, total household expenditures per capita measured at baseline, and subjective expectations about Monga and social network support measured at baseline.

Appendix Table 5. Effects of Migration in 2008 on Savings, Earnings and Changes in Children's Middle Upper Arm Circumference (MUAC)

Dep. Var.:	Total Savings by household		Total Earnings by household		MUAC (mm)		Change in MUAC (mm)	
	ITT	IV	ITT	IV	ITT	IV	ITT	IV
Incentives (Cash or Credit) Treatment	591.617***		585.653		1.929		0.744	
	(170.718)		(708.002)		(1.315)		(0.951)	
Migration (before Dec 2008), instrumented by treatment		3,287.602***		3,281.877		11.059		4.474
		(869.377)		(3,773.748)		(7.944)		(5.348)
Controls?	No	No	No	No	No	No	No	No
Observations	1,851	1,851	1,851	1,851	1,854	1,854	1,836	1,836
R-squared	0.052	0.285	0.026	0.103	0.031	-0.034	0.017	-0.005
Mean of Control	1999	1999	13842	13842	204.6	204.6	-4.601	-4.601

Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$ Total earnings include earnings from migration and earnings at the origin from all sources, including (1) total earnings for daily wage-earners and in-kind; (2) self-employment; (3) livestock; fishery; forestry.

Appendix Table 6: 2008 Migrant Characteristics by Destination and by Sector

Sector	Dhaka	Mushigonj	Tangail	Bogra	Other	Total earnings
Agriculture	17.54	75.00	91.15	89.62	46.83	3230.52
	(1.71)	(2.50)	(1.89)	(2.26)	(2.26)	(77.68)
Non-ag day laborer	20.56	9.00	5.75	3.83	19.02	6039.72
	(1.82)	(1.66)	(1.55)	(1.42)	(1.78)	(317.52)
Transport	40.93	11.00	1.33	1.09	15.34	4993.81
	(2.21)	(1.81)	(0.76)	(0.77)	(1.63)	(203.12)
Other	20.97	5.00	1.77	5.46	18.81	5645.98
	(1.83)	(1.26)	(0.88)	(1.68)	(1.77)	(321.72)
Number of migration episodes	496	300	226	183	489	1,694
Total earnings at Destination	5005.06 (185.92)	3777.30 (156.0)	2897.88 (145.72)	2491.07 (123.19)	5160.60 (188.69)	

Notes: Standard errors are in parentheses. Shows the proportion of workers in each occupation by destination, average total earnings by sector across destinations, and average total earnings by destination across sectors. Based on migration for work episodes between September 1, 2008 to April 13, 2009. Occupation at the destination is based on the question, "In which sector were you employed (agriculture, industry, etc)?" Bogra and Tangail, which employ most migrant workers in the agriculture sector, are potato-growing areas which do not follow the same crop and seasonal cycle as rice-growing Rangpur.

Appendix Table 7. Covariance of Income Per Capita across Rounds.

	Consumption in R2	Consumption in R3	Consumption in R3
Consumption per capita in R1	0.102***		0.067***
	(0.014)		(0.012)
Consumption per capita in R2		0.445***	
		(0.027)	
Constant	881.546***	765.099***	1,094.635***
	(18.215)	(25.513)	(15.676)
Sub-district FE?	No	No	No
Observations	1,855	1,782	1,798
R-squared	0.027	0.131	0.017

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Appendix Table 8. Summary Statistics on Households Savings

	Baseline		Follow-up 2008		Follow-up 2011		Total	
	Mean	St.dev	Mean	St.dev	Mean	St.dev	Mean	St.dev
Share with positive current savings	0.53	0.50	0.57	0.50	0.34	0.48	0.49	0.50
Total value of current cash savings for all HHs	745.45	1,629.28	787.04	1,616.97	768.33	2,280.19	792.19	1,885.67
Total value of current cash savings for HHs with reported savings	1,416.36	2,023.58	1,385.29	1,942.77	2,233.72	3,442.41	1,623.78	2,436.98
Share with liquid assets	0.42	0.49	0.59	0.49	0.81	0.39	0.60	0.49
Total value of liquid assets for all HHs	339.35	1,154.88	494.58	1,292.40	1,390.12	3,115.53	764.94	2,206.22
Total value of liquid assets for HHs with reported assets	812.05	1,676.18	844.30	1,599.04	1,709.12	3,374.84	1,280.17	2,736.26
1 if purchased assets in last 12 months (all HHs)	0.01	0.09	0.01	0.09	0.20	0.40	0.07	0.26
Value of purchased assets in the last 12 months	6.26	89.65	9.37	195.36	122.89	1,476.58	41.85	554.70
Total savings (current + liquid assets) for all HHs	1,084.80	2,057.72	1,281.62	2,185.67	2,157.30	4,028.99	1,552.70	3,032.10
Total savings (current + liquid assets) for HHs with reported savings or assets	1,547.39	2,307.55	1,588.02	2,330.90	2,530.66	4,254.20	1,981.93	3,299.21
Obs	1900		1871		2413		5688	

Cash savings are the total of any cash holdings by all household members (held in any location). Liquid asset value is the reported value of all non-property assets, including stocks, bonds, other financial assets and jewelry.

Appendix Table 9. Total Savings as a Function of Calories

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
	Baseline			**Follow-up 2008**		
Calorie consumption per day per capita	0.343**	0.375**	0.285*	0.181**	0.185***	-0.0171
	(0.152)	(0.154)	(0.165)	(0.0737)	(0.0700)	(0.0958)
Total Expenditures per capita			0.190			0.433***
			(0.134)			(0.168)
Constant	-933.7***	-793.1*	-820.5**	-422.2*	-193.9	-233.9
	(333.4)	(409.4)	(409.2)	(218.9)	(307.6)	(314.7)
Sigma	2,518***	2,491***	2,489***	2,401***	2,385***	2,382***
	(201.0)	(197.0)	(196.6)	(247.0)	(246.5)	(246.7)
Observations	1,893	1,893	1,892	1,854	1,854	1,854
District Fixed Effects?	No	Yes	Yes	No	Yes	Yes

Robust standard errors in parentheses. *** $p<0.01$, ** $p<0.05$, * $p<0.1$. Tobit analysis, left censored at 0.

Appendix Table 10. Excess Risk of Starvation from Paying Migration Cost

Risk level:	Starvation level (<450 taka per person per month)			
Amount subtracted from total expenditures:	450	529	600	800
Migration cost spread over…				
1 Month	36%	52%	59%	88%
1.5 Months	16%	19%	27%	52%
2 Months	1%	12%	16%	27%
2.5 Months	-2%	-2%	3%	16%
3 Months	-4%	-4%	-2%	12%
3.5 Months	-13%	-4%	-4%	1%
4 Months	-13%	-13%	-4%	-2%
% Treat Group when Month=1	4.70%	5.24%	5.47%	6.48%
% Control Group	3.45%	3.45%	3.45%	3.45%

Amount subtracted from total expenditures per month per person: 450 is the average cost of a roundtrip bus ticket. 529 taka is the average cost of migration reported by migrants including bus fare and incidentals. 600 is the base amount of the incentive given. 800 is the base amount of the incentive plus the 200 bonus upon arrival at the new city, only for those who reported to us at the destination.

Risk level: 450 taka per person per month is the minimum needed to consume 1,000 calories per day - the minimum for survival.

Appendix Table 11. Going Back to the Same Employer in 2011

	Full sample
Incentivized in 2008	0.047*
	(0.027)
Constant	0.266***
	(0.020)
Observations	2,771
R-squared	0.003

Notes. Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1. The dependent variable is equal to 1 if a respondent reports going to the same employer in 2011 as before; 0 otherwise.

Appendix Table 12a. Proportion of 2011 Migrants who First Met Employer Before or After Migration Incentive (2006-2007 vs 2008-2009), Incentivized in 2008 only [Migrant Only Sample; Non-experimental]

	2007	**2008**	Difference	P-value	Obs
First met employer in 2007 vs 2008	0.42	0.58	-0.17	0.0941	103
	(0.05)	(0.05)			
	2006-7	**2008-9**	Difference	P-value	Obs
First met employer in 2006-7 vs 2008-9	0.43	0.57	-0.13	0.0567	201
	(0.04)	(0.04)			

Standard errors in parentheses. This table shows the proportion of migrants who were incentivized in 2008, who re-migrated in 2011, returned to the same place and met their employer between 2006 and 2009.

Appendix Table 12b. Proportion of 2011 Migrants who First Met Employer Before or After Incentivization (2006-2007 vs 2008-2009), Full Sample [Migrant Only Sample; Non-experimental]

	Not Incentivized	**Incentivized**	Difference	P-value	Obs
First met employer in 2008 (rather than 2007)	0.50	0.58	-0.08	0.2589	189
	(0.05)	(0.05)			
	Not Incentivized	**Incentivized**	Difference	P-value	Obs
First met employer in 2006-07 rather than 2008-09	0.54	0.57	-0.03	0.5672	363
	(0.04)	(0.04)			

Standard errors in parentheses. This table shows the proportion of all migrants from 2008 who re-migrated in 2011, returned to the same place and met their employer between 2006 and 2009.

Appendix Table 13a. Destination Choices of Re-Migrants

Let D_i be an indicator taking value 1 if household *i* migrated to destination *D* in 2009 (or 2011), and D_i^{08} be an indicator taking value 1 if household *i* migrated to destination *D* in 2008. We run regressions of the form

$$D_i = \alpha + \beta D_i^{08} + \epsilon_i$$

for each of four destinations. The 2008 migration destination choice is instrumented with the location randomly assigned to the household in Appendix Table 13b:

$$D_i^{08} = \lambda + \rho TD_i^{08} + \eta_i,$$

where TD_i^{08} is an indicator taking on value one if the households was assigned to location *D* in 2008. Appendix Table 13b shows these first stage estimates, and establish that initial destination assignment had a strong effect on destination choices in 2008. The hypothesis of destination specific learning implies that there should be more than one significant coefficient in the second stage estimates displayed below. There may be inherent differences in profitability of each location, and just showing that those assigned to migrate to Dhaka are more likely than others to re-migrate to Dhaka is consistent with Dhaka simply being the most profitable place to migrate, and re-migration simply reflecting initial success. We overcome this issue by observing that only one destination can be the most profitable, and examining re-migration propensities for all 4 of our assigned destination. We will need to show that migration assignment leads to destination-specific re-migration to at least two different cities. Note that location specific learning does not imply that all regressions would have positive coefficients -- some locations may just be really bad places to migrate. We see that all coefficients, instrumented with our location requirements, are positive and that two are significant at the 10% level (Dhaka and Munshigonj). The coefficients also imply quantitatively important stickiness. Households randomly assigned to migrate to Munshigonj in 2008 are 30% more likely to re-migrate to Munshigonj in 2009 than to any other location. We take this as evidence in favor of location specific learning, or the accumulation of connections at the destination being an important driver of migration behavior.

Panel A. Dep. Var.: Migrated in 2009 to:

	2009 - Dhaka		2009 - Bogra		2009 - Tangail		2009 - Munshigonj	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Migrated in 2008 to Dhaka	0.413***	0.679*						
	(0.052)	(0.348)						
Migrated in 2008 to Bogra			0.333***	0.051				
			(0.061)	(0.177)				
Migrated in 2008 to Tangail					0.463***	0.108		
					(0.057)	(0.184)		
Migrated in 2008 to Munshigonj							0.233***	0.304*
							(0.050)	(0.185)
Constant	0.317***	0.213	-0.014	-0.002	0.027	0.073	0.059	0.038
	(0.068)	(0.148)	(0.012)	(0.008)	(0.050)	(0.054)	(0.037)	(0.060)
Observations	589	589	589	589	589	589	589	589
R-squared	0.195	0.132	0.205	0.032	0.305	0.081	0.155	0.085
1st F-test		1.139		4.338		2.116		0.980
1st pvalue		0.345		0.000166		0.0412		0.456
1st partial R2		0.0119		0.0561		0.0616		0.0217
Hansen J0		4.272		7.142		8.882		3.920

Continued: Appendix Table 13a. Destination Choices of Re-Migrants

Panel B. Dep, Va.: Migrated in 2011 to:

	2011 - Dhaka		2011 - Bogra		2011 - Tangail		2011 - Munshigonj	
	OLS	IV	OLS	IV	OLS	IV	OLS	IV
Migrated in 2008 to Dhaka	0.327***	0.655**						
	(0.055)	(0.318)						
Migrated in 2008 to Bogra			0.280***	0.068				
			(0.061)	(0.166)				
Migrated in 2008 to Tangail					0.376***	0.285		
					(0.092)	(0.265)		
Migrated in 2008 to Munshigonj							0.275***	0.108
							(0.059)	(0.236)
Constant	0.248***	0.127	0.076	0.098	0.079	0.098	0.138	0.182
	(0.070)	(0.126)	(0.097)	(0.085)	(0.175)	(0.174)	(0.096)	(0.120)
Observations	480	480	480	480	480	480	480	480
R-squared	0.179	0.067	0.127	0.032	0.181	0.117	0.220	0.061
1st F-test		0.986		4.649		2.706		1.781
1st pvalue		0.452		8.24e-05		0.0100		0.0905
1st partial R2		0.0166		0.0775		0.0554		0.0354
Hansen J0		7.374		4.322		16.50		4.131

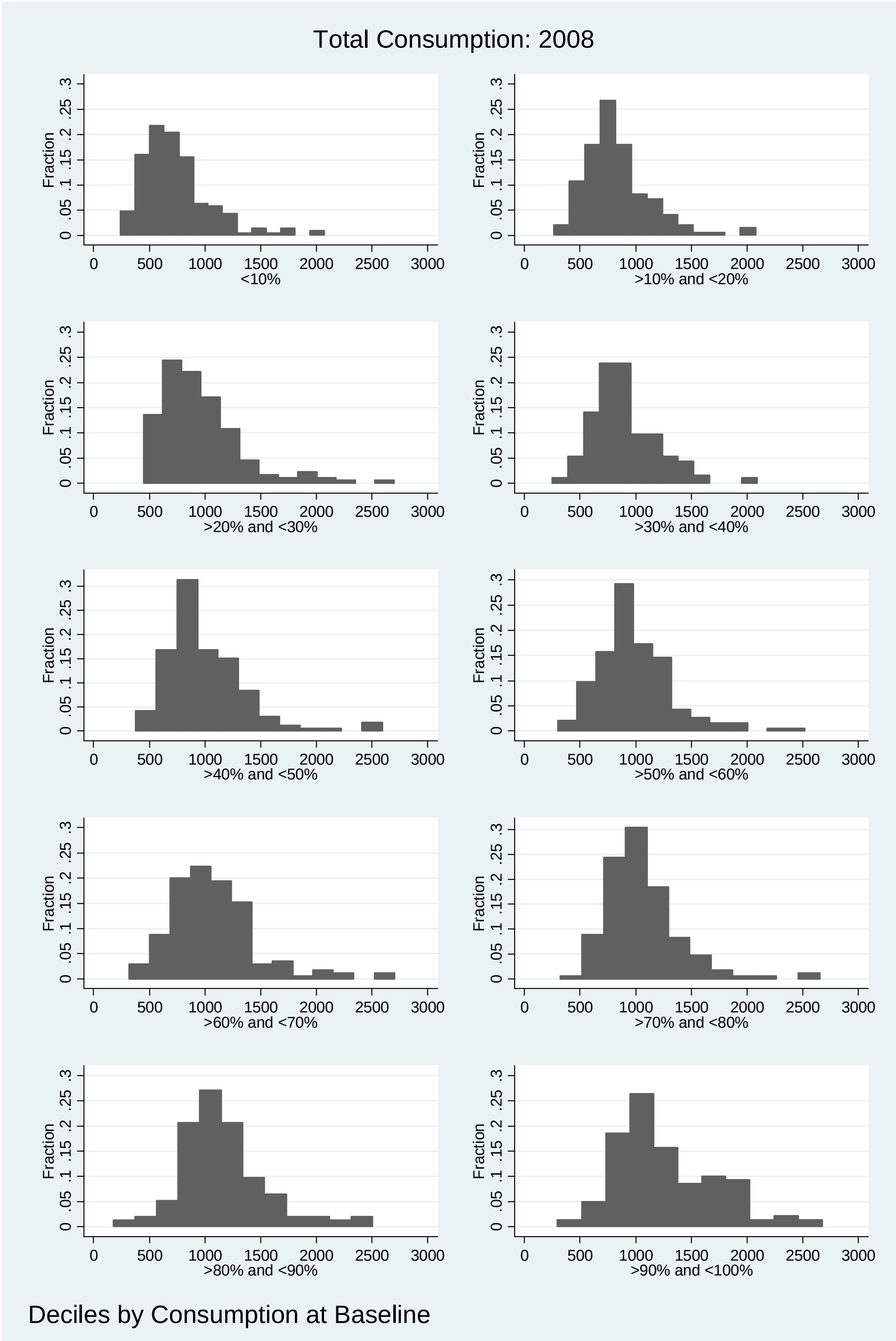
*** p<0.01, ** p<0.05, * p<0.1 Robust standard errors clustered by village in parentheses. Each coefficient entry in the table comes from a separate regression where migration to a specific destination in 2009 (Panel A) or in 2011 (PanelB) is regressed on migration to that same destination in 2008. The dependent variable is equal to one if at least one household member migrated to the destination specified in the first column (Dhaka, Bogra, Tangail or Munshigonj) in 2009 (Panel A), or in 2011 (Panel B). The independent variable whose coefficient is reported is a binary variable equal to 1 if at least one member of the household migrated to that destination in 2008 and 0 otherwise. The second column reports instrumental variables specifications where migration in 2008 to a particular destination is instrumented by the random assignment to cash and credit treatments, and the individual level treatments (see Figure 2), including the requirement to travel to a specific destination (omitted category is self-chosen destination). Sub-district fixed effect are included but not reported. The sample includes only households that sent a migrant in both 2008 and 2009 (or 2011).

Appendix Table 13b. First Stage of Instrumental Variables Regression for Destination Choices for 2009 Migrants

Dep. Var.: Migrated in 2008 to:	Dhaka	Bogra	Tangail	Munshigonj
Cash	-0.032	0.125**	-0.052	0.010
	(0.088)	(0.051)	(0.075)	(0.083)
Credit	0.035	0.085*	0.017	-0.056
	(0.088)	(0.048)	(0.077)	(0.083)
Info	0.009	0.052	0.016	0.019
	(0.102)	(0.049)	(0.088)	(0.094)
Group formation - self-formed	-0.045	0.022	-0.022	-0.011
	(0.046)	(0.053)	(0.054)	(0.051)
Group formation - assigned	-0.001	0.053	-0.041	0.008
	(0.058)	(0.057)	(0.051)	(0.049)
Group formation - two people	-0.048	-0.018	0.059	0.054
	(0.050)	(0.052)	(0.066)	(0.072)
Destination assigned	-0.020	-0.059*	-0.078*	-0.007
	(0.044)	(0.033)	(0.045)	(0.037)
Assigned to Dhaka	0.054			
	(0.068)			
Assigned to Bogra		0.234***		
		(0.066)		
Assigned to Tangail			0.305***	
			(0.084)	
Assigned to Munshigonj				0.163**
				(0.080)
Constant	0.427***	-0.075*	0.142*	0.295
	(0.148)	(0.043)	(0.072)	(0.187)
Observations	589	589	589	589
F-statistic	1.139	4.338	2.116	0.980
prob > F	0.345	0.000166	0.0412	0.456
partial R2	0.0119	0.0561	0.0616	0.0217
Hansen J statistic	4.272	7.142	8.882	3.920
R-squared	0.092	0.103	0.197	0.097

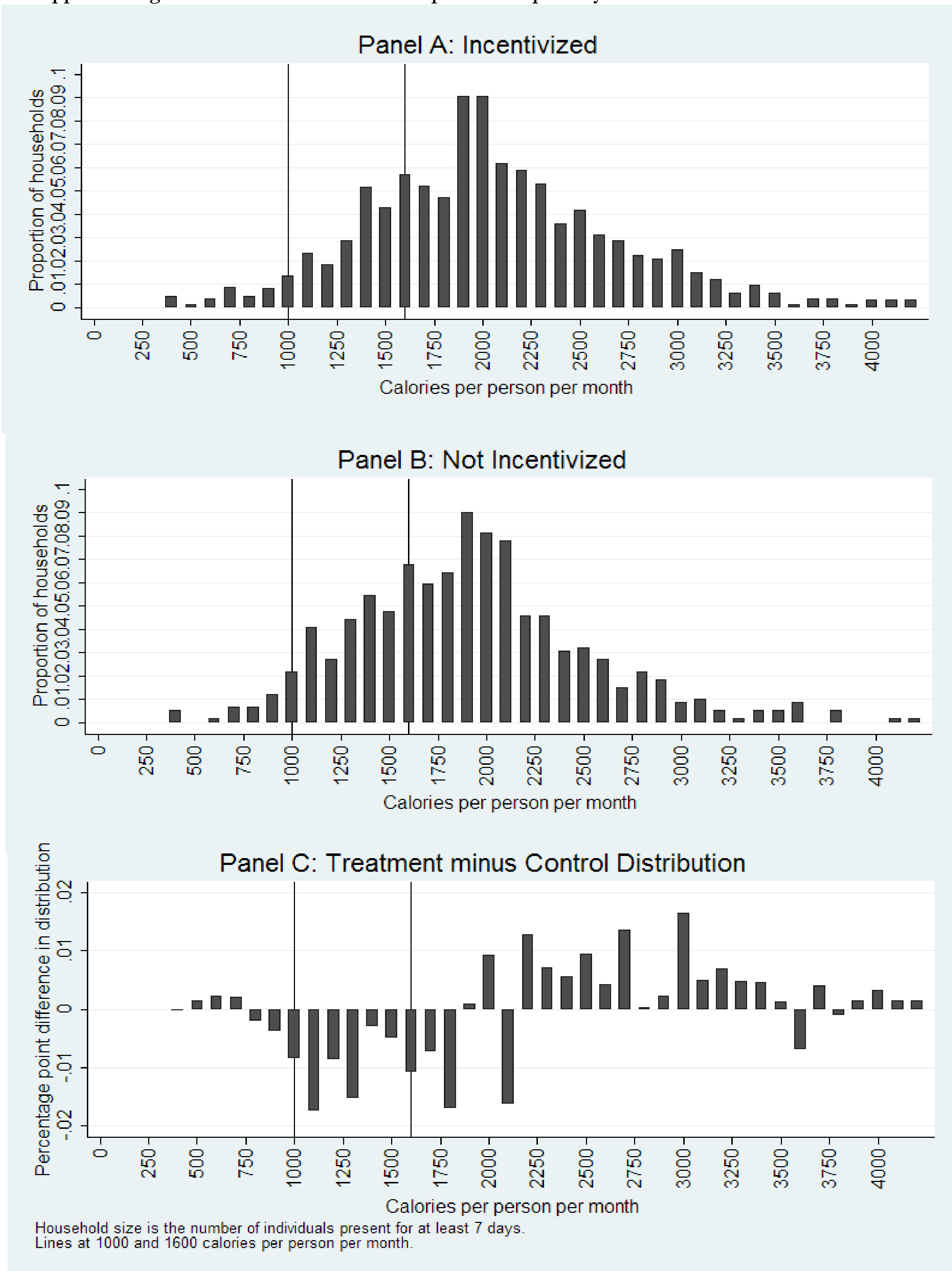
*** p<0.01, ** p<0.05, * p<0.1. Robust standard errors in parentheses.

Appendix Figure 1. Distribution of Consumption per Person per Month by Baseline Consumption Decile

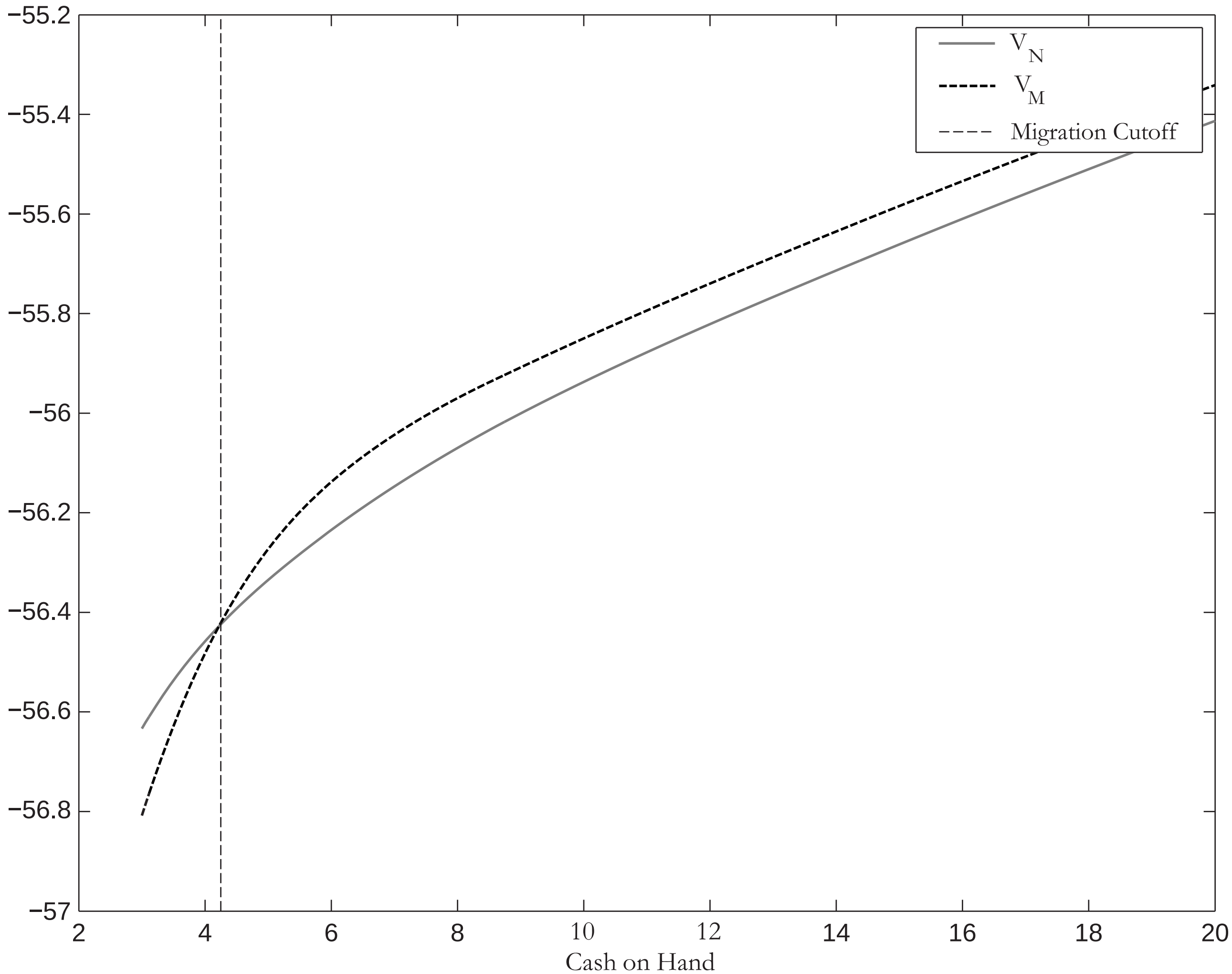


Consumption reflects total expenditures per person per month.

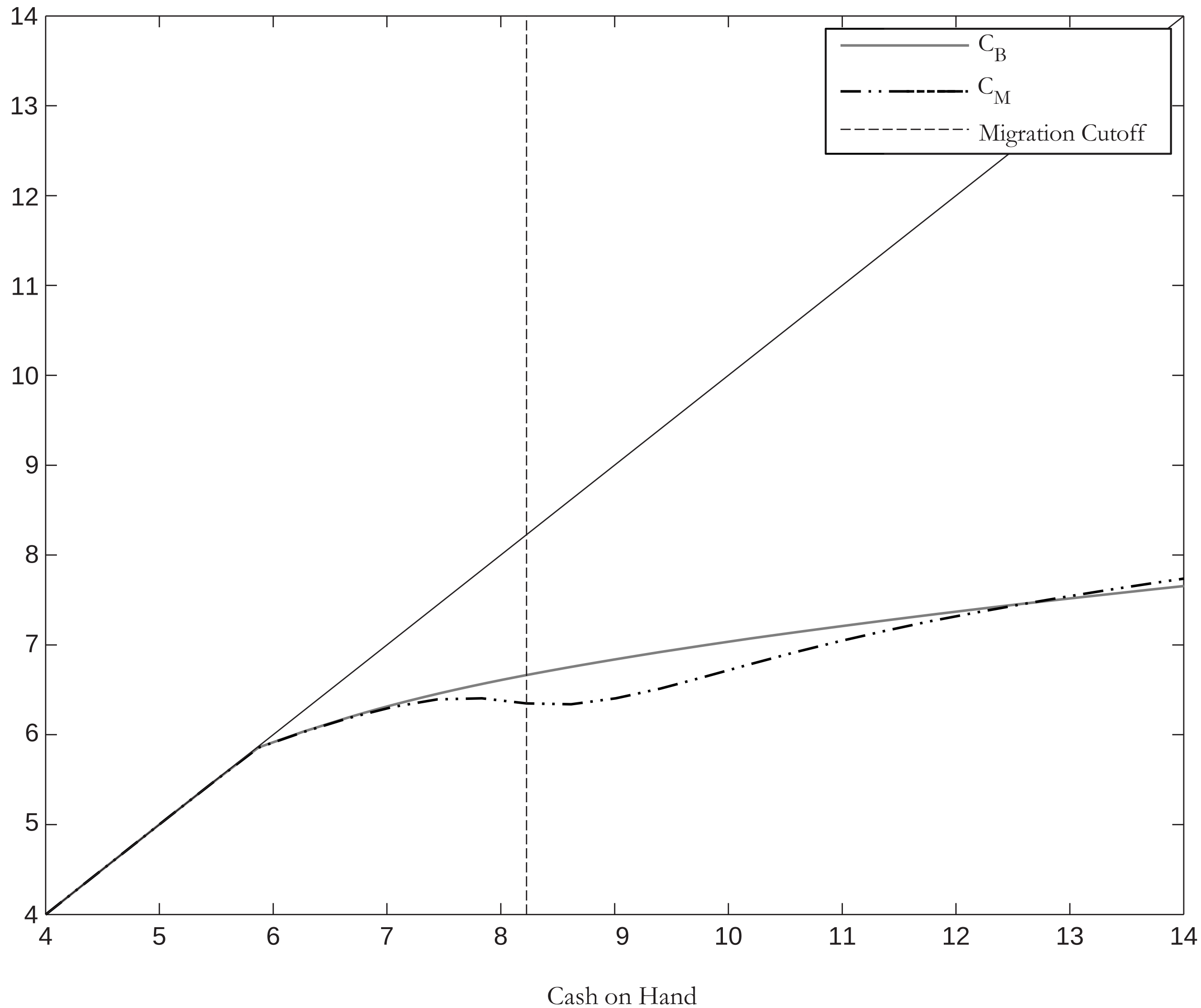
Appendix Figure 2. Distribution of Calories per Person per Day in 2008



Appendix Figure 3. Value Functions of Migrating and non-Migrating Households

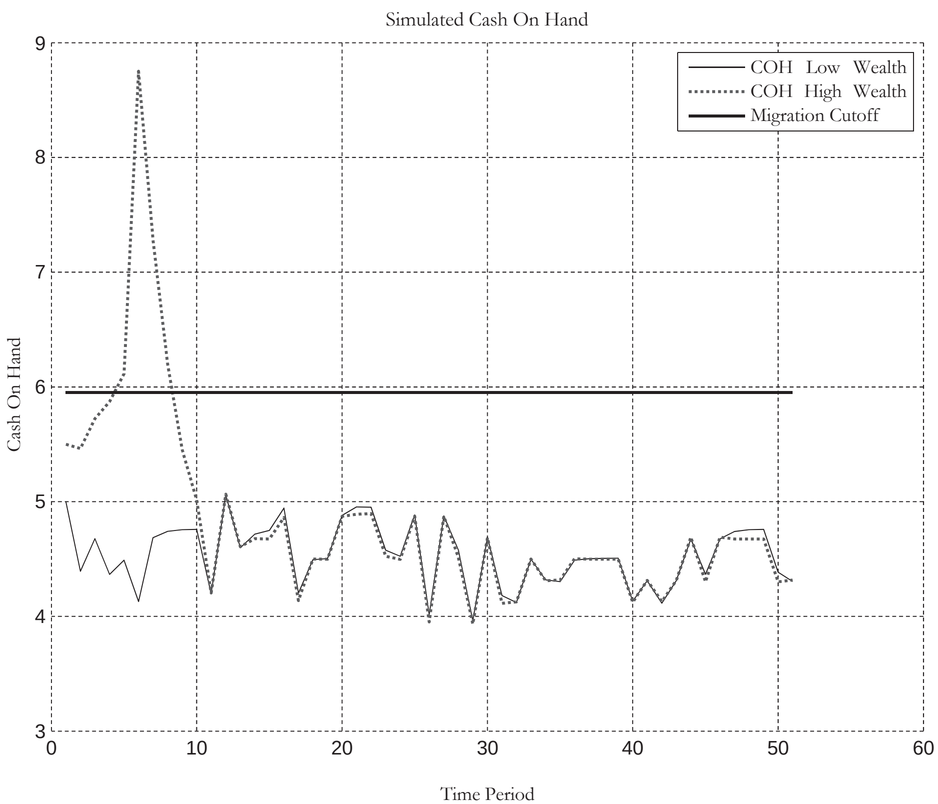


Appendix Figure 4. Policy functions (Consumption as a Function of Cash on Hand) for Households Bad at Migrating and Households Restricted from Migrating

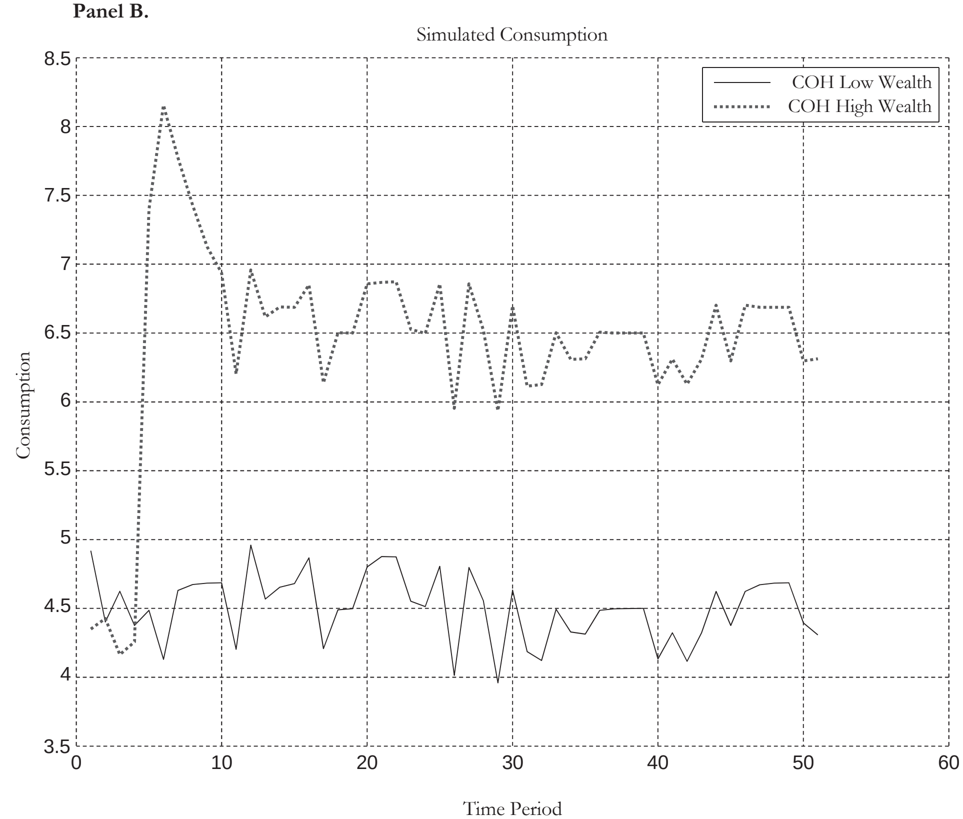


Appendix Figure 5. Simulated Cash on Hand and Consumptions for Varying Levels of Wealth

Panel A.

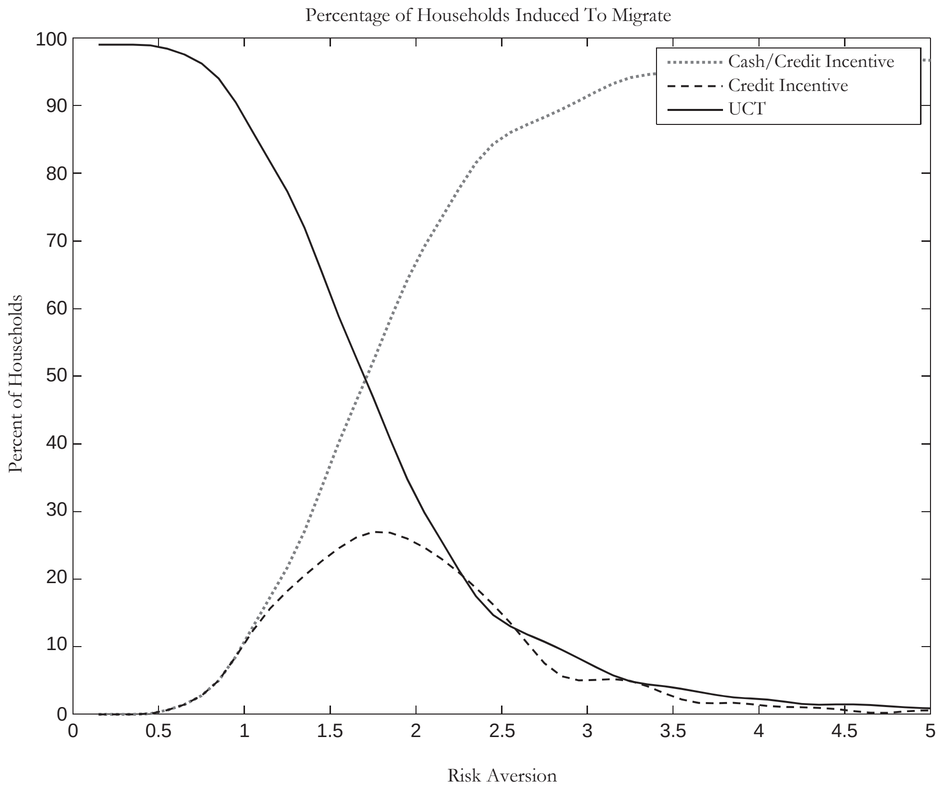


Panel B.

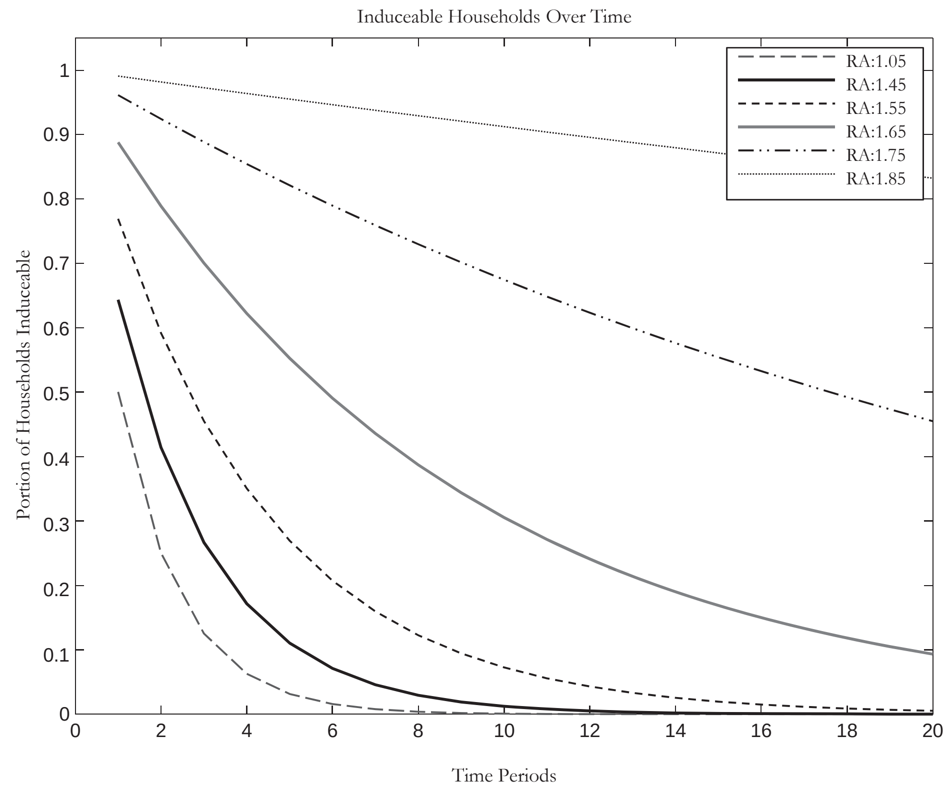


Apendix Figure 6. Static Model with Myopic Agents

Panel A.

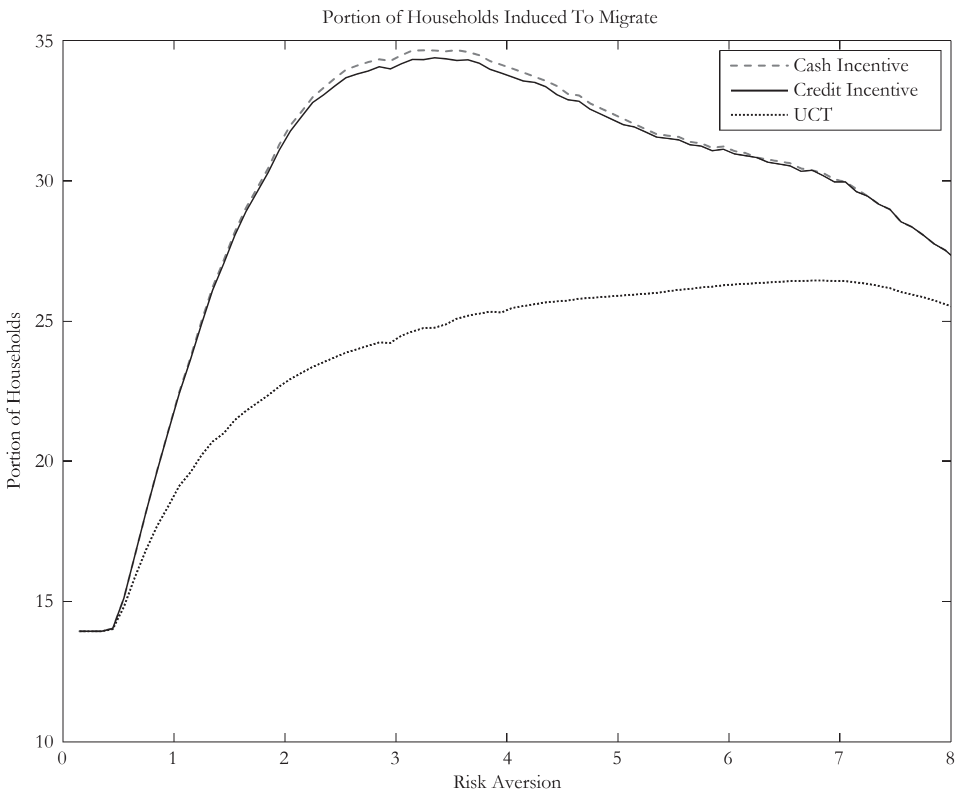


Panel B.

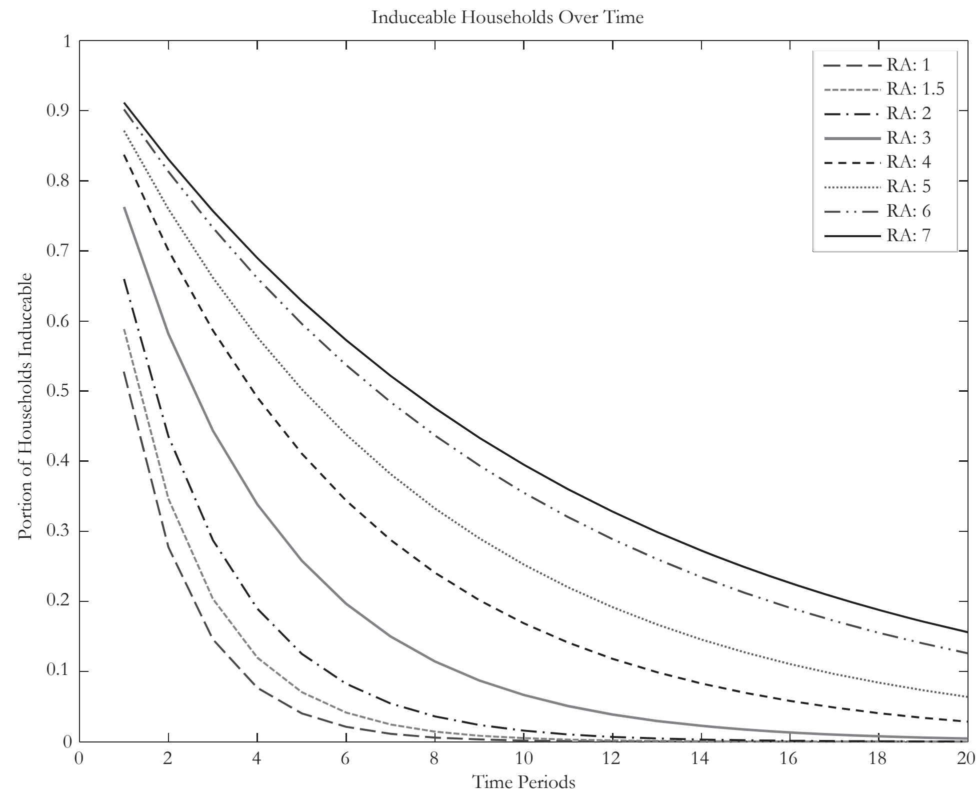


Appendix Figure 7. Forward-looking Agents, but no Savings

Panel A



Panel B



Appendix Figure 8: A Higher Discount Rate