Migration Module
Class 1: Internal migration

Melanie Morten (Stanford)
Featured speaker: Travis Baseler (Rochester)

April 7, 2022

Two scenes from Indonesia

(a) Jakarta

(b) Rural Java

Two questions for today's class

1. Would people be better off if they migrated (e.g., from rural Java to Jakarta)?
2. If it's a good idea to move, why aren't more people migrating?

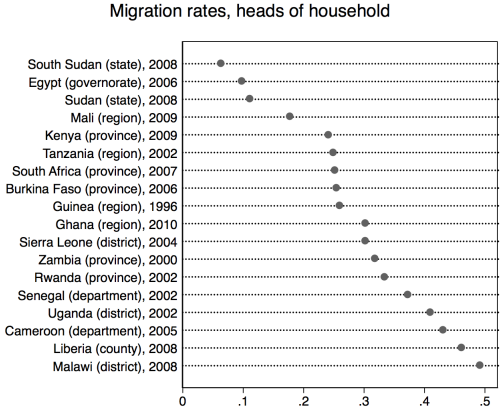
Why internal migration?

- Internal migration important: globally, 1 in 8 people are internal migrants (UNDP, 2009)
- Four times as many as international migrants
- Despite migration, still have large wage gaps
  - One measure: productivity gap between rural and urban, *within* same country is between 2.2-2.6 times higher, even after making adjustments for education, hours of work, etc. (Gollin et al., 2014)
- Obvious policy implication: migration as a poverty-alleviation strategy?

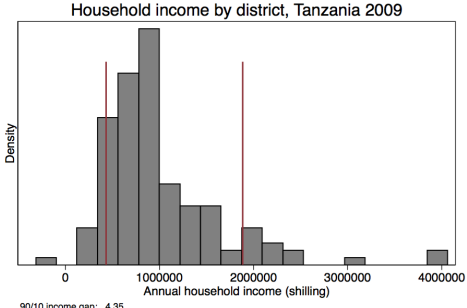
Outline

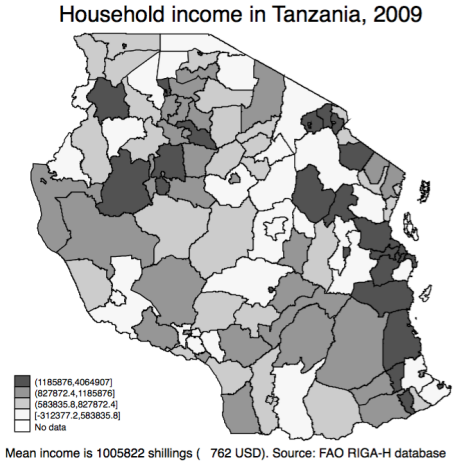
High rates of internal migration: IPUMS SSA

- Migration = living outside region of birth



Income distribution across space (Tanzania)





Distribution of wages in the US

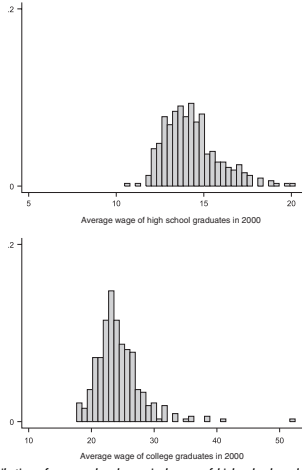


Figure 2 ***Distribution of average hourly nominal wage of high school graduates and college graduates, by metropolitan area.*** Notes: This figure reports the distribution of average hourly nominal wage of high school graduates and for college graduates across metropolitan areas in the 2000 Census of Population. There are 288 metropolitan areas. The sample includes all full-time US born workers between the age of 25 and 60 who worked at least 48 weeks in the previous year.

(Moretti, 2011)

Substantial within-sector migration

- Here: birth migration (source: SUSENAS)
- Indonesia annualized rural-urban migration rate from IFLS: 1.1% (Lagakos, 2020)

Table 1: Migration rates by origin, Indonesia

	Rural	Urban	All
1995			
Migration rate	32.3	35.8	33.7
Moves within category	31.1	74.6	49.4
2011			
Migration rate	38.7	33.7	35.7
Moves within category	24.4	84.2	58.7
2012			
Migration rate	38.9	34.1	35.8
Moves within category	25.4	83.8	60.7

Bryan and Morten (2019)

Outline

A simple partial equilibrium model of migration

Migrate from origin (o) to destination (d) if:

$$\text{wage}_d - \text{cost of living}_d + \text{amenities}_d - \text{migration cost}_{od} \geq \text{wage}_o - \text{cost of living}_o + \text{amenities}_o$$

Migration depends on:

- Wages
- Costs of living
- Amenities
- Migration costs

(Modified from Rosen-Roback model (Rosen, 1979; Roback, 1982))

Outline

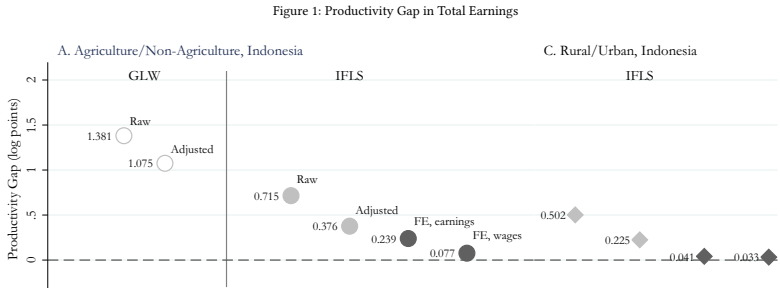
Wages

- We already saw evidence of wage dispersion
- But average wages not what we need
  - We want the return to migration for the individual migrating to be positive
  - Obvious selection problems: perhaps wages higher in city because urban people are more educated
- Range of estimates of wage premium of migrating
  - Average / residualized wages
  - Event studies of migration (individual FE)
  - RCT

Cross-sectional, observational, experimental gains to migrating

- Cross-sectional: combines any wage differences + avg selection effects
- Observational: combines wage differences for those who choose to migrate
  - People migrate based on returns and costs
  - High return migrants may also have high costs – not observed
  - Fixed effects also only control for permanent, not temporary, shocks
- Experimental
  - e.g., In RCT subsidizing Bangaldeshi migrants: observational return: 9%. Experimental return: 36% (Bryan et al., 2014; Lagakos, 2020)

With individual FE: no increase in earnings after migrate to urban in Indonesia



(Hicks et al., 2021)

Same individual FE exercise – consumption in urban vs. rural

Table 3: Observational Returns to Migration in Six Developing Countries

	(1)	(2)	(3)	(4)
China	0.545***	0.161***	0.012	0.226***
	(0.005)	(0.028)	(0.064)	(0.031)
Ghana	0.410***	0.148	-0.173	0.339**
	(0.013)	(0.122)	(0.220)	(0.148)
Indonesia	0.625***	0.145***	0.039	0.167***
	(0.009)	(0.019)	(0.031)	(0.029)
Malawi	0.520***	0.048	-0.350***	0.189
	(0.012)	(0.089)	(0.123)	(0.134)
South Africa	0.737***	0.212***	0.028	0.291***
	(0.006)	(0.022)	(0.044)	(0.026)
Tanzania	0.666***	0.112***	0.101**	0.213***
	(0.032)	(0.030)	(0.045)	(0.043)
Individual FE	No	Yes	Yes	Yes
Year FE	No	Yes	Yes	Yes
Sample	Full	Full	Start Urban	Start Rural

(Lagakos, 2020)

Outline

Cost of living

- Migrating often means higher costs
  - Housing, food, transportation
- Important: real wage, not nominal wage, matters
- Wage gaps usually survive cost-of-living adjustment
- One specific cost of living (could also think of as a migration cost)
  - Cultural costs of migration: Indian migrants from places which eat a lot of rice pay a "caloric tax" to continue to eat expensive rice when move to wheat-heavy areas (Atkin, 2016)

Urban-rural wage gaps large even after costs of living adjustment

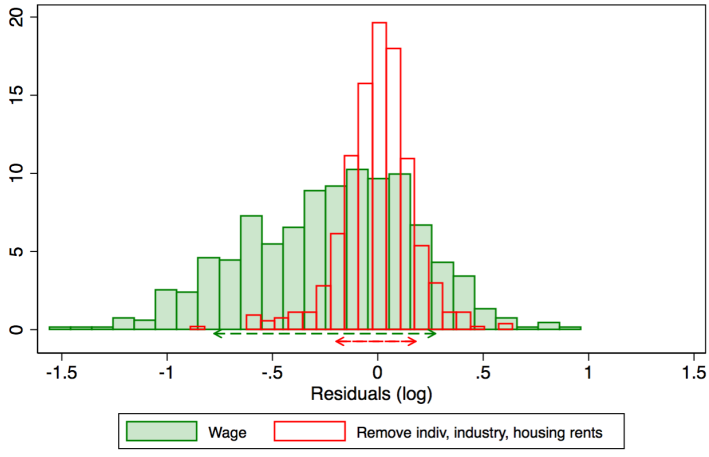
Table 1: Rural-Urban Wage Gaps in India in 2004

	wage		
Sector:	nominal	PPP-adjusted (rural consumption)	PPP-adjusted (urban consumption)
	(1)	(2)	(3)
Urban	62.66	54.05	57.58
Rural	42.54	42.54	42.54
% gain	47.30	27.06	35.35

Source: National Sample Survey.
Wages are measured as daily wages for individuals with less than primary education.
PPP-adjustment is based on rural and urban consumption bundles, respectively, for those individuals.

Table from (Munshi and Rosenzweig, 2015)

Still substantial gaps after taking out living costs: Brazil



(Same data as (Morten and Oliveira, 2018))

Outline

Amenities: compensating differential for lower wages?

- Cities may have negative amenities
  - Ed Glaeser's "demons of density": pollution, congestion, crime (Bryan et al., 2019)
- Evidence that e.g., pollution directly affects migration and labor supply decisions
  - Mexico: improved air quality increased hours of work (Hanna and Oliva, 2015)
  - China: skilled people more responsive to pollution than unskilled (Chen et al., 2022; Khanna et al., 2021)
- Gollin et al. (2017) find that most amenities in SSA are positively, not negatively, correlated with density
  - Suggests amenities may not help explain the positive wage premium in cities
- Some of the amenities may be local network effects
  - e.g., friends and family at home or in the destination
  - Kaivan will cover networks and migration in Lecture 3 (21 April)

Higher urban quality of life (broad amenities)

Table 1

Real Urban and Rural Living Standards in India and Nigeria

	Urban	*Rural*
Percent with finished floors		
India:	70.4	40.3
Nigeria:	88.1	60.8
Percent with toilet facility		
India:	89.5	45.9
Nigeria:	84.6	67.5
Percent with electricity		
India:	97.5	83.2
Nigeria:	82.7	38.9
Percent owning a television		
India:	87.0	53.5
Nigeria:	70.7	30.0
Under-five mortality (per 1,000 births)		
India:	36	59
Nigeria:	86	155
Percent with BMI below 18.5		
India:	15.5	26.8
Nigeria:	9.6	14.4

Note: Compiled from the Demographic and Health Surveys, funded by the US Association for International Development and publicly available at https://dhsprogram.com/. The statistics are calculated in the most recent year available, which is most commonly 2018.

Table from (Lagakos, 2020). Also see (Gollin et al., 2017)

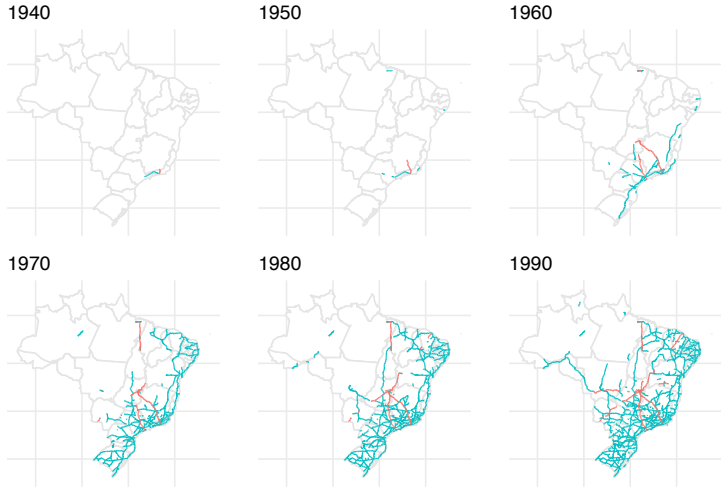
Outline

Migration costs

- It may be costly to migrate
  - Financial: pay for bus ticket, upfront costs for accommodation, food etc.
  - Utility (psychic): miss being away from family and friends, familiar culture
- Some specific examples
  - Road building in Brazil: (Morten and Oliveira, 2018)
  - Physical barriers on the US-Mex border: (Allen et al., 2019)
  - China: Hukou migration restrictions - have access to public goods (e.g., health, education) only if live where registered. Moving to urban area without registration means can't access public goods (Tombe and Zhu, 2019)
- Psychic (utility) costs of migration are also estimated to be large
  - Essentially, residual costs that we can't otherwise explain – see choice experiments in (Lagakos et al., 2018)

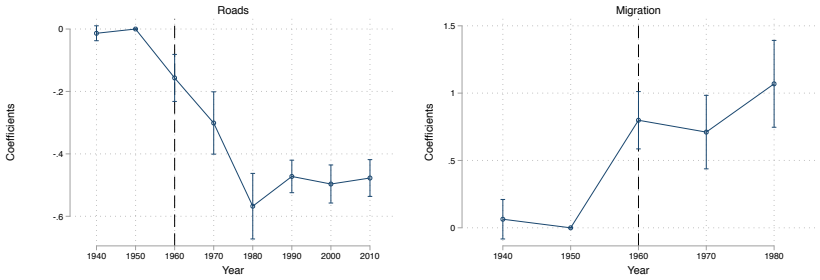
Building new roads in Brazil ...

- Roads constructed to connect Brasilia with rest of country



(Morten and Oliveira, 2018)

... reduced migration costs, increasing migration



(Morten and Oliveira, 2018)

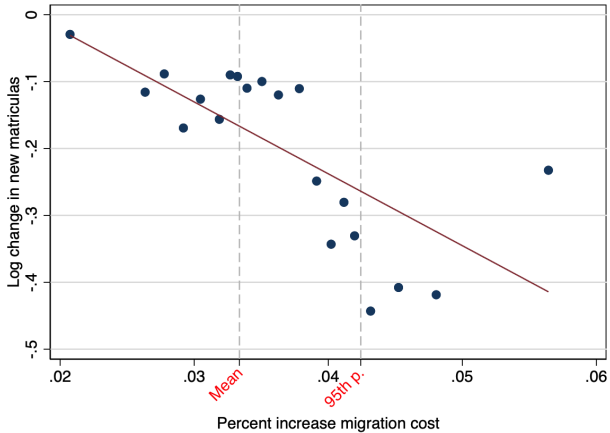
Building walls on the US/Mx border...

- Secure Fence Act (2006)
- 550 miles of fence built along US-Mx border

One hour drive from San Diego

.. also reduced relative migration

... but primarily displaced, not reduced, overall migration



(Allen et al., 2019)

Outline

Several extensions to the baseline model I

- New economics of labor migration: (Stark and Bloom, 1985)
  - Not just individual person migrating: part of a family unit
  - e.g., India: poorer households engage in longer-distance marriages, perhaps to increase spatial diversification of family for insurance purposes (Rosenzweig and Stark, 1989)
  - Dean will cover remittances in Lecture 2 (April 14)

- Networks and informal insurance
  - People have insurance in villages, so while average income is low, variability (of consumption) may also be low
  - Permanent migration: (Banerjee and Newman, 1998; Munshi and Rosenzweig, 2016)
  - Temporary migration: (Morten, 2019; Meghir et al., 2020)
  - Kaivan will cover networks in Lecture 3 (April 21)

- Risk/uncertainty
  - Not just average income, but risk associated with it (Harris and Todaro, 1970)

Several extensions to the baseline model II

- Mushfiq will cover risk in lecture 4 (29 April)

- Imperfect property rights: if you may lose your land if you don't farm it, then you have to stick around to keep it. Harder to migrate even seasonally.
  - (Janvry et al., 2015): Study looks at impact of Mexican land certification program from 1993 to 2006; finds that households obtaining land certificates were subsequently 28% more likely to have a migrant member.

What would be the aggregate impacts of reducing migration frictions?

- As migrants leave their origins, do wages adjust?
- As migrants move to their destination, do wages adjust?
- What are the aggregate impacts of reducing migration frictions?
- Rich literature that uses models that help separate out migrant selection, general equilibrium effects, and undertake counterfactuals.
- One example: Bryan and Morten (2019) who find that reducing migration costs in Indonesia to US-levels would lead to approx. 7% GDP increase

Counterfactual aggregate gains in Bryan and Morten (2019)

Table 5: Output gain from reducing migration barriers

	(1) Mig costs	(2) Amenities	(3) Mig costs, amenities
Baseline	1.075	1.127	1.217
No selection	0.914	1.127	1.133

Outline

Class 1: Internal migration

Featured speaker: Travis Baseler (Rochester)

Class 2: International migration

Dean Yang (Michigan)

Featured speaker: Gaurav Khanna (UCSD)

Class 3: Networks

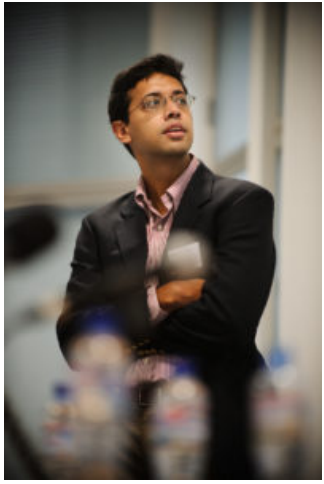
Kaivan Munshi (Yale)

Featured speakers:
Joshua Blumenstock (UC Berkeley)

María Esther Caballero (World Bank)

Class 4: Risk

Mushfiq Mobarak (Yale)



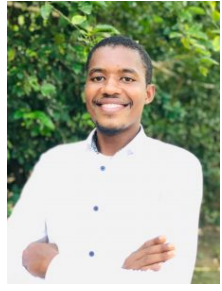
Featured speakers:
Marieke Kleemans (UIUC)

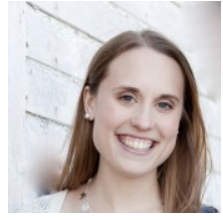
Maheshwor Shrestha (World Bank)

Class 5: Policy

David McKenzie (World Bank)

Featured speakers:
Tijan Bah (Navarra) and Caroline Theoharides (Amherst)





Outline

Concluding thoughts

- Large wage gaps, even within countries
- Experimentally, see large returns to migration
- Open set of questions about what stops people doing this themselves
  - Complementary frictions in e.g., credit market?
  - Non-utility costs
  - Infrastructure costs
  - Network costs
  - Land market costs
  - Information failures
- Further set of questions: theoretical models, need to account for selection
- Will see more evidence on all these issues over next five weeks

Featured speaker: Information frictions

Featured speaker: Travis Baseler (Rochester)

References I

Allen, T., Dobbin, C., and Morten, M. (2019). Border Walls.

Atkin, D. (2016). The Caloric Costs of Culture: Evidence from Indian Migrants. *American Economic Review*, 106(4):1144–81.

Banerjee, A. and Newman, A. (1998). Information, the Dual Economy, and Development. *Review of Economic Studies*, 65(4):631–653.

Bryan, G., Chowdhury, S., and Mobarak, A. M. (2014). Under-investment in a Profitable Technology : The Case of Seasonal Migration in Bangladesh. *Econometrica*, 82(5):1671–1748.

Bryan, G., Glaeser, E., and Tsivanidis, N. (2019). Cities in the Developing World.

Bryan, G. and Morten, M. (2019). The Aggregate Productivity Effects of Internal Migration: Evidence from Indonesia. *Journal of Political Economy*, 127(5):2229–2268.

Chen, S., Oliva, P., and Zhang, P. (2022). The effect of air pollution on migration: Evidence from China. *Journal of Development Economics*, 156.

Gollin, D., Kirchberger, M., and Lagakos, D. (2017). In Search of A Spatial Equilibrium in the Developing World. *NBER Working Paper Series*.

Gollin, D., Lagakos, D., and Waugh, M. (2014). The Agricultural Productivity Gap in Developing Countries. *The Quarterly Journal of Economics*, 129(2):939–993.

Hanna, R. and Oliva, P. (2015). The Effect of Pollution on Labor Supply: Evidence from a Natural Experiment in Mexico City. *Journal of Public Economics*, 122:68–79.

References II

Harris, J. and Todaro, M. (1970). Migration, Unemployment and Development: A Two-Sector Analysis. *The American Economic Review*, 60(1):126–142.

Hicks, J. H., Kleemans, M., Li, N., and Miguel, E. (2021). Reevaluating Agricultural Productivity Gaps with Longitudinal Microdata. *Journal of the European Economic Association*, 19(3):1522–1555.

Janvry, A. D., Emerick, K., Gonzalez-Navarro, M., and Sadoulet, E. (2015). Delinking Land Rights from Land Use : Certification and Migration in Mexico. *American Economic Review*, 105(10):3125–3149.

Khanna, G., Liang, W., Mobarak, A. M., and Song, R. (2021). *The Productivity Consequences of Pollution-Induced Migration in China*.

Lagakos, D. (2020). Urban-Rural Gaps in the Developing World : Does Internal Migration Offer Opportunities. *Journal of Economic Perspectives*, 34(3):174–192.

Lagakos, D., Mobarak, M., and Waugh, M. (2018). The Welfare Effects of Encouraging Rural-Urban Migration. *NBER Working Paper*.

Meghir, C., Mobarak, A. M., Mommaerts, C., and Morten, M. (2020). Migration and Informal Insurance. *Review of Economic Studies*.

Moretti, E. (2011). Local Labor Markets. *Handbook of Labor Economics*.

Morten, M. (2019). Temporary Migration and Endogenous Risk Sharing in Village India. *Journal of Political Economy*, 127(1):1–46.

Morten, M. and Oliveira, J. (2018). The Effects of Roads on Trade and Migration: Evidence from a Planned Capital City.

References III

Munshi, K. and Rosenzweig, M. (2015). Insiders and Outsiders : Local Ethnic Politics and Public Good Provision.

Munshi, K. and Rosenzweig, M. (2016). Networks and Misallocation: Insurance, Migration, and the Rural-Urban Wage Gap. *American Economic Review*, 106(1):46–98.

Roback, J. (1982). Wages, Rents, and the Quality of Life. *The Journal of Political Economy*, 90(6):1257–1278.

Rosen, S. (1979). Wage-Based Indexes of Urban Quality of Life. In Mieszkowski, P. and Straszheim, M., editors, *Current Issues in Urban Economics*. Philadelphia.

Rosenzweig, M. and Stark, O. (1989). Consumption Smoothing, Migration, and Marriage: Evidence from Rural India. *The Journal of Political Economy*.

Stark, O. and Bloom, D. E. (1985). The new economics of labor migration. *The American Economic Review*.

Tombe, T. and Zhu, X. (2019). Trade, Migration and Productivity: A Quantitative Analysis of China. *American Economic Review*, 109(5):1843–1872.

UNDP (2009). Human Development Report 2009. Technical report.