EXPERIMENT DESIGN

* Within-village variation achieved by making incentive conditional on destination of migration.

* Half of all households in each village were randomly assigned one of four destinations.

* Loan was offered by partnering local microcredit institutions at 0% interest and limited liability repayable at the end of the monga season in December.

80% repaid the loan. 20% defaulted. (2008).

* Information intervention constituted giving information on (4) pre-selected destination cities to the household.

* This included several types of jobs available at the destination, their approximate wages, and the likelihood of getting each of the jobs.

Information intervention was also given to incentivised treatment groups.

TIMELINE

* Table I looked at randomisation balance at baseline for incentivised and non-incentivised groups.

* Found that differences at baseline between them in terms of outcome variables were not statistically meaningful.

Subjective migration expectations included

- Likelihood of monga occurrence
- Will get social network support in destination
- Can send remittance from destination

* Outcome variables included consumption of 255 non-food and 63 food items (318) mostly over weekly, bi-weekly, or monthly recall depending on relative frequency of purchase

* Aggregates were attained for these measures, including for caloric intake as dependent variables in estimations.

MIGRATION TAKE-UP

Seasonal migration having occured is defined as at least one person in the household migrated for work in September (start of monga) until about June of the following year.

This helped capture a large window of migration including migration during the planting season and not just those households looking to send a migrant regardless, by the time of the intervention before monga.

Differences in migration rates between treatment and control groups were found to be consistently higher for the former, and significant.

2008: 22%
2009: 9.2%
2011: 7%

Cash and credit did not yield a statistical difference in take-up.

Migration response to information compared to control group was statistically not different.

Households probably already had this information or found it not credible or useful, and the difference in take-up was due to incentives inducing migration.

The propensity to re-migrate in 2009 and 2011 in the absence of intervention indicated that net benefit of migration was positive for many.

Some form of asset was developed during the initial experience that yielded positive expected returns for future migration episodes.

Persistence of migration suggested that households developed this asset long enough to learn that the positive benefit of initial migration was not just a temporary shock.

ESTIMATION

ITT Intent to Treat Analysis

Helped derive pure experimental estimates.

Conducted by regressing consumption outcomes on randomly assigned treatments.

I is Unit of analysis which would be households.
V is village.
J is sub-district.

The dependent variable is per capita consumption.

Here we have our assigned treatments and our sub-district fixed effects.

Table III – Panel A which highlights the impact of induced migration in 2008 on our 2008 outcomes.

Cash and credit treatment induced positive levels of consumption (in takas) and caloric intake with statistical significance compared to the control.

Coefficients on cash were higher than those of credit interventions.

Total consumption increased by 97 takas per capita per month in villages assigned a cash intervention over the control group.

Information intervention was not significant for any outcomes.

When considering joint incentivised treatment compared to control group, we find positive contributions to consumption and caloric intake that are robust to baseline characteristics controls.

Panel B highlights the impact of migration in 2008 on our 2009 outcomes.

* We find that migration induced in 2008 through cash, credit largely does not impact our outcomes with statistical significance.

* When considering only incentivised intervention, we find generally robust positive contributions.

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LATE Local Average Treatment Effects (on Treated) Analysis

We next estimate local average treatment effects of migration on consumption outcomes in comparison between treatment and control groups.

Here migrants denotes a binary dummy equal to 1 if at least one member of the household migrated during monga in 2008.

X is a matrix of baseline characteristics.

* The endogenous choice to migrate is instrumented by whether or not the household was placed in the incentive treatment group. Estimates were then derived using a two stage least squares regression.

* All coefficients are interpreted in comparison to non-migrant households.

* Average effect on consumption as a result of treatment induced migration is an increase in monthly consumption per capita of around ~355 BDT/ <5 USD controlling for baseline characteristics.

* Average effect on monthly calorie intake was also an increase of 758 calories per capita.

These average effects were generally robust and lower in the subsequent year.

MODEL

The benchmark model they propose is a dynamic discrete time model.

Households are utility maximisers with a subsistence constraint built into their constant relative risk aversion scheme of utility.
(strict increasing, strict concave)

u(x)=u-bar(x-s)=(x-s)^1-sigma/1-sigma
limx→0 u-(x)=-inf
limx→0 u-'(x)=inf
limx→0 u-''/u-'=inf/inf
Going below threatens survival, in line with evidence of death from famine.

They experience credit constraints and cannot borrow in order to finance consumption, but can save their income.

They face S states of the world and the probability distribution of a state is represented by mu.

Income is y realisation at a state s at any given time.

A represents assets and x represents cash on hand such that x = y_s + A.

Consumption is constrained to cash in hand. C<= x

Households face uncertainty, and are of Good type and Bad type and are unaware of this until a member migrates.

Good type households experience probability pi_g that a migrant receives positive returns on migration. Bad type experiences probability 1-pi_g that a migrant receives no returns and suffers a cost F.

This represents the likelihood of establishing networks upon arrival at the destination within a reasonable search time that nets them employment. This is a unique non-transferrable parameter of a household and cannot be learned in advance.

This uncertainty resolves after one period as initial migration episode allows a migrant to learn their type, and if they are a good type, they establish a permanent network for future work.

A household that is bad at migrating will never migrate and is therefore a buffer stock saver;
Where they set average consumption growth according to average income growth regardless of taste.

Similarly a Good type household will have a migrant who will face the same problem but earn higher income supplemented by m>0.

A household therefore only migrates in the initial period if the expected utility of migrating exceeds that of not doing so.

Credit constraint implies forgoing consumption in the period the household chooses one of their members to migrate.

If its type is Bad, then the migrant incurs cost F (lost income during search, transport cost), and realises no income.

When facing a bad shock in the subsequent period, they do not have the opportunity to smooth consumption with savings from prior period.

This is built-in background risk. The riskier the migration process is, the less likely households are willing to send a migrant given any cash in hand.

The model therefore implies a cutoff level of cash in hand x-bar below which the household chooses not to migrate. Otherwise, it can afford to do so if cash in hand exceeds this cutoff.

V_M discounted sum of all future expected income from migration
V_N discounted sum of all future expected income from not migrating
over different levels of cash in hand

V_M=V_N => x-bar cash in hand where indifferent
V_M>V_N => migrate (x>x-bar)
V_M<V_N => do not migrate (x<x-bar)

They cross given concavity of V(x) attributable to risk aversion of underlying utility function.

Cash intervention therefore lowers the threshold of this cutoff x-bar to x-bar’ (x-bar < x-bar’) thereby inducing households to migrate who fall within the interval [x-bar’, x-bar].

There exists a hidden poverty trap. For certain parameters in calibrating the model, households experiencing an income generation process mu that enforces low levels of cash in hand end up not saving for migration and attaining the profitable investment.

(Their own poverty traps them into not saving for the profitable investment)

They avoid saving despite having never migrated, the same way as households unable to save or migrate at all. Initially wealthy households instead are able to save and migrate.