The Welfare Effects of Encouraging Rural-Urban Migration

(2nd Revision Requested by ECTA)

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Motivation

- Difference in income per-capita $\leftarrow$ TFP $\leftarrow$ Misallocation
- Inefficient distribution of workers across space
- Large gaps in productivity and wage between rural and urban
- Development puzzle: large populations in developing countries continue living in the rural
- What is the barrier prevent these households migrating to the urban?

Motivation

- RCT in Bangladesh
- Small travel subsidies leads to substantial gains in income and consumption over multiple years
- Previous interpretation: risky migration and credit constraint

Key Findings

- Reinterpretation of Bangladesh RCT:
  - Seasonal migration serves as a form of insurance
  - Disutility of migration is crucial
- Model:
  - Dynamic incomplete-market of migration with heter. agents
- Calibration: high-quality RCT with good identification
- Results:
  - Partial equilibrium welfare gains in consumption equivalence
    - One-time (0.4%) vs. permanent (3.6%)
  - Subsidizing design
    - Conditional transfer $>$ Unconditional $\approx$ Rural "workfare"
- Disutility of migration: mainly due to housing condition
  - Housing with a proper indoor latrine = increase of migration wage by 21%

RCT Summary

Design

- Lean season: drop in wage and employment opportunity$\rightarrow$ households migrate to urban
- Sample: randomly sample poor households in the lower half of asset distribution
  - Almost no asset holdings
  - Missing meals in previous lean season
- Treatment: \$11.5 subsidies encourage one household member to migrate during lean
  - Round trip bus $+$ A few days of food
  - Equivalent to about 7 to 10 days of lean season rural wages

RCT Summary

Results

- Migration rate: treatment (58%) vs. control (36%)
- LATE of migration on consumption: increase about 30% per member
- Re-migration rates remained 9% higher in the treatment than control, even if there is no subsequent subsidies.

Model

Environment

- Households
  - 1 unit of labor inelastically.
  - Productivity $\{1, z\}$ where $z \sim 1 - z^{-\theta}$ is for urban
    - Lower θ implies more variability in urban productivity
  - Transitory component on efficiency units: s for rural and s^{γ} for urban
    - Differential risk across locations: γ
    - Benefit: reduction of dimensionality
    - Intuition: differential risk is a deterrent of migration and urban-rural income difference
  - Idiosyncratic transitory shocks:

$$\log(s_{t+1}) = \rho \log(s_t) + \epsilon_{t+1}, \text{ with } \epsilon_{t+1} \sim N(0, \sigma_s^2) \quad (1)$$

Model

Environment

- Preferences
  - Utility over consumption c_t

$$u(c_t) = \frac{1}{1-\alpha} c_t^{1-\alpha} \bar{u}^{x_t} \tag{2}$$

    - Non-monetary cost of migration $\bar{u}$
    - Indicator of inexperienced migrant x_t
    - Multiplicative form: more flexible to fit the data rather than imposing a predetermined pattern between migration and wealth

Model

Environment

- Transitional matrix of experience
  - Inexperienced migrants become experience with prob. $1-\lambda$
    - Intuition: migrants are accustomed to being in the urban (developing a network of friends, potential employers, housing condition etc)
  - Experienced migrants become inexperienced with prob. $1-\pi$
    - Intuition: migrants dislike certain aspects of migration to an urban

Model

Environment

- Production
  - Competitive producers and homogeneous good in both locations
  - Rural production

$$Y_r = A_r^i N_r^\phi \tag{3}$$

    - Decreasing marginal product of labor $0 < \phi < 1$
    - Seasonality $i \in \{g, l\}$ (growing and lean seasons) with $A_r^g > A_r^l$
  - Urban production

$$Y_u = A_u N_u \tag{4}$$

Model

Environment

- Wages

$$\omega_r(s, i, N_r) = sA_r^i \phi N_r^{\phi-1} \tag{5}$$

$$\omega_u(z, s) = zs^{\gamma} A_u \tag{6}$$

- Location Options
  - Work in the rural area
  - Pay a fixed cost m_T and work in the urban area for one period and return to the rural area in the next period
  - Pay a higher fixed cost $m_P > m_T$ and work in the urban area for indefinite future
- Asset:
  - Non-state contingent asset with an exogenous rate of return R
  - Financial constraint $a > 0$

Model

State Variables

- Permanent productivity state: z efficiency units in urban and one efficiency unit in rural
- Transitory productivity state: s
- Transitory moving shock: iid. ν
- Endogenous state:
  - Asset holding a
  - Location and migration status: rural r, seasonal-migrant sea, and urban u
  - Experience: x
- Aggregate state:
  - Season: $i \in \{g, l\}$
  - Number of rural worker N_r

Model

Value Functions

- Rural households

$$v(a, r, s, \nu, x, i, N_r) = \max \left\{ \begin{array}{l} v(a, r, s, x, i, N_r|\text{stay}) + \nu^{\text{stay}}, \\ v(a, r, s, x, i, N_r|\text{seas}) + \nu^{\text{seas}}, \\ v(a, r, s, x, i, N_r|\text{perm}) + \nu^{\text{perm}} \end{array} \right\} \tag{7}$$

- Urban households

$$v(a, u, s, \nu, x, i, N_r) = \max \left\{ \begin{array}{l} v(a, u, s, x, i, N_r|\text{stay}) + \nu^{\text{stay}}, \\ v(a, u, s, x, i, N_r|\text{perm}) + \nu^{\text{perm}} \end{array} \right\} \tag{8}$$

- Probability of staying in the rural (Type-I extreme value ν)

$$\mathbb{P}(a, r, s, \nu, x, i, N_r|\text{stay}) = \frac{\exp\{\sigma_\nu^{-1} v(a, r, s, x, i, N_r|\text{stay})\}}{\sum_{j_r} \exp\{\sigma_\nu^{-1} v(a, r, s, x, i, N_r|j_r)\}} \tag{9}$$

Model

Value Functions

- Value function for staying in the rural

$$v(a, r, s, x, i, N_r|\text{stay}) = \max_{a' \in \mathcal{A}} \left\{ \begin{array}{c} u(Ra + w_r(s, i, N_r) - a') \\ +\beta \mathbb{E}[v(a', r, s', \nu', x', i', N_r')] \end{array} \right\} \tag{10}$$

- Value function for permanent move

$$v(a, r, s, x, i, N_r|\text{perm}) = \max_{a' \in \mathcal{A}} \left\{ \begin{array}{c} u(Ra + w_r(s, i, N_r) - a' - m_p) \\ +\beta \mathbb{E}[v(a', u, s', \nu', x', i', N_r')] \end{array} \right\} \tag{11}$$

Model

Value Functions

- Value functions for seasonal move

$$v(a, r, s, x, i, N_r|\text{seas}) = \max_{a' \in \mathcal{A}} \left\{ \begin{array}{c} u(Ra + w_r(s, i, N_r) - a' - m_T) \\ +\beta \mathbb{E}[v(a', seas, s', \nu', x', i', N_r')] \end{array} \right\} \tag{12}$$

$$v(a', seas, s', x', i', N_r') = \max_{a'' \in \mathcal{A}} \left\{ \begin{array}{c} u(Ra' + w_u(z, s') - a'')\overline{u}^{x'} \\ +\beta \mathbb{E}[v(a'', r, s'', \nu'', x'', i'', N_r'')] \end{array} \right\} \tag{13}$$

- Forces that shape the seasonal move decision
  - $(+)$ Comparative earning advantange relative to the rural
  - $(-)$ Disutility of migration
  - $(-)$ Risk associated with unknown s'
  - $(-)$ Limited assets (credit constraint + insurance channel)

Model

Determinants of Migration and Location Choice

- Migration is more likely ...
  - Lean season relatively to growing season
  - Higher value of productivity z
  - Lower value of disutility $\bar{u}$
  - Those with migration experience
- Repeat migration is more likely ...
  - low λ and high π, experience is easy to obtain but hard to lose

Model

Determinants of Migration and Location Choice

- Ambiguous effect of the transitory shock s and asset a
- Suppose shocks are persistent for concreteness
- Recall that transitory shock pair (s, s^{γ}) for rural and urban
- Two cases: $\gamma > 1$ and $\gamma < 1$
- Which case? Determined by data.

Model

Determinants of Migration and Location Choice

- Case 1: $\gamma > 1$ more volatile shock in urban
- Migrate after receiving a good shock
- Asset is needed as an insurance in the urban.
- Only individual with high values of asset migrates
- Subsidies induce high-productivity household to migrate
- More likely if R is lower, when worker can not save their way out of credit constraint
  - Donovan (2016), Midrigan and Xu (2014) and Moll (2014)

Model

Determinants of Migration and Location Choice

- Case 2: $\gamma < 1$ more volatile shock in rural
- Migrate after receiving a bad shock
- Costly migration: monetary and non-monetary
- Migrate when migrant is sufficiently unproductive and their assets are too low to insure themselves from low productivity
- Subsidies induce low-productivity household to migrate
- Migration is a coping mechanism for bad shock
  - Gröger and Zylberberg (2016) and Kleemans (2015)

Parameterization and Quantification

Parameterization

- Preassigned parameters:

Table 1: Pre-Assigned Parameters

	α	β	R	A_{rl}/A_{rg}	m_T	m_p	ϕ
Value	2.0	0.95	0.95	0.50	0.1 × rural cons.	$2 \times m_T$	0.91

Note: The table reports the values of the 8 pre-assigned parameters in the model. A period is defined to be half of a year. m_T is chosen to equal 10 percent of average rural consumption.

- Internal calibration using simulated method of moments

$$\Theta = \{\theta, \bar{u}, \pi, \gamma, A_u, \sigma_s, \rho, \sigma_\nu, \sigma_{rc}, \sigma_{uy}\} \tag{14}$$

Parameterization and Quantification

Parameterization

- ρ and σ_ν may govern in income and consumption
- Slight modification of rural consum. gr. and urban income

$$\hat{g}_{c,i} = g_{c,i} + v_{rc} \tag{15}$$

$$\log \hat{y}_i = \log y_i + \log v_{uy} \tag{16}$$

- $\hat{g}_{c,i}$ and $\hat{y}_i$ is observed consumption growth and income
- $g_{c,i}$ and y_i is actual consumption growth and income
- v_{rc} and v_{uy} is measurement error (normally distributed)

Parameterization and Quantification

Simulation

- One-time unanticipated seasonal migration subsidy with value m_T in partial equilibrium
  - RCT: small number of villages in the experiment
- Random sample of rural households in stationary distribution meeting the selection criteria in the RCT
  - Following the same timing
  - Bottom half of asset distribution (RCT starts from relatively poor households)
- Computing the from control and treatment given the sample above

Parameterization and Quantification

Targeted Moments

Table 2: Moments Targeted in the Estimation

Moments	Data	Model
Control: Variance of rural log consumption growth	0.19 (0.03)	0.19
Control: Percent of rural households with no liquid assets	47 (1.13)	48
Control: Seasonal migration rate	36 (2.64)	36
Control: Consumption increase of migrants (OLS)	10 (4.47)	10
Control: Repeat migration rate	68 (0.46)	70
Treatment: Seasonal migration relative to control	22 (2.39)	21
Treatment: Seasonal migration relative to control in year 2	9 (2.44)	4
Treatment: Consumption increase of induced migrants (LATE)	30 (9.67)	29
Urban-Rural wage gap	1.89 (0.18)	1.89
Percent in rural area	62 (1.36)	60
Variance of log urban wages	0.56 (0.06)	0.56

Note: The table reports the moments targeted using simulated method of moments, their values in the data and in the model, and the standard errors of the empirical moments.

Parameterization and Quantification

Targeted Moments

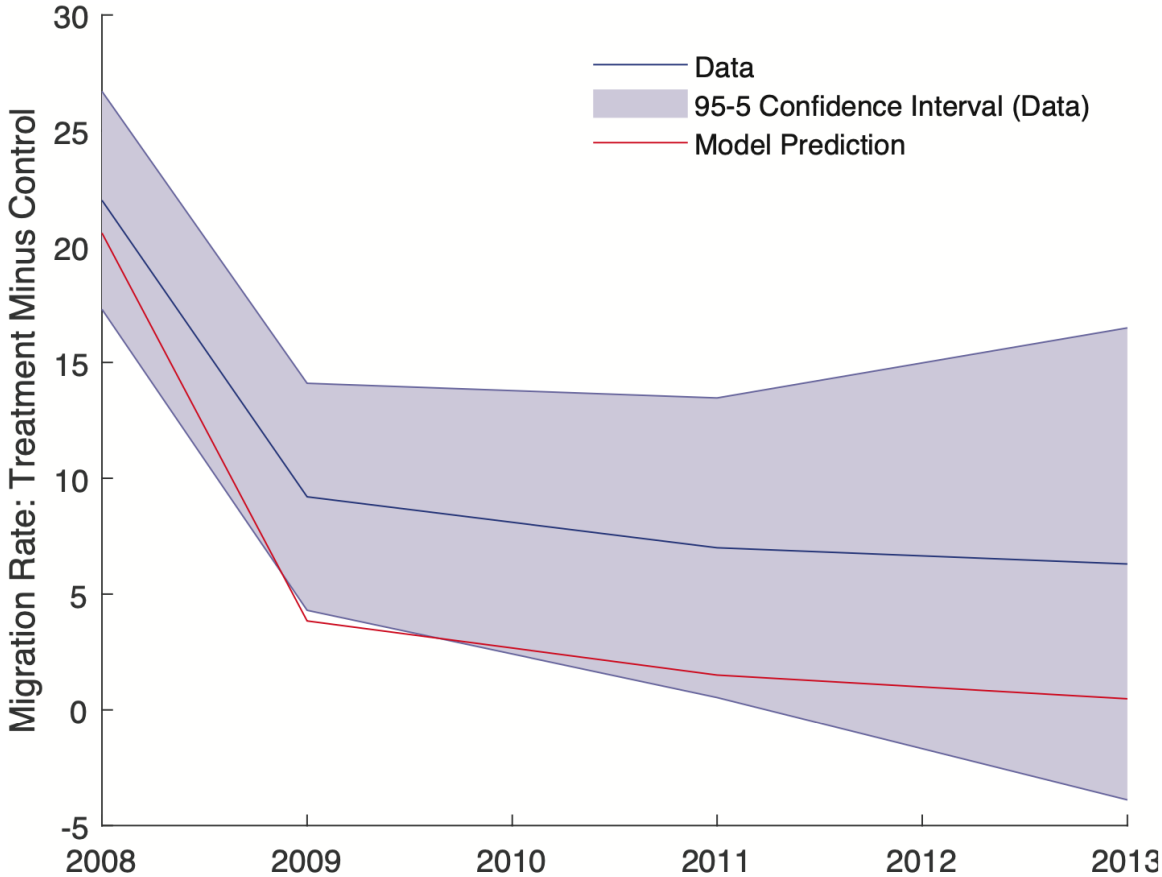


Figure 1: Difference in Migration Rates in Treatment and Control Groups

Parameterization and Quantification

Targeted Moments

Table D.1: Elasticities of Targeted Moments to Parameters

	θ	$\bar{u}$	λ	π	γ	A_u	σ_s	ρ	σ_ν	σ_{rc}	σ_{ui}
Con: Var(log cons Δ rural)	0.0	0.0	0.0	-0.0	0.0	-0.0	-0.3	-0.1	0.0	**1.0**	0.0
Con: Pr(households no assets)	-0.2	**-5.4**	0.0	-0.1	**-3.4**	**-1.3**	**-10.6**	**12.1**	-0.0	0.0	0.0
Con: Seasonal migrants	**-3.4**	**-7.9**	**-1.2**	**1.8**	**-1.8**	**1.2**	**-1.2**	0.5	0.5	0.0	0.0
Consumption, OLS	**3.9**	**3.6**	-0.5	**1.5**	**3.0**	**-4.2**	**-4.3**	**6.4**	-0.0	0.0	0.0
Migration, Treat-Control	-0.6	-0.9	0.9	**-1.1**	-0.4	**1.4**	**-1.5**	**1.8**	-0.3	0.0	0.0
Migration, Treat-Control, year 2	0.5	**-5.0**	**-1.5**	**3.8**	**-5.5**	**1.1**	**-2.5**	**4.9**	-0.9	0.0	0.0
Consumption, LATE	-0.6	-0.5	-0.0	0.4	-0.7	-0.3	**-2.7**	**2.6**	0.0	0.0	0.0
Control: Pr(repeat migration)	0.2	**-1.2**	-0.2	0.0	0.2	-0.1	**-1.3**	**1.7**	-0.2	0.0	0.0
Urban-Rural wage gap	**1.4**	0.1	0.2	-0.0	0.1	-0.2	-0.3	0.4	-0.0	0.0	0.0
Percent in rural area	0.8	-0.5	-0.1	0.2	0.1	**-1.3**	-0.3	0.4	0.0	0.0	0.0
Variance of log wages in urban	**1.4**	-0.1	-0.1	0.1	0.3	0.1	0.4	-0.4	0.0	0.0	**1.0**

Note: This table reports the elasticities of each targeted moment to each parameter, computed as the percent increase in each moment to a one percent increase in each parameter, starting from the estimated parameters of the model. Elasticities greater than or equal to one in absolute value are printed in bold.

Parameterization and Quantification

Estimation Results

Table 3: Estimated Parameters and Standard Errors

$\frac{1}{\theta}$	$\bar{u}$	λ	π	γ	A_u	σ_s	ρ	σ_ν	σ^2_{rc}	σ^2_{ui}
0.54	1.51	0.67	0.63	0.57	1.55	1.28	0.74	0.11	0.15	0.15
(0.002)	(0.004)	(0.054)	(0.028)	(0.002)	(0.022)	(0.866)	(0.217)	(0.010)	(0.005)	(0.004)

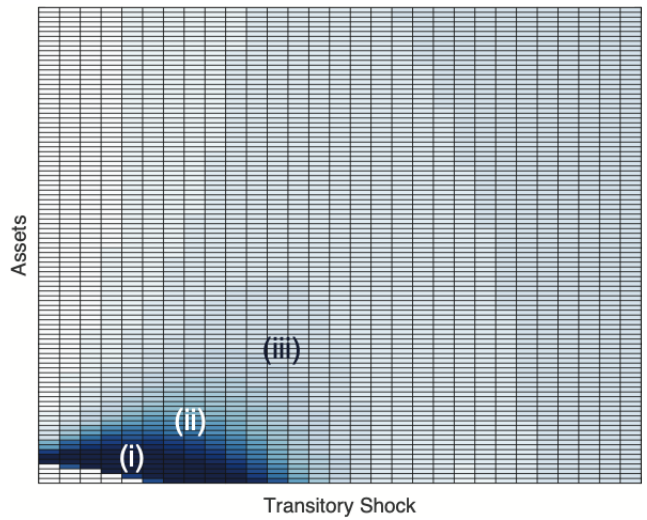
Note: The table reports the values of the 11 jointly-estimated parameters and their standard errors.

- Interpretations:
  - Low θ: large variance in permanent productivity in the urban
  - $\gamma < 1$: shocks in urban are less volatile
  - $\bar{u}$ is positive and sizable (household utility is negative)
  - λ and π: 1/3 of experienced losing their experience every half-a-year and 1/3 of inexperienced households gaining experience after a move

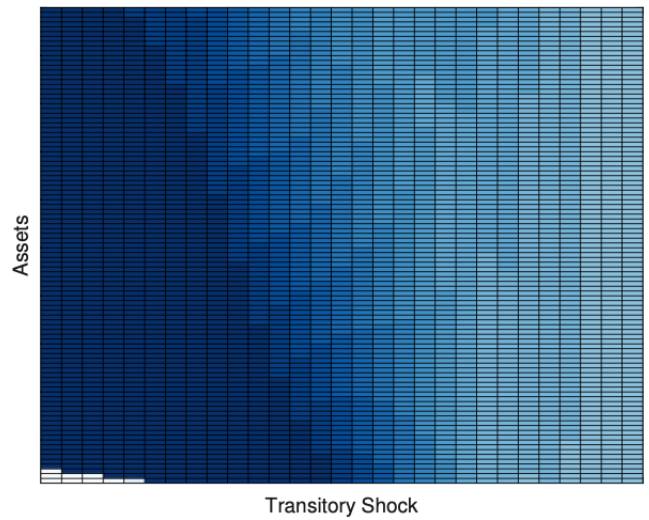
Parameterization and Quantification

Mechanism

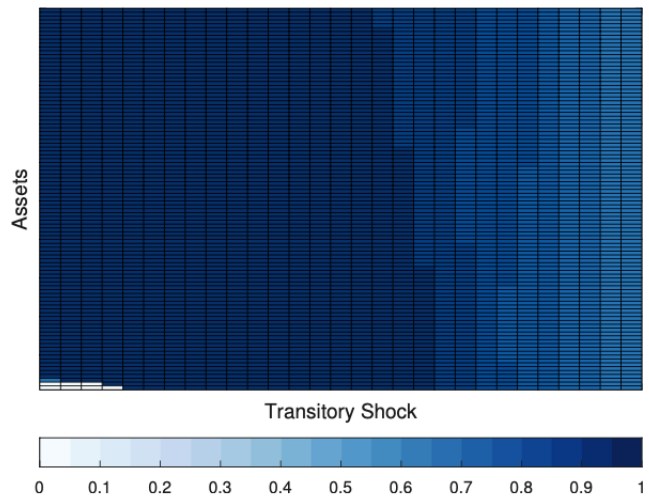
- Who migrates and why?



(a) Low z, not experienced



(b) Moderate z, not experienced



(c) Moderate z, experienced

Parameterization and Quantification

Mechanism

- Agents of higher urban productivity leads to more migration (Panel a and b)
  - Policy implication: migration subsidies will be offer to agents with low comparative advantages.
- The disutility of the urban is an important deterrent to migration (Panel b and c)
- Households with low assets and low transitory shocks are more likely to migrate. (Within each panel)
  - OLS coefficient from consumption regress on migration is smaller than IV
  - Migrants are negatively selected on the determinants of consumption

Parameterization and Quantification

Comparison to Model of Bryan et al. (2014)

- Bryan et al. (2014) model setting
  - Migration risk
  - Credit constraint which prevents households from borrowing to migrate
  - Permanent individual learning about urban productivity
  - No disutility of migration
  - No temporary productivity shock
  - Subsistence constraint
- Migration decision rule
  - Bryan et al. (2014): household's disposal income reaches a certain threshold (high income/wealth)
  - This paper: household wait until their prospects in the rural area are sufficiently bad for them (low income/wealth)

Parameterization and Quantification

Non-Targeted Moments

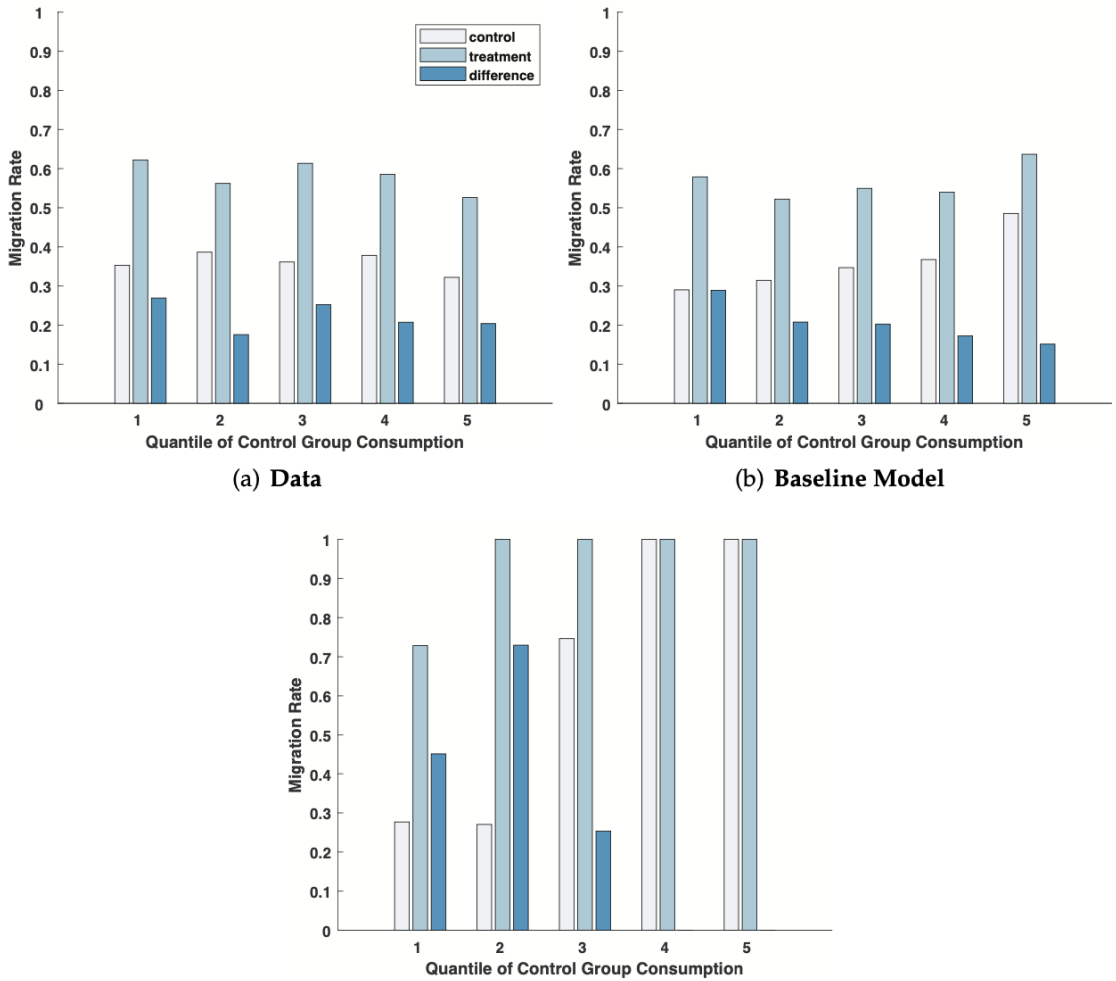
- Migration rates by initial consumption level
  - Heterogeneous responses to the treatment
- Asset holdings by migration status
  - The extent to which migration decisions are driven by buffer-stock strategies versus migration-as-insurance strategies
- Effect of unconditional transfers
- Variances of consumption growth by migration status

Parameterization and Quantification

Non-Targeted Moments

- Migration rates by initial consumption level

Figure 3: Migration Rate by Consumption Quintile



(a) **Data** (b) **Baseline Model**

(c) **Model of Bryan et al (2014)**

Parameterization and Quantification

Non-Targeted Moments

- Asset holdings by migration status
- Effects of unconditional transfer

Table 5: Comparison to Model of Bryan et al (2014)

Panel A: Effect of Migration on Consumption

	OLS	IV (LATE)
Data	10	30
Model	10	29
Model of Bryan et al (2014)	57	52

Panel B: Assets Relative to Average Monthly Consumption

	Migrants	Non-Migrants
Data	0.7	0.8
Model	0.4	0.5
Model of Bryan et al (2014)	1.1	0.5

Panel C: Effects of an Unconditional Transfer on Migration

	Control	Treatment
Data	34	44
Model	36	37
Model of Bryan et al (2014)	66	88

Note: This table reports moments of the experimental data and the predictions for the same moments in the current model and the model of Bryan et al (2014). Panel A reports the values of the OLS and IV (LATE) returns to migration on consumption per capita, expressed in percentage points. Panel B reports average asset holdings by migration status, expressed relative to average monthly consumption. Panel C reports the migration responses to an unconditional cash transfer in the control and treatment villages.

Parameterization and Quantification

Non-Targeted Moments

- Variances of consumption growth

Table 4: Variance of Log Consumption Growth

Control Group			Treatment Group		
	Stay	Migrate		Stay	Migrate
Data	0.15	0.18	Data	0.16	0.19
Model	0.18	0.19	Model	0.17	0.19

Note: The table reports the variance of log consumption growth from before the lean season to afterwards. The left panel is for the control group, and the right panel is for the treatment group. The columns represent the set of households that stay (do not send a migrant) versus those that migrate (do send a migrant).

- Why Treatment $>$ Control given $\gamma < 1$?
  - Migrants with low transitory shock and asset level do more temporary migration
  - Migrants, seeing large gains in income, are largely hand-to-mouth.

The Welfare Effects of Conditional Migration Subsidies

Conditional Migration Subsidies

Table 6: Welfare Effects of Conditional Migration Subsidies

		One-Time Partial Equilibrium		Permanent Partial Equilibrium		Permanent General Equilibrium	
		Welfare	Migr. Rate	Welfare	Migr. Rate	Welfare	Migr. Rate
Income Quintile	1	1.05	85	4.79	92	4.41	91
	2	0.40	62	3.80	79	3.44	76
	3	0.26	53	3.47	70	3.09	67
	4	0.16	43	3.15	60	2.81	57
	5	0.11	39	2.69	51	2.38	48
Average		0.39	57	3.58	71	3.22	68
Fraction Rural			60		66		65
Fraction w. Experience			23		42		41

Note: The table reports the (lifetime) consumption-equivalent welfare gains from conditional migration transfers. The rows are for different income quintiles, with 1 being the poorest quintile and 5 being the richest. The first two columns are for a one-time transfer in partial equilibrium. The next two columns are for a permanent conditional migration transfer program offered each period indefinitely, assuming a fixed wage rate. The final two columns are for a permanent transfer adjusting wages to clear labor markets.

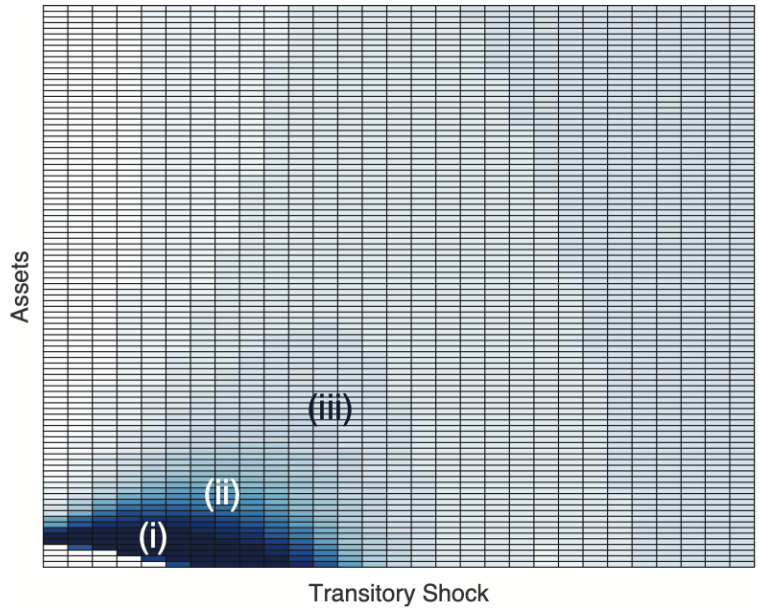
The Welfare Effects of Conditional Migration Subsidies

Conditional Migration Subsidies

- Permanent subsidies make households update expectation accordingly
  - Affect location choice, seasonal migration choice, and accumulation of experience
- General equilibrium effects of wage change for non-migrants

The Welfare Effects of Conditional Migration Subsidies

Conditional Migration Subsidies



(a) Low z, not experienced

- (i) Temporary move regardless of conditional transfer
- (ii) Induced to migrate by a condition offer
- (iii) Not migrate even with transfer
- (i)+(ii) Migration: $u'(c)$ is so high

The Welfare Effects of Conditional Migration Subsidies

Welfare Under Alternative Scenarios

Table 7: Welfare Gains Under Alternative Parameterizations

	Average Welfare Gains	LATE (Cons.)	OLS (Cons.)	Treatment Effect (Migration)	Seasonal Migration Control
Data	-	30	10	22	36
Benchmark calibration	0.39	29	10	21	36
+ Higher urban risk	0.12	27	51	10	16
+ No migration disutility	0.51	9	29	28	55
+ Higher urban TFP	1.29	33	51	15	84
+ Higher migration cost	1.98	16	34	62	36

Note: This table reports the average welfare gains implied by the model, the LATE and OLS effects of migration on consumption, seasonal migration in the control group, and the treatment effect on migration implied by the model for each specific calibration. Row 1 shows the data. Row 2 is the benchmark calibration that results from the simulated method of moments. Row 3 ("+ Higher urban risk") changes the parameter shaping the urban relative shock by setting $\gamma = 1.5$. Row 4 ("+ No migration disutility") further removes the disutility of migration by setting $\bar{u} = 1$. Row 5 ("+ Higher urban TFP") further doubles the level of urban TFP of 3 (instead of $A_u = 1.5$). Row 6 ("+ Higher migration cost") sets p_T to be 50 percent of rural consumption so that the model matches seasonal migrant rates in the control group.

The Welfare Effects of Conditional Migration Subsidies

Alternative Rural-Based Policies

- Budget-neutral comparison of other policies
- Unconditional cash transfers (UCTs)
- Conditional cash transfers
- Rural workfare programs
  - Provide employment guarantees in rural area
  - Example: India's enormous NREGA program
  - Evaluation: no significant benefits, even negative spillovers on non-beneficiaries

The Welfare Effects of Conditional Migration Subsidies

Alternative Rural-Based Policies

Table 8: Migration Transfers, Unconditional Transfers and Rural Workfare Policies

		Migration Transfers		Unconditional Transfers		Rural Workfare	
		Welfare	Migr. Rate	Welfare	Migr. Rate	Welfare	Migr. Rate
Income Quintile	1	1.05	85	0.92	46	0.78	28
	2	0.40	62	0.49	37	0.46	25
	3	0.26	53	0.36	35	0.35	23
	4	0.16	43	0.27	30	0.26	22
	5	0.11	39	0.19	30	0.18	24
Average		0.39	57	0.44	36	0.41	25

Note: The table reports the lifetime consumption-equivalent welfare gains (in percentage points) from the conditional migration transfers relative to an unconditional transfer program costing and rural workfare programs costing the same total amount.

Empirical Evidence on the Source of Migration Disutility

Table 9: Estimated Marginal Effects on Migration

	Migration Opp. #1		Migration Opp. #2		No Migration	
	PP	ME	PP	ME	PP	ME
33% Prob. Employment	0.112***	0.000	0.587***	0.000	0.301***	0.000
	(0.019)	(.)	(0.056)	(.)	(0.061)	(.)
66% Prob. Employment	0.075***	-0.037***	0.716***	0.129***	0.209***	-0.092***
	(0.013)	(0.010)	(0.047)	(0.031)	(0.047)	(0.032)
100% Prob. Employment	0.045***	-0.067***	0.794***	0.207***	0.160***	-0.141***
	(0.009)	(0.013)	(0.036)	(0.037)	(0.035)	(0.040)
Family visit once in 60 days	0.074***	0.000	0.717***	0.000	0.209***	0.000
	(0.014)	(.)	(0.044)	(.)	(0.044)	(.)
Family visit twice in 60 days	0.075***	0.001	0.716***	-0.001	0.209***	0.001
	(0.013)	(0.007)	(0.047)	(0.025)	(0.047)	(0.024)
Family visit 4 times in 60 days	0.063***	-0.011	0.723***	0.005	0.214***	0.005
	(0.012)	(0.007)	(0.053)	(0.030)	(0.054)	(0.030)
No Latrine in residence	0.075***	0.000	0.716***	0.000	0.209***	0.000
	(0.013)	(.)	(0.047)	(.)	(0.047)	(.)
Pucca Latrine in residence	0.026***	-0.049***	0.906***	0.190***	0.068***	-0.141***
	(0.005)	(0.009)	(0.022)	(0.031)	(0.020)	(0.033)
Daily Wage (Taka), Opp # 2		-0.001***		0.003***		-0.002***
		(0.000)		(0.000)		(0.000352)
Observations	3462	3462	3462	3462	3462	3462

Note: The PP columns represent the predicted probabilities of migrating at each given condition, and the ME columns represent the marginal effects of changing migration conditions in each category. Both are measured while fixing the conditions of migration Choice #1 at the worst values, and fixing the conditions of migration Choice #2 at the median values. The sample includes only households from the control group.

Extension

Trilogy: Migration RCT in Bangladesh

- Underinvestment in a Profitable Technology: The Case of Seasonal Migration in Bangladesh (Bryan, Chowdhury, and Mobarak (2014))
- The Welfare Effect of Encouraging Rural-Urban Migration (Lagakos, Mobarak, and Waugh (2020))
- Migration and Informal Insurance: Evidence from a Randomized Controlled Trial and a Structural Model (Meghir, Mobarak, Mommaerts, and Morten (2019))

Extension

More RCT + Structural/ Macro

- Todd and Wolpin (2006)
- Kaboski and Townsend (2011)
- Buera, Kaboski, and Shin (2014)
- Greenwood, Kircher, Santos, and Tertilt (2019)
- Brooks and Donovan (2020)
- Akcigit, Alp, and Peters (2021)

Extension

More on Macro-Development

- 2nd-Year PhD Course of Macro-Development (google STEG Virtual Course)

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