The Welfare Effects of Encouraging Rural-Urban Migration

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Large Urban-Rural Gaps in the Developing World—Misallocation?

Large urban-rural living-standards gaps in cross section

- Value added per worker (Gollin, Lagakos and Waugh, 2014)
- Consumption measures (Young, 2014)
- Wages (Herrendorf and Schoellman, 2015)

Rural-urban migrants increase their consumption

- Bryan, Chowdhury, Mobarak (2014): Induced seasonal migrants experienced 30% increase in consumption.
- In tracking data: Beegle, De Weerdt, Dercon (2011); Garlick, Leibbrandt, Levinsohn(2015); LSMS-Tanzania, LSMS-Malawi.

This Paper: Measure the Welfare Impact of Encouraging Migration

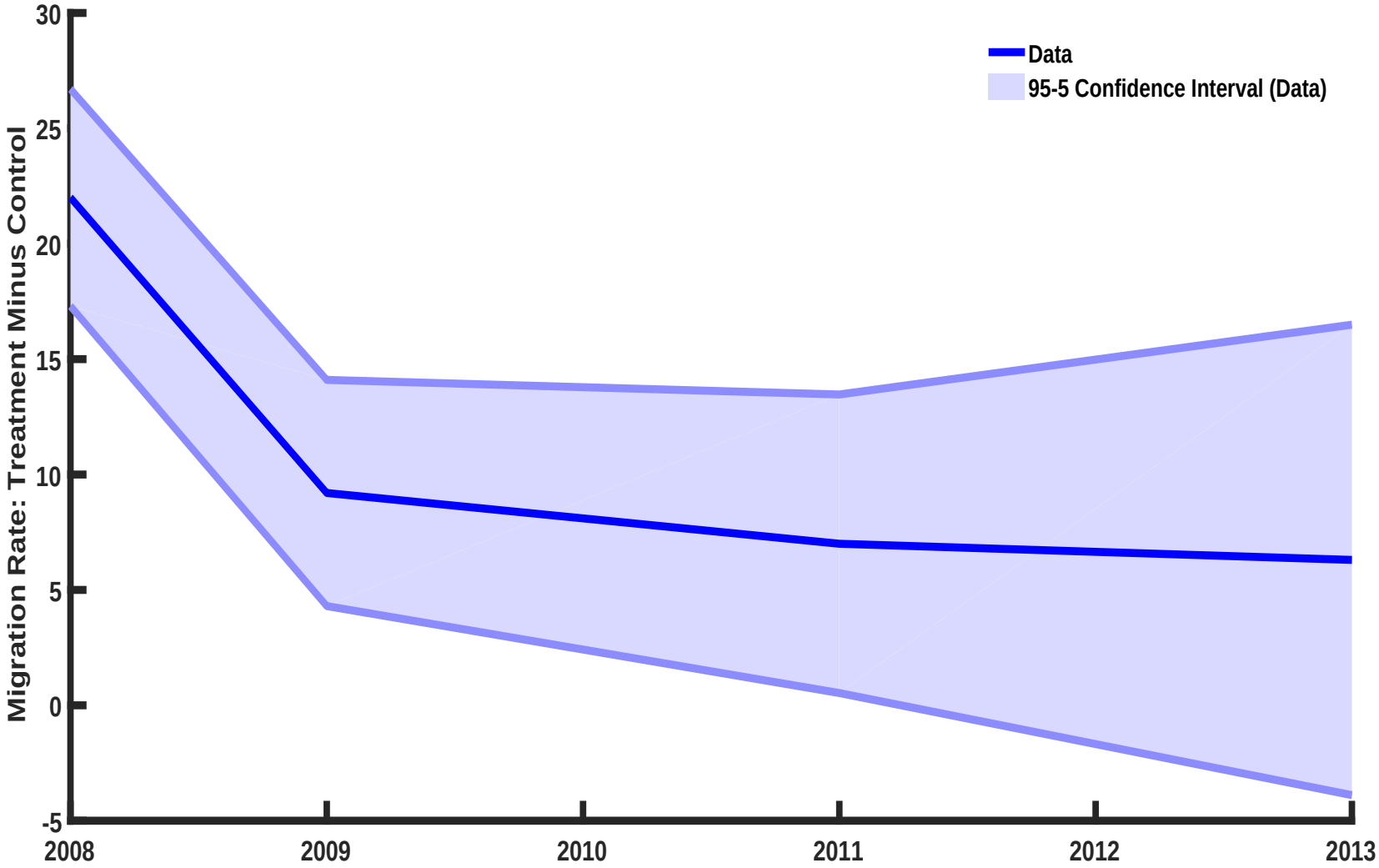
Draw on unique evidence from Bangladesh

- 156 million people, $900 per capita
- Urban wages around twice as high as rural
- Fall "lean season": very low productivity in rural areas

Migration experiment of Bryan, Chowdhury & Mobarak (2014)

- 100 randomly selected villages in Rangpur region, in NW Bangladesh
- Treatment group offered 600 Taka ($8.50) conditional on migration
  200 Taka extra if checked in at destination
- Migration rates 58%, compared to 36% in control group
- Among those induced, consumption 30% higher
- Subsequently replicated on larger scale in 2014

Migration Response: Experiment of BCM (2014))



What We Do

1. Build two-region model with migration. Multiple mechanisms:

- Selection as in Roy (1951),
- Migration disutility from that depends on migration experience,
- Incomplete financial markets as in Bewley-Huggett-Aiyagari,
  - Differential urban & rural risk, Harris and Todaro (1971),
  - Credit constraints as in development literature.

2. Discipline using experimental evidence.

- Perform experiment within model, match experimental moments using simulated method of moments.

3. Use model to interpret experimental results, evaluate welfare gains.

Preview of Results

1. To match the data, model requires:

- Few rural households with strong comparative advantage in city,
- Substantial non-monetary disutility of migration,
- Seasonal migration mostly by those with **lowest** income and assets.

2. Welfare gains mostly from targeting funds to poor, vulnerable households

- On average: 0.4% gain in CE units; 1.5% for the poorest.
- Better for poor than unconditional transfer or rural workfare program.
- Higher welfare gains in principle when—counterfactually—there is: lower disutility of migration of more "misallocated" rural workers.

3. New survey data: Housing key component of disutility.

Model

Model: Households and Preferences

Unit mass of households; preferences:

$$\sum_{t=0}^{\infty} \beta^t u(c_t) \bar{u}^{x_t}$$

- $\bar{u}$ is disutility of migration
- $x_t \in \{0, 1\}$, takes on value 1 iff household is "inexperienced at migration" and in the urban area.
- $u(c_t) = \frac{c_t^{1-\alpha}}{1-\alpha}$

Model: Experience

A household is either "experienced" or "inexperienced" at migration.

Experience is acquired by being in the urban area, is lost by being away...

After each period in the urban area,

- Inexperienced households remain so with probability λ, and become experienced with probability $1 - \lambda$,
- Experienced households stay experienced.

After each period in the rural area,

- Experienced households stay experienced with probability π and loose experience with probability $1 - \pi$,
- Inexperienced households stay inexperienced.

Model: Production Technologies and Seasons

One homogenous good produced in both locations and competitive markets.
Production technology in rural area:

$$Y_r = A_{ri} N_r^{\phi}$$

where $0 < \phi < 1$; A_{ri} is rural productivity indexed by season i, with $A_{rg} > A_{rl}$

- Deterministic transition: If rural productivity is A_{rg}, then the economy transits to A_{rl} next period.
- Idea: mimic seasonal agricultural crop cycles

Production technology in urban area

$$Y_u = A_u N_u$$

Model: Household Location-Specific Productivity

Each household has permanent productivity types as in Roy (1951)

- z permanent productivity in urban area. $z \sim$ Pareto(θ).
- no permanent productivity differences in the rural area.

Each household experiences transitory shocks s that follows an AR(1) process

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

Household-specific efficiency units of labor in each location:

- s in the rural area.
- zs^{γ} in the urban area.
- If $\gamma > 1$, implies the shocks are more volatile in the urban area.

Model: Options

Households in the rural area can...

1. Work in the rural area.
2. Pay fixed cost m_T, work in the urban area the next period, return to rural. This is seasonal migration.
3. Pay fixed cost $m_p > m_T$, move to urban area next period, stay indefinitely. This is permanent migration.

Households in the urban area can...

1. Work in the urban area.
2. Pay fixed cost m_p, work in rural area for the indefinite future.

Model: Asset Choices

Households can accumulate a non-state contingent asset, a, with gross rate of return, R. Assets move with the household.

- Asset holdings can not be negative (no borrowing).
- R is exogenous (small open economy).

Who moves? When do they move?

All else equal, seasonal migration more likely:

- In the lean season,
- Among agents with higher z,
- When experienced.

Policy functions for migration take the form of thresholds in:

- The transitory shock, s
- Asset holdings, a

Model flexible; experimental data disciplines whether e.g. agents migrate when transitory shock and assets are sufficiently high or sufficiently low.

Calibration

Calibration Overview

Parameterize productivity distribution & shocks, pre-assign some values

Remaining parameters picked to minimize distance between model & data

1. Experimental moments: Perform the Bryan, Chowdhury, Mobarak (BCM) (2014) experiment in model.
2. Cross-sectional moments: e.g. urban-rural wage gap, rural share, variances of consumption and earnings.

Pre-Assigned Parameters

Pre-Assigned Parameters

Parameter	Value	Source
Time period	Half year	—
Risk aversion, α	2.0	—
Discount factor, β	0.95	—
Gross real interest rate, R	0.95	1/ gross inflation rate
Rural seasonal productivity, A_{rl}/A_{rg}	50% drop in rural inc.	
Seasonal moving costs, m_T	10% of rural consumption	Bryan et al. (2014)
Permanent moving costs, m_p	$2 \times m_T$	–
Decreasing returns in rural area, ϕ	0.91	Akram et al. (2017)

Parameters to Calibrate

Remaining parameters to calibrate...

- Productivity urban area: A_u
- Shape parameter, urban permanent productivity: θ
- Standard deviation of transitory shocks: σ_s
- Urban relative risk parameter: γ
- Persistence of transitory shocks: ρ
- Disutility of migration: $\bar{u}$
- Probability of gaining experience: $1 - \lambda$
- Probability of losing experience: $1 - \pi$

plus two sources of measurement error... to match 10 moments.

Calibration: The BCM (2014) Field Experiment

The BCM (2014) field experiment . . .

- 100 randomly selected villages in the Rangpur region of Bangladesh. Selected 19 households in each village.
- Villages randomly put into four groups: cash, credit, information, control.

Households in the cash group given 600 Taka ($8.50) conditional on migration. Given 200 Taka if they reported in at the destination.

- 600 Taka a bit more than a round trip bus ticket to main destinations.

Calibration: The BCM (2014) Field Experiment

The BCM (2014) field experiment ...

- 100 randomly selected villages in the Rangpur region of Bangladesh. Selected 19 households in each village.
- Villages randomly put into four groups: cash, credit, information, control.

Key results / our calibration targets:

- 22% increase in migration in treatment relative to control (58% vs 36%).
- 9% increase in migration in the subsequent year.
- Migrants increased consumption by 10%, OLS.
- *Induced* migrants increased their consumption by 30% relative to the average household. Also known as the "LATE".

Calibration: Performing the BCM (2014) Experiment in the Model

1. Solve for optimal policies of households when offered m_T, if they move.

- Offer is one-time, unanticipated, no general equilibrium effects.

2. Randomly sample rural households in the stationary distribution consistent with BCM (2014) sample selection...

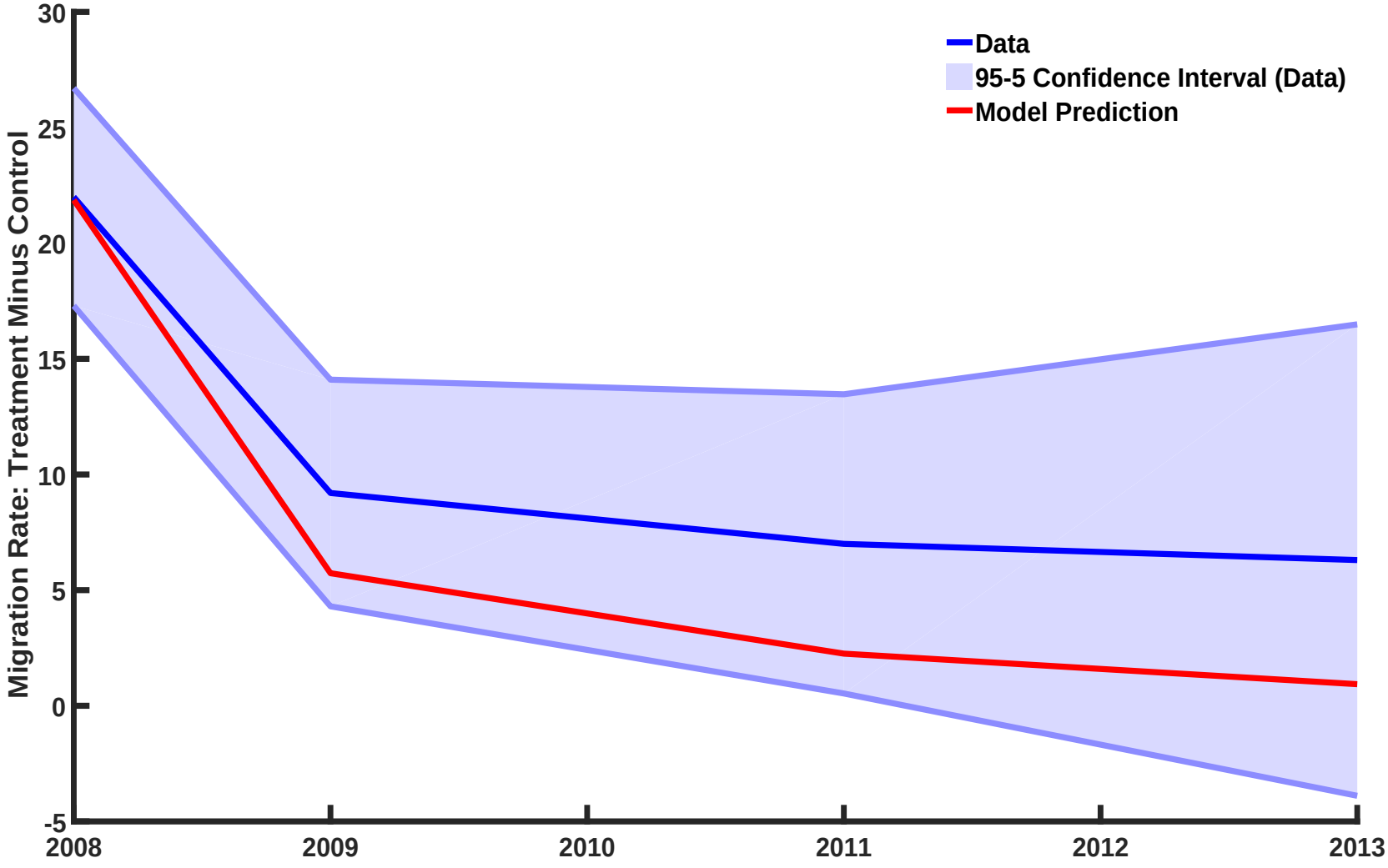
- Offer households m_T, and follow.
- Compare with the actions of the same households absent the offer.

3. Compute statistics in the model as done with the data.

Calibration Results: Model Fit

Moments	Data	Model
Control: Variance of log consumption growth in rural	0.18	0.18
Control: Percent of rural households with no liquid assets	47	47
Control: Seasonal migrants	36	36
Control: Consumption increase of migrants (OLS)	10	10
Treatment: Seasonal migration relative to control	22	22
Treatment: Seasonal migration relative to control in year 2	9	6
Treatment: Consumption of induced migrants relative to control (LATE)	30	30
Urban-Rural wage gap	1.80	1.80
Percent in rural	63	63
Variance of log wages in urban	0.68	0.68

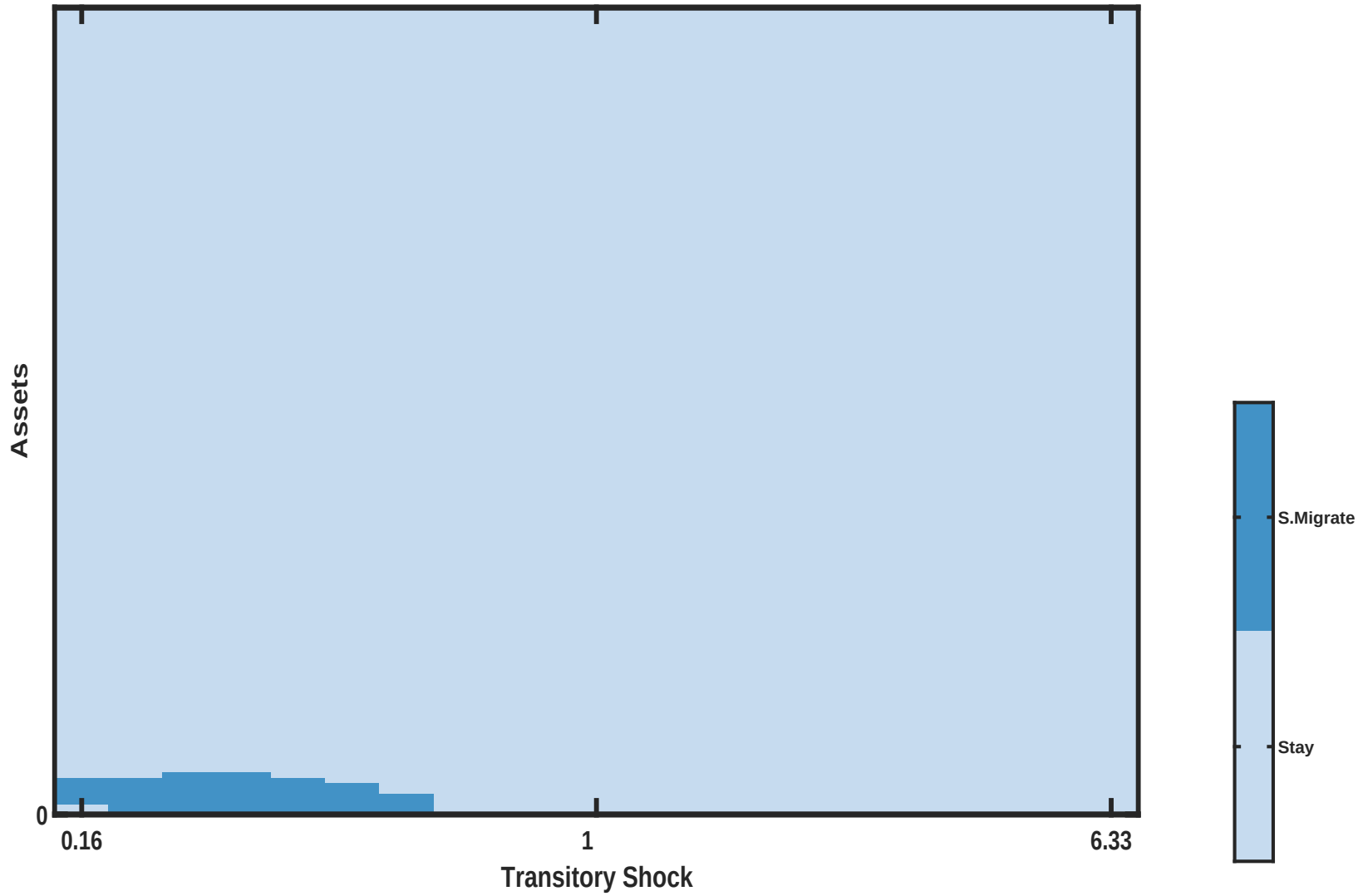
Migration Rates: Data and Model



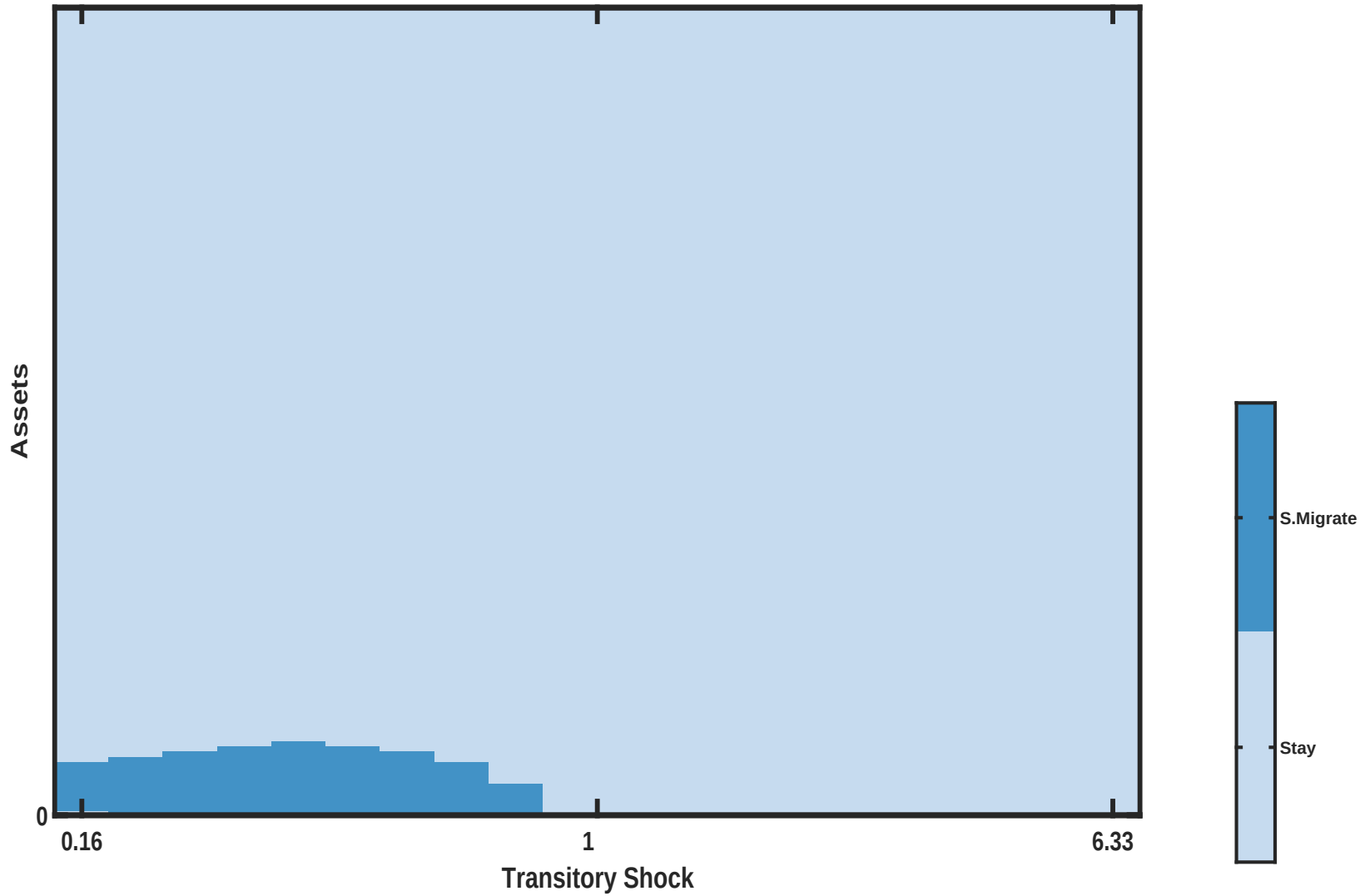
Calibration Results: Parameters

Parameter	Value
Migration disutility, $\bar{u}$	1.45
Probability gaining experience, $1 - \lambda$	0.38
Probability losing experience, $1 - \pi$	0.49
Shape parameter, urban talent, θ	2.08
Urban relative shock, γ	0.66
Productivity urban area A_u	1.45
Standard deviation of transitory shocks	0.36
Persistence of transitory shocks	0.71
Measurement error in rural consumption data	0.37
Measurement error in urban income data	0.31

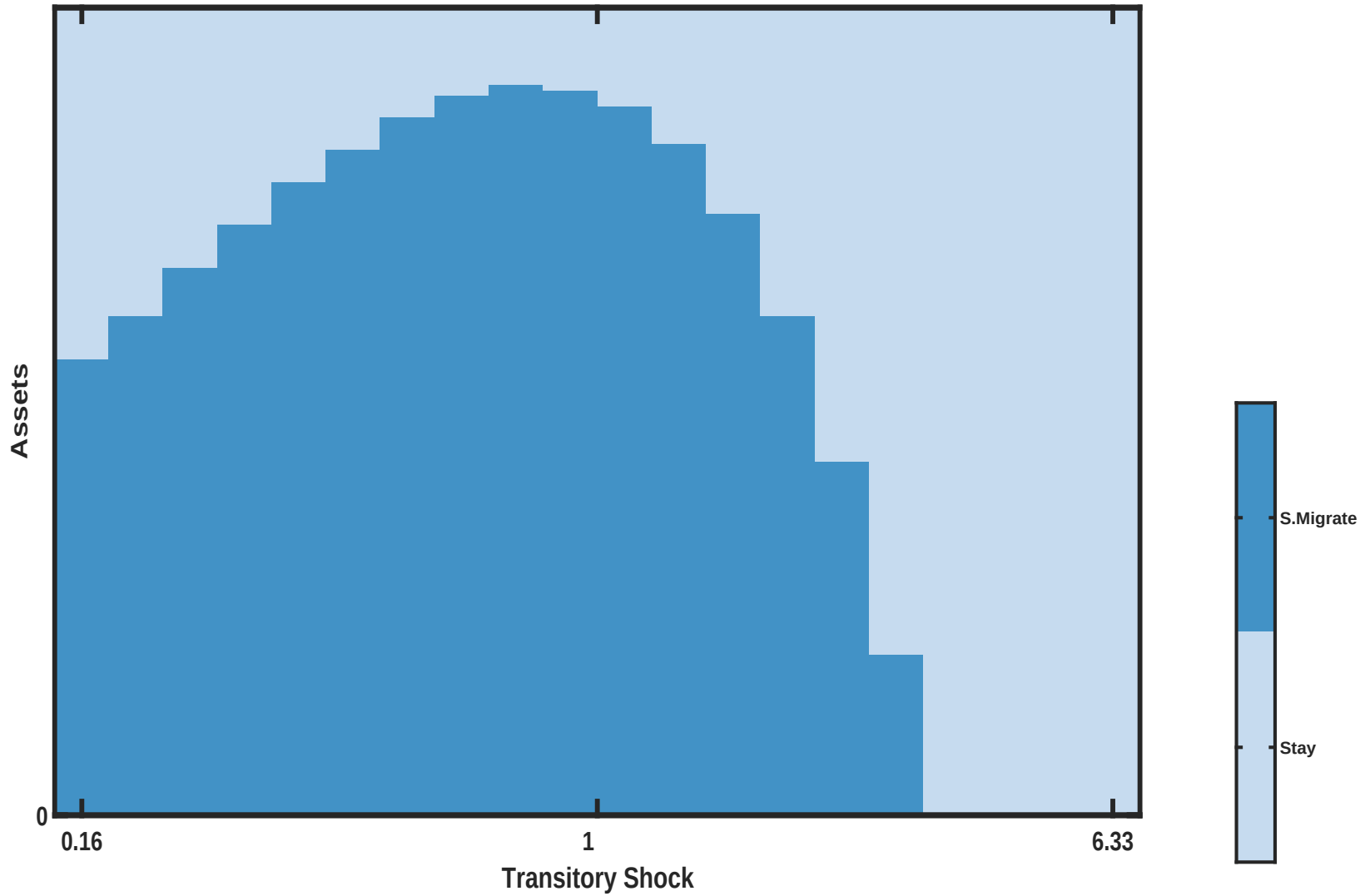
Migration Policy: Low z, Lean Season, No Experience



Migration Policy: **Moderate** z, Lean Season, No Experience



Migration Policy: **Moderate** z, Lean Season, **Experience**



Interpretation: A Credit Constraint Story?

A potential source of misallocation: People want to move, but can't.

1. The policy functions in previous slides suggested otherwise.

- Low income, low asset households are more likely to migrate.
- Consistent with negative selection in OLS vs. LATE estimates.

2. The migration response to an **unconditional** transfer suggests otherwise.

- BCM subsequent experiment of an unconditional cash transfer and find **no effect on migration.**
- Model: **No effect on migration.**

Interpretation: A Risk Story?

Another source of misallocation: Urban area is risky and insurance is incomplete, so people don't move. Similar in spirit to Harris and Todaro (1970)

1. Parameters suggest otherwise—urban area looks less risky.

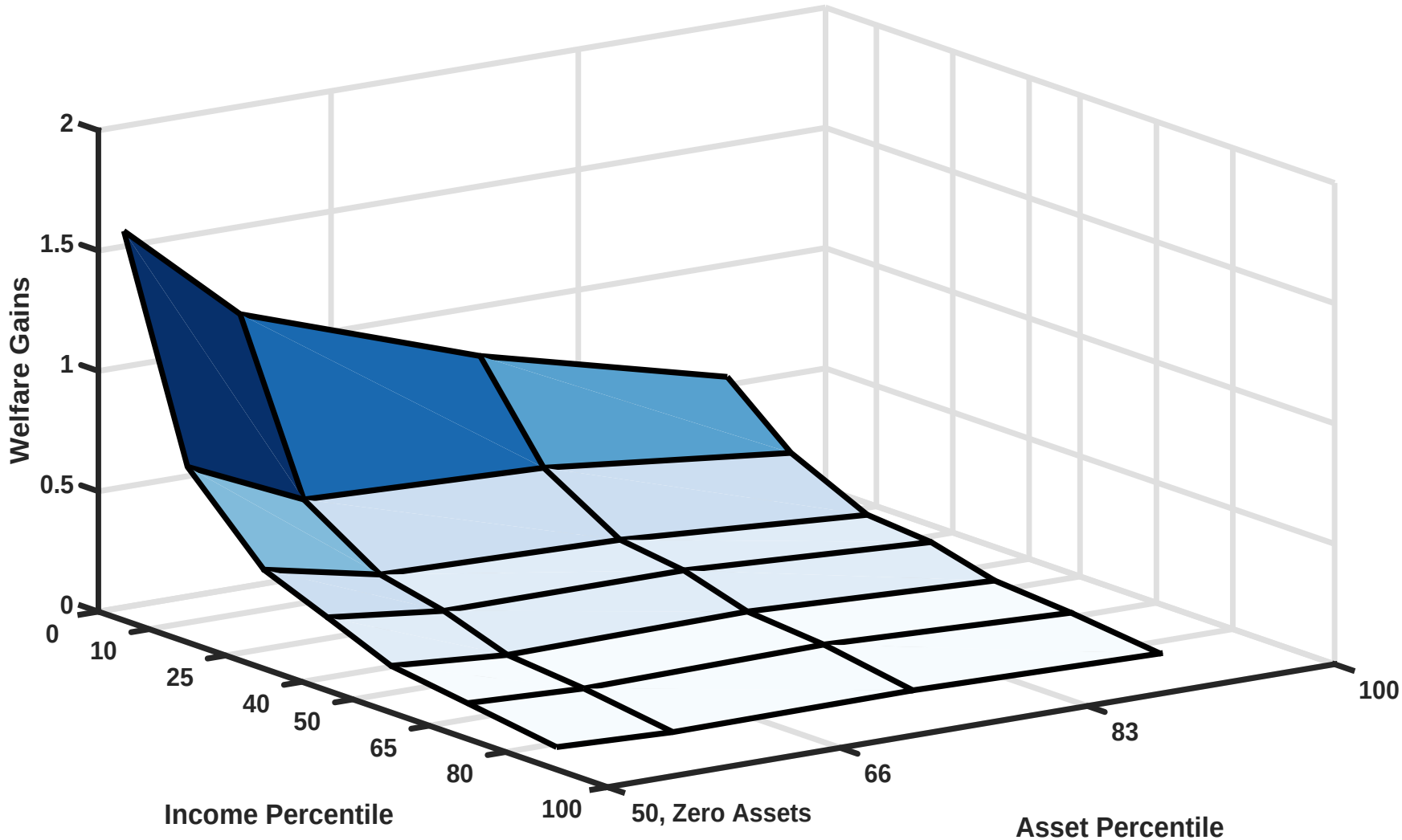
2. Again, the policy functions in previous slides suggested otherwise.

3. Suggests consumption of movers should be more variable than stayers.

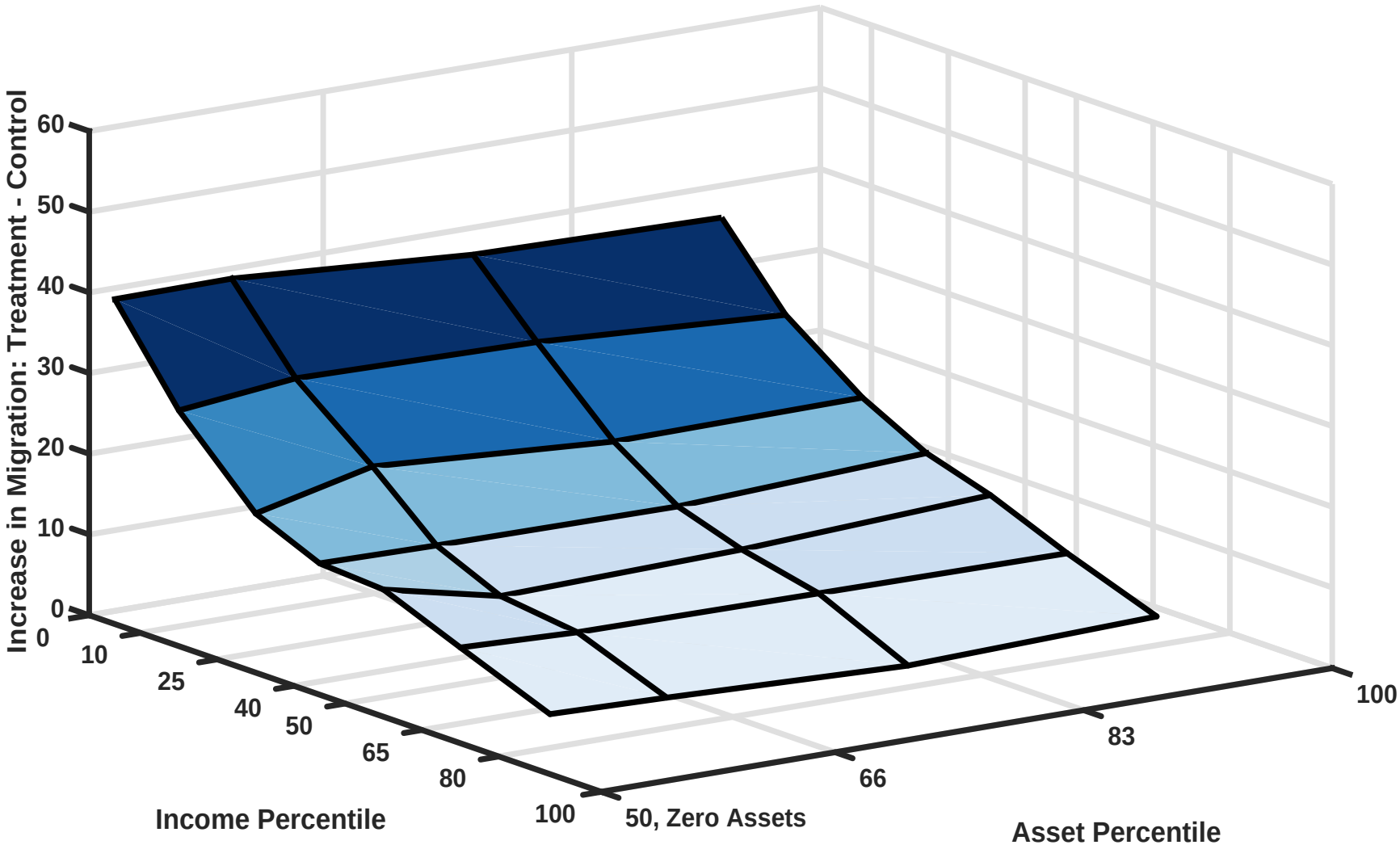
- **Not true in Data or Model.**

Welfare

Consumption-Equivalent Welfare Gains From Experiment



Why? The Poor Respond **More** to the Migration Incentive



Consumption-Equivalent Welfare Gains

		Conditional Migration Transfer			Unconditional Transfer	
		Welfare	Welfare | Migr.	Migr. Rate	Welfare	Migr. Rate
Income Quintile	1	1.01	1.17	85.8	0.88	46.0
	2	0.35	0.59	59.1	0.46	35.5
	3	0.21	0.43	48.8	0.34	32.8
	4	0.13	0.30	40.9	0.26	28.7
	5	0.07	0.20	35.8	0.18	28.5
Average		0.35	0.65	56.0	0.42	36.0

Migration Disutility Important for Welfare Results

		Welfare Gains: Surprise No $\bar{u}$ After Migration		
		Welfare	Welfare | Migr.	Welfare | Induced
Income Quintile	1	3.40	3.84	3.99
	2	1.69	2.61	3.05
	3	1.12	2.14	2.77
	4	0.89	1.83	2.52
	5	0.48	1.29	2.30
Average		1.51	2.60	3.21

Punchlines

1. Modest welfare gains; conditional migration transfers are more pro-poor than unconditional transfers or workfare schemes.

- OLS, LATE estimates of consumption response + model $\Rightarrow$
  Poor have the largest propensity to migrate.
- Thus, the conditionality on migration "targets" those in need.

2. Welfare gains modest relative to naive interpretation of BCM (2014) "headline" of 30% consumption increase.

- Key issue: Large migration disutility eats into gains from migration.

Evidence on the Source of Migration Disutility

Discrete Choice Migration Experiment

New surveys of same villages as BCM (2014);

- Conducted summer 2015
- Present two hypothetical migration options for 2015 lean season (fall 2015) to each respondent; pick Choice #1, Choice #2, or "No Migration."
- Options vary with respect to risk, amenities, and wages at destination.

Goal: Gauge importance of "migration disutility" relative to other migration determinants.

Discrete Choice Migration Experiment

S.1.C.2

Given the attributes below, which option do you choose?
Please evaluate each new pair of migration options independent of the ones you saw earlier.

	Choice #1: Migration	**Choice #2: Migration**	**Choice #3: No Migration**
Chance of Employment	33%	33%	N/A
Daily Wage (Taka)	270	340	Wage at Home in November
Latrine Facility during Migration	Pucca Latrine in Residence	Walk to Open Defecate or Public Pay Toilet	N/A
Family Contact	See Family Every Month	See Family Every 2 Month	N/A
s16bq2_1 Your Choice *(Tick Single Box)*	☐	☐	☐

Housing Matters

Estimate multinominal logit model of migration choice as a function of offered attributes from survey responses.

Holding destination #1 characteristics fixed, we find...

- Marginal effect of frequency of family visit is zero.
- Marginal effect of a latrine in destination residence is 18pp.

  Equivalent to 22 percent increase in expected base pay in destination.

Implications...

- Helps validate the migration disutility in the model.
- Suggests policy interventions—improve urban slum housing.

Conclusions

General-equilibrium model of migration. Unique contribution: Disciplined using experimental variation. Value added of our analysis...

Interpretation of experimental response.

- Not about missallocation of people b.c. of say credit constraints.
- About extreme poor, facing bad shocks, and moving to stabilize consumption, with large, non-monetary disutility to migration.
- Key pieces of evidence: negative selection in consumption response; survey evidence validates non-monetary attributes of migration.

Normative implications.

- Conditional migration transfers are effective at targeting the most vulnerable relative to rural workfare or cash transfers.
- Issues in urban areas prevent the realization of large gains from migration.

Appendix

A Rural Household's Problem

Problem of household in rural area with productivity z...

$$v(r, a, s, x, i) = \max \left\{ v(r, a, s, x, i| \text{ stay}),\ v(r, a, s, x, i| \text{ perm}),\ v(r, a, s, x, i| \text{ sm}) \right\}$$

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The value of staying, $v(r,a,s,x,i|\text{ stay})$, is...

$$\max_{a' \in \mathcal{A}} \left\{ u(Ra + w_r(s,i) - a') + \beta \mathbb{E}[v(r,a',s',x',i')] \right\}.$$

A Rural Household's Problem

Problem of household in rural area with productivity z...

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The value of permanently moving, $v(r, a, s, x, i| \text{ perm})$, is...

$$\max_{a' \in \mathcal{A}} \left\{ u(Ra + w_r(s, i) - a' - m_p) + \beta \mathbb{E}[v(u, a', s', x', i')] \right\}.$$

A Rural Household's Problem

Problem of household in rural area with productivity z...

$$v(r, a, s, x, i) = \max \left\{ v(r, a, s, x, i| \text{ stay}),\ v(r, a, s, x, i| \text{ perm}),\ v(r, a, s, x, i| \text{ sm}) \right\}$$

The value of seasonally moving, $v(r, a, s, x, i| \text{ sm})$, is...

$$\max_{a' \in \mathcal{A}} \left\{ u(Ra + w_r(s, i) - a' - m_T) + \beta \mathbb{E}[v(sm, a', s', x', i')] \right\}.$$

where the value $v(sm, a', s', x', i')$ is...

$$\max_{a'' \in \mathcal{A}} \left\{ u(Ra' + w_u(z, s') - a'')\bar{u}^{x'} + \beta \mathbb{E}[v(r, a'', s'', x'', i'')] \right\}$$

Calibration — Non-Experimental Targets

Targets from Bangladesh Household Income and Expenditures Survey, 2010.

- Urban-rural wage gap: 1.80
- Percent residing in rural: 63
- Variance of log wages in urban: 0.68

Targets from BCM (2014) control group

- Percent of households with no liquid assets: 47
- Variance of consumption growth: 0.12
- Consumption increase of migrants (OLS): 0.10

Calibration Results — Identification

Elasticities of Targeted Moments to Parameters

	θ	$\bar{u}$	λ	π	γ	σ_s	ρ
Migration, Control	3.2	-7.8	-0.5	1.1	-1.2	-0.5	0.9
Migration, Treatment - Control	1.6	-1.2	0.3	-0.0	-0.3	1.2	-1.5
Migration, Treatment - Control, year two	2.5	-1.1	-1.0	1.0	0.6	1.3	-1.3
Consumption, OLS	-2.9	2.4	-0.6	1.0	3.3	-0.6	0.7
Consumption, LATE	0.2	1.4	0.0	-0.0	-0.1	-0.2	0.8
Urban-Rural wage gap	-1.3	-0.1	0.1	0.0	0.3	-0.4	0.2
Percent in rural	-0.7	-0.8	-0.0	0.2	0.2	-0.4	0.4
Fraction of households with no assets	0.1	-0.2	0.1	-0.1	-0.2	-2.7	5.3

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Fraction of households with no assets	0.1	-0.2	0.1	-0.1	-0.2	-2.7	5.3

Migration rates help discipline productivity distribution

A larger θ means less talent dispersion, more "marginal" households, more migration. Thus, migration reveals how many are on the margin or not.

Calibration Results — Identification

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Fraction of households with no assets	0.1	-0.2	0.1	-0.1	-0.2	-2.7	5.3

Returns to Migration inform $\bar{u}$.

Calibration Results — Identification

Elasticities of Targeted Moments to Parameters

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Migration, Control	3.2	-7.8	-0.5	1.1	-1.2	-0.5	0.9
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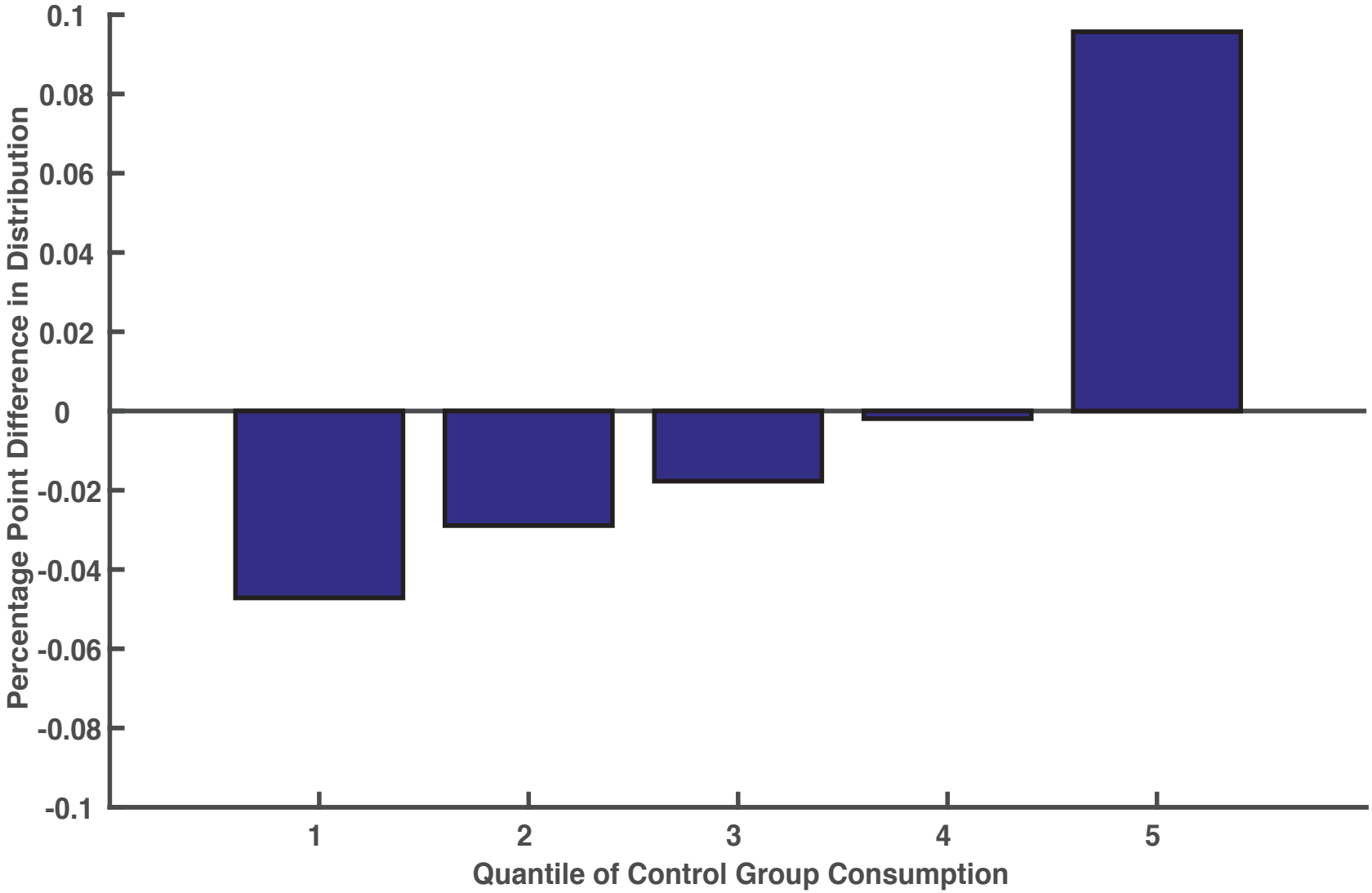
Percent in rural	-0.7	-0.8	-0.0	0.2	0.2	-0.4	0.4
Fraction of households with no assets	0.1	-0.2	0.1	-0.1	-0.2	-2.7	5.3

Migration in year 2 informs dynamics of $\bar{u}$.

Some induced migrants keep migrating.

Non-Targeted Moments — Δ in Distribution of Consumption, **Data**



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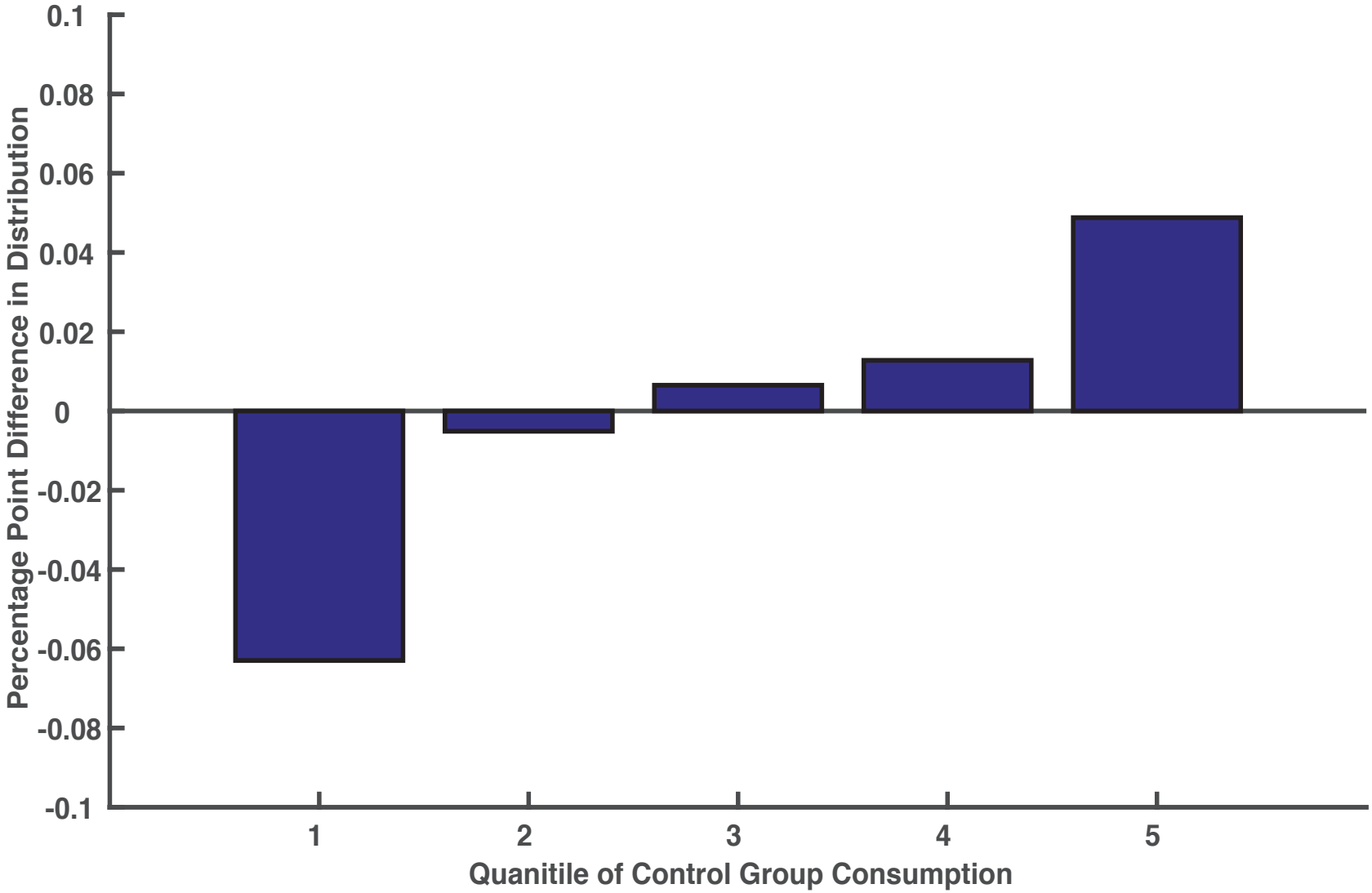
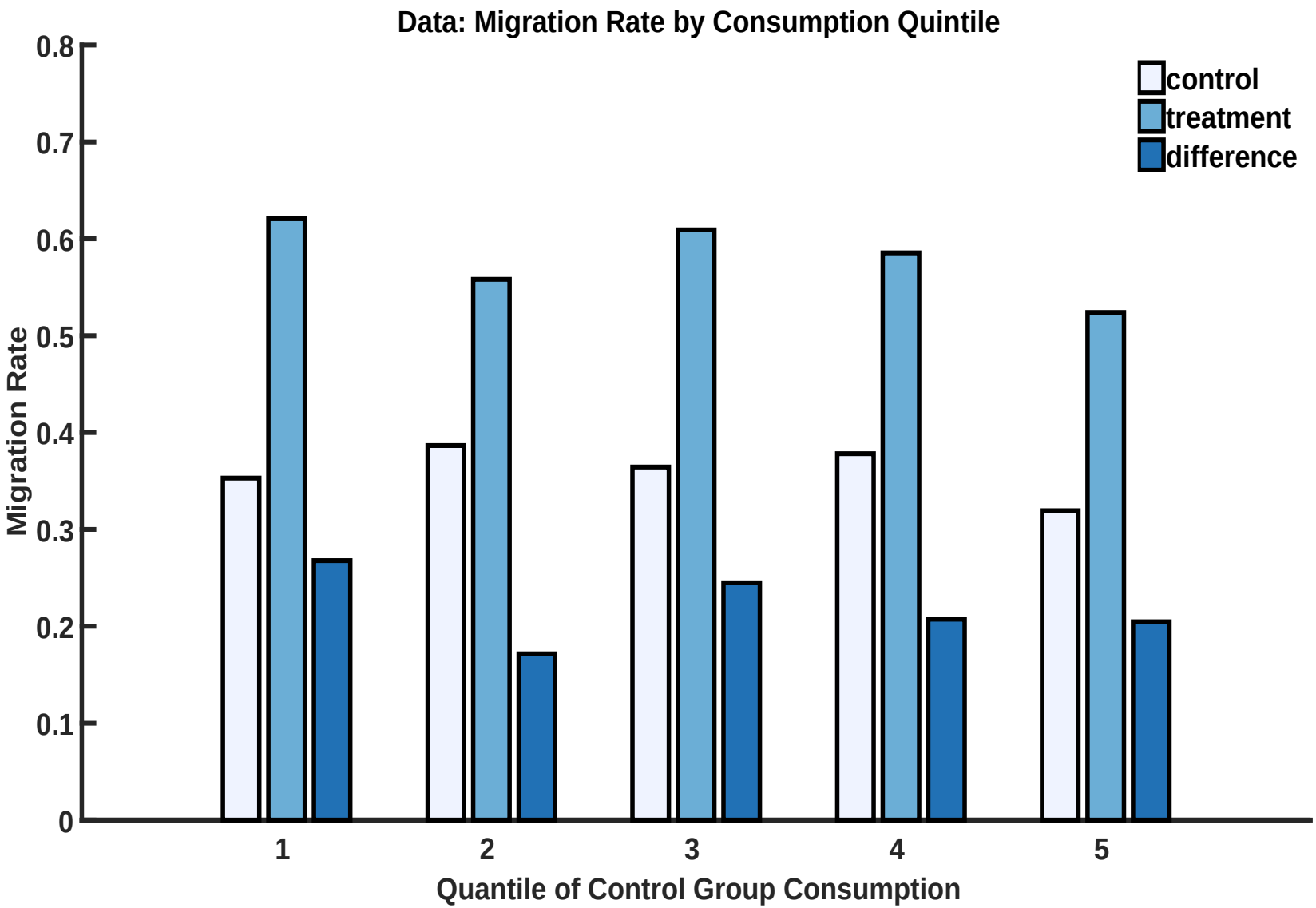
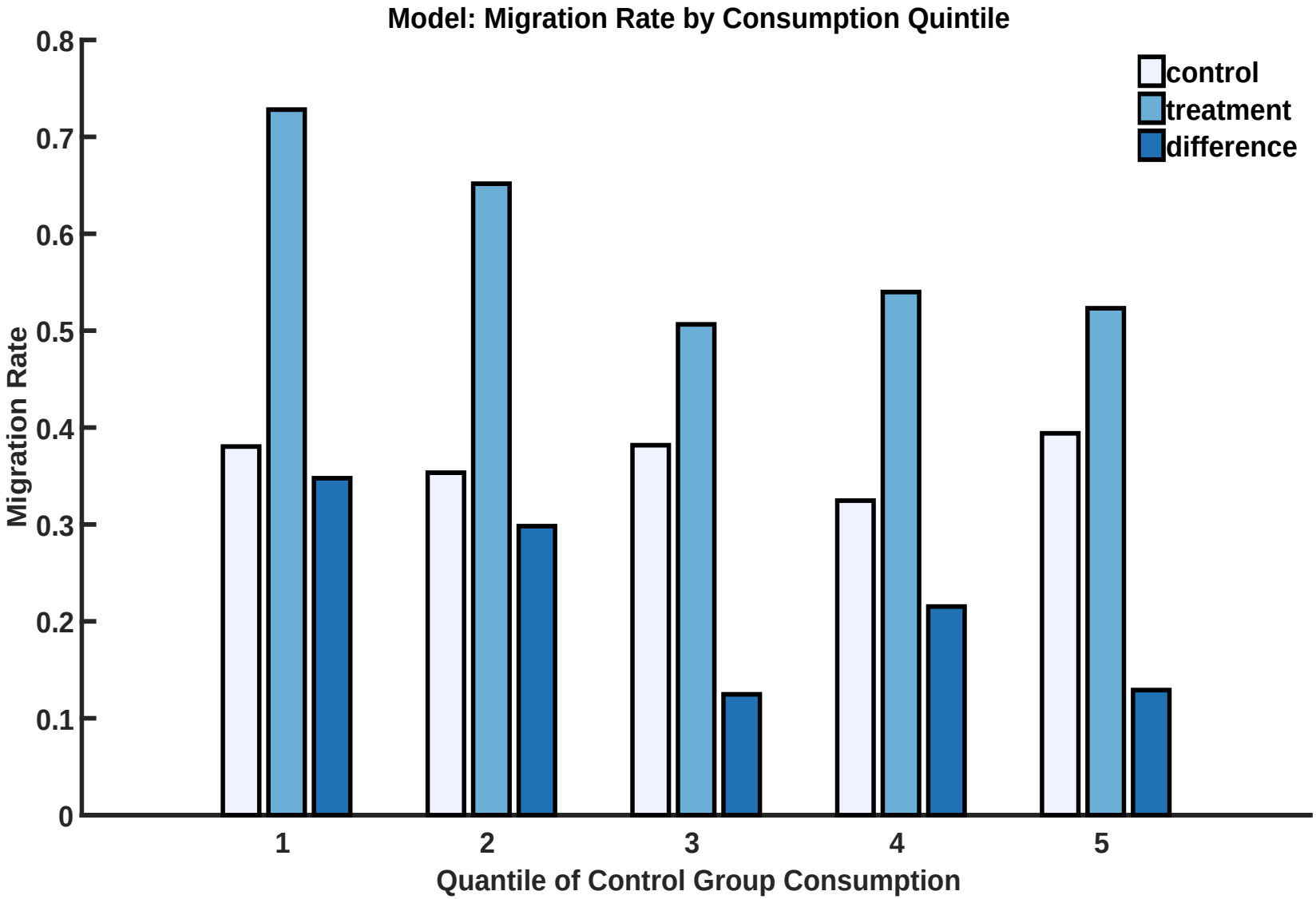


Non-Targeted Moments — Migration Rate by Consumption Quintile, **Data**



Non-Targeted Moments — Migration Rate by Consumption Quintile, **Model**



Migration Transfers vs. Rural Workfare

		Migration Transfers		Rural Workfare	
		Welfare	Migr. Rate	Welfare	Migr. Rate
Income Quintile	1	1.01	85.8	0.59	29.2
	2	0.35	59.1	0.35	24.3
	3	0.21	48.8	0.26	24.3
	4	0.13	40.9	0.20	26.2
	5	0.07	35.8	0.15	23.2
Average		0.35	56.0	0.31	25.5

Lack of High z Rural Workers Important for Welfare Results

Counterfactual: send representative set of urban households to rural area

- These have the relatively highest z draws in equilibrium
- Also give them average assets of rural households
- Re-simulate the experiment

Welfare gains for this high-z group: **3.3% consumption equivalent**

But model gets facts wrong:

- OLS $>$ LATE, not $<$ as in the data.
- Big response to unconditional transfer (rather than none).

Discrete Choice Migration Experiment

S.1.C.2			
Given the attributes below, which option do you choose? Please evaluate each new pair of migration options independent of the ones you saw earlier.			
	Choice #1: Migration	**Choice #2: Migration**	**Choice #3: No Migration**
Chance of Employment	33%	33%	N/A
Daily Wage (Taka)	270	340	Wage at Home in November
Latrine Facility during Migration	Pucca Latrine in Residence	Walk to Open Defecate or Public Pay Toilet	N/A
Family Contact	See Family Every Month	See Family Every 2 Month	N/A
s16bq2_1 Your Choice *(Tick Single Box)*	☐	☐	☐

Estimated Marginal Effects on Migration

	Migration Opportunity 1		Migration Opportunity 2		At Home	
	PP	ME	PP	ME	PP	ME
33 Percent Chance of Employment	0.116***	0.000	0.597***	0.000	0.286***	0.000
	(0.018)	(.)	(0.053)	(.)	(0.055)	(.)
66 Percent Chance of Employment	0.067***	–0.049***	0.732***	0.135***	0.200***	–0.086***
	(0.012)	(0.010)	(0.046)	(0.030)	(0.045)	(0.029)
100 Percent Chance of Employment	0.048***	–0.068***	0.791***	0.193***	0.161***	–0.125***
	(0.009)	(0.012)	(0.040)	(0.033)	(0.038)	(0.033)
Family visit once in 60 days	0.071***	0.000	0.760***	0.000	0.169***	0.000
	(0.014)	(.)	(0.041)	(.)	(0.040)	(.)
Family visit twice in 60 days	0.067***	–0.004	0.732***	–0.027	0.200***	0.032
	(0.012)	(0.008)	(0.046)	(0.024)	(0.045)	(0.023)
Family visit 4 times in 60 days	0.058***	–0.013*	0.763***	0.003	0.179***	0.010
	(0.012)	(0.007)	(0.049)	(0.028)	(0.046)	(0.028)
Walk to Open Defecate or Public Pay Toilet	0.067***	0.000	0.732***	0.000	0.200***	0.000
	(0.012)	(.)	(0.046)	(.)	(0.045)	(.)
Pucca Latrine in Residence	0.029***	–0.038***	0.906***	0.174***	0.065***	–0.136***
	(0.006)	(0.008)	(0.021)	(0.032)	(0.019)	(0.032)
Raw Daily Wage(Taka) - Migration Opportunity 2		–0.001***		0.004***		–0.002***
		(0.000)		(0.000)		(0.000)
Observations	3449	3449	3449	3449	3449	3449

Standard errors in parentheses. * $p < .10$, ** $p < .05$, *** $p < .01$.

Standard errors are adjusted for 2,566 clusters in hhid. PP columns represent predicted probabilities of migrating at given condition, and ME columns represent marginal effects of chaning migration conditions in each category. PP and ME are measured while fixing 1st migration conditions (wage, employment chance, family visit, latrine) at the worst, and fixing 2nd migration condition at median. Analysis sample includes only those households in the control group.

Estimated Marginal Effects on Migration: Living Standards Matter

	Migration Opportunity 1		Migration Opportunity 2		At Home	
	PP	ME	PP	ME	PP	ME
33 Percent Chance of Employment	0.116***	0.000	0.597***	0.000	0.286***	0.000
	(0.018)	(.)	(0.053)	(.)	(0.055)	(.)
66 Percent Chance of Employment	0.067***	–0.049***	0.732***	0.135***	0.200***	–0.086***
	(0.012)	(0.010)	(0.046)	(0.030)	(0.045)	(0.029)
100 Percent Chance of Employment	0.048***	–0.068***	0.791***	0.193***	0.161***	–0.125***
	(0.009)	(0.012)	(0.040)	(0.033)	(0.038)	(0.033)
Family visit once in 60 days	0.071***	0.000	0.760***	0.000	0.169***	0.000
	(0.014)	(.)	(0.041)	(.)	(0.040)	(.)
Family visit twice in 60 days	0.067***	–0.004	0.732***	–0.027	0.200***	0.032
	(0.012)	(0.008)	(0.046)	(0.024)	(0.045)	(0.023)
Family visit 4 times in 60 days	0.058***	–0.013*	0.763***	0.003	0.179***	0.010
	(0.012)	(0.007)	(0.049)	(0.028)	(0.046)	(0.028)
Walk to Open Defecate or Public Pay Toilet	0.067***	0.000	0.732***	0.000	0.200***	0.000
	(0.012)	(.)	(0.046)	(.)	(0.045)	(.)
Pucca Latrine in Residence	0.029***	–0.038***	0.906***	0.174***	0.065***	–0.136***
	(0.006)	(0.008)	(0.021)	(0.032)	(0.019)	(0.032)
Raw Daily Wage(Taka) - Migration Opportunity 2		–0.001***		0.004***		–0.002***
		(0.000)		(0.000)		(0.000)
Observations	3449	3449	3449	3449	3449	3449

Standard errors in parentheses. * $p < .10$, ** $p < .05$, *** $p < .01$.

Standard errors are adjusted for 2,566 clusters in hhid. PP columns represent predicted probabilities of migrating at given condition, and ME columns represent marginal effects of chaning migration conditions in each category. PP and ME are measured while fixing 1st migration conditions (wage, employment chance, family visit, latrine) at the worst, and fixing 2nd migration condition at median. Analysis sample includes only those households in the control group.

Consumption and Migration Rates of Return

Consumption Data:

340 items measured through recall. Expenditures expressed in Takas per person, per month. One month of measurement, December 2008.

Baseline LATE estimates: (340 Taka) \$5 per person, or \$20 per household, due to induced migration. Average consumption is about \$17 per person.

A simple rate of return calculation...

- \$5 per person $\times$ 4 household members $\times$ 2 month spell = \$40.
- Costs: Typically 2 round trips \$ 8.5 $\times$ 2 = \$17.

The Role of Information

BCM did an information experiment too

- Treatment group instruction on types of jobs in urban areas
- Also information on average wages, and where/how to find these jobs
- Result: precise zero effect on migration

We did follow-up surveys on same villagers on wage expectations, 2014

- Ratio of perceived Dhaka wages to rural Rangpur wages $= 2.4$
- Averages from Household Income and Expenditure Survey $= 2.2$
- Consistent with model's assumption of rational expectations