Does Spatial Misallocation of Labor undermine Development?

Ahmed Mushfiq Mobarak
Yale University
ahmed.mobarak@yale.edu
Goals

1. Highlight two facts about spatial & seasonal productivity gaps.
2. Connect micro and macro development research on these topics.

3. Methodological point about the complexities of scaling up micro interventions that can address spatial misallocation. [Bjorkman, Udry talks]

4. Connections to other markets – credit, savings [Breza, Casaburi, Karlan talks]

5. The future: Climate-change induced migration [Jayachandran talk]
Fact #1: *Within* countries, cities offer higher wages

- Wages 350% higher in cities (Gollin, Lagakos and Waugh, QJE 2014)
- Wages are 220% higher in cities even after adjusting for hours worked, human capital, etc.
  - (Gap is larger in poorer countries)

- **Panel Data**: No wage gaps among *movers* in Kenya, Indonesia (Hicks, Kleemans, Li, Miguel 2021), Brazil (Alvarez 2020), but 20-30% gaps evident in China, Ghana, Malawi, South Africa, Tanzania (Lagakos, Marshall, Mobarak, Vernot, Waugh JME 2020)
Micro and Macro/Growth Policy Implications

• Is this an arbitrage opportunity for poor households?
  • Why does the gap exist if there are no mobility restrictions within countries?

• Are developing countries poor because citizens are inefficiently spatially allocated within those countries?

• Could you generate growth simply by relocating people from unproductive rural areas towards thriving urban areas?

• **Contrary** view: workers already efficiently sorted across space
  (Herrendorf and Schoellman, 2018; Lagakos and Waugh, 2013; Young, 2013)
Fact #2:
The rural-urban wage gap **increases** during certain seasons

- Work is seasonal in rural agrarian areas – depends on the crop cycle.
- “**Hungry seasons**” has become part of micro-development economists’ lexicon.

- Bangladesh (Bryan et al 2014)
- Zambia (Fink et al 2020, Augenblick et al)
- Malawi (Brune et al 2017)
- Nepal (Mobarak et al 2023)
- India (Mani, Mullainathan et al 2013)
Seasonal Hunger in Northern Bangladesh

frequency in which households restrict portion size or number of meals in given month

Source: No Lean Season research team's calculations; 2016 Household Follow-up Survey for the 2014 RCT (control group only)
not just a recent phenomenon...

Fig 11: Rainfall
Fig 10: Mortality Rate (Northwest Provinces, Oudh)

Source:

**NATURE**

Number of Deaths from all Causes Registered in the North-West Provinces and Oudh during the Five Years 1878-82

<table>
<thead>
<tr>
<th>Year</th>
<th>Jan.</th>
<th>Feb.</th>
<th>March</th>
<th>April</th>
<th>May</th>
<th>June</th>
<th>July</th>
</tr>
</thead>
<tbody>
<tr>
<td>1878</td>
<td>137,161</td>
<td>140,173</td>
<td>143,760</td>
<td>157,326</td>
<td>136,867</td>
<td>120,767</td>
<td>91,677</td>
</tr>
<tr>
<td>1879</td>
<td>75,387</td>
<td>62,837</td>
<td>71,874</td>
<td>87,302</td>
<td>100,040</td>
<td>83,802</td>
<td>73,120</td>
</tr>
<tr>
<td>1880</td>
<td>116,366</td>
<td>72,030</td>
<td>69,250</td>
<td>72,534</td>
<td>76,622</td>
<td>78,200</td>
<td>56,502</td>
</tr>
<tr>
<td>1881</td>
<td>95,226</td>
<td>91,011</td>
<td>97,829</td>
<td>124,831</td>
<td>115,683</td>
<td>86,063</td>
<td>81,609</td>
</tr>
<tr>
<td>1882</td>
<td>114,220</td>
<td>92,472</td>
<td>96,596</td>
<td>107,628</td>
<td>119,714</td>
<td>114,382</td>
<td>122,110</td>
</tr>
<tr>
<td></td>
<td>538,360</td>
<td>458,523</td>
<td>479,399</td>
<td>549,621</td>
<td>548,926</td>
<td>483,234</td>
<td>425,018</td>
</tr>
</tbody>
</table>

Hill
Evident in contemporary DHS and LSMS data from Asia and Africa
Micro and Macro Policy Implications

1. Should we create job opportunities in rural areas during lean seasons?
   • e.g. NREGA in India – can distort labor markets (Imbert and Papp 2015)

2. Or should we invest in better transport connectivity between rural and urban areas? [Asher and Novosad, 2020, Brooks and Donovan, 2020]
   
   Two strategies above are substitutes in individual choices (Imbert & Papp 2020)

3. Should we directly facilitate individual/household migration?
Internal Migration More Common and Easier to “facilitate” through interventions than International

(but international migration offers much larger returns)
Why don’t more people migrate to cities?

Micro literature explains why workers remain in low-productivity areas (Caselli 2005)

1. **Migration Cost**
   - Bryan and Morten 2019, Bazzi (2017), Kleemans (2022)
2. **Informational Barriers**
   - Baseler (2023), McKenzie, Gibson, Stillman (2013)
3. **Income Risk in urban areas**
   - Lewis (1954), Bryan, Chowdhury, Mobarak (2014)
4. **Rural Amenities**
   - Informal insurance, caste networks (Munshi and Rosenzweig 2016, Meghir et al 2022)
5. **Rural Support programs**
   - Public works (Imbert and Papp 2019), microcredit (Mahmud 2012)
6. **Urban disamenities**
   - Pollution (Khanna, Liang, Mobarak, Song 2023)
7. **Non-monetary disutility of migration**
   - Lagakos, Mobarak and Waugh (2023), Imbert and Papp (2020)
8. **Explicit policy restrictions**
   - Hukou (Gao, Liang, Mobarak, Song 2023), Hokhau in Vietnam (Huynh 2023)
A Micro Intervention on Seasonal Migration

RURAL HOUSEHOLD

$11.50

URBAN AREAS
## Scaling Uncertainties and Complexities

<table>
<thead>
<tr>
<th>Economic Effects</th>
<th>Beneficiaries</th>
<th>Rural Spillovers</th>
<th>Urban Spillovers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Migration</td>
<td></td>
<td>BCM 2014</td>
<td></td>
</tr>
<tr>
<td>Consumption</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>ACM 2018</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labor Supplied</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Non-Economic Effects
## Unintended Consequences

<table>
<thead>
<tr>
<th>Economic Effects</th>
<th>Beneficiaries</th>
<th>Rural Spillovers</th>
<th>Urban Spillovers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Migration</td>
<td>Consumption</td>
<td>BCM 2014</td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>Labor Supplied</td>
<td>ACM 2018</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Non-Economic Effects</th>
<th>Migration Disutility</th>
<th>LMW 2023</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female Empowerment</td>
<td>Divorce</td>
<td>MRe 2018</td>
</tr>
<tr>
<td>Intra-household</td>
<td>Decision Making</td>
<td></td>
</tr>
<tr>
<td>Domestic Violence</td>
<td>MRa 2018</td>
<td></td>
</tr>
<tr>
<td>Health (MUAC, Nutrition)</td>
<td>Education (Exp.)</td>
<td>BCM 2014</td>
</tr>
</tbody>
</table>
Scale up in Stages, Continue Collecting Data

### Economic Effects
- **Beneficiaries**
  - Migration
  - Consumption
  - Income
  - Labor Supplied
- **Rural Spillovers**
  - Others’ Migration
  - Rural Wages
  - Income
  - Price of Food
  - Employer Profits
- **Urban Spillovers**
  - Risk Sharing

### Non-Economic Effects
- **Beneficiaries**
  - Migration Disutility
- **Rural Spillovers**
  - Employer Political Reactions
- **Urban Spillovers**
  - Disease Transmission
- **Non-Economic Effects**
  - Female Empowerment
  - Divorce
  - Intra-household Decision Making
  - Domestic Violence
  - Health (MUAC, Nutrition)
  - Education (Exp.)
Continue Asking New Questions as you Scale

**Economic Effects**

- **Beneficiaries**
  - Migration Consumption
  - Income Labor Supplied

- **Rural Spillovers**
  - Others’ Migration
  - Rural Wages
  - Income
  - Price of Food
  - Employer Profits
  - Risk Sharing

- **Urban Spillovers**
  - Natives’ Wages
  - Opportunities for Other Migrants
  - Employer Profits
  - Consumer Prices

**Non-Economic Effects**

- **Beneficiaries**
  - Migration Disutility

- **Female Empowerment**
  - Divorce
  - Intra-household Decision Making

- **Female Empowerment**
  - Domestic Violence

- **Health (MUAC, Nutrition)**
  - Education (Exp.)

**Rural Spillovers**

- Employer Political Reactions
- Disease Transmission

**Urban Spillovers**

- Permanent Migration to Cities
- Perceptions of Crime and Congestion
- Urban Living Conditions
- Political Reactions

**In Progress**

- MRe 2018
- BCM 2014
- ACM 2018
- MMMM 2022
- Shenoy et al
- CMR 2018

**Economic and Non-Economic Effects**

- **BCM 2014**
- **ACM 2018**
- **LMW 2018**
- **MRe 2018**
- **MRa 2018**
- **MMM 2022**
- **Nepal**
- **In Progress**
Udry’s point about context-relevance

- Idea *completely* irrelevant in Nepali terai, only 132 miles away!
- There is a lean season, but 65-85% of people already migrate
- New problem: remittances come back at the wrong time, during harvest 😞
Consumption Smoothing Fails because *many* markets fail

Two broad ways to smooth consumption:

1. Inter-temporally (save from past or borrow from future)
2. Spatially (migrate and send remittances)
4. Creeping Effects of Climate Change on Migration

- Change from 1988 to 2019
- Increased Soil and Water Salinity
- Relative Mean Sea Level rising at a rate of 7.9 mm/year
Effects of Rising Salinity

• Before

• After
Agriculture gives way to Aquaculture