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Social Disadvantage and Child Health among China's Rural-Urban Migrant Households

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Social Disadvantage and Child Health among China’s Rural-Urban Migrant Households

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Carl Lin, Bucknell University and IZA

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Seminars in Local and Global Regional Economies
Motivation

- Childhood health an important determinant of school performance, labor market outcomes, and adult health

- Children’s nutritional status influenced by biological, environmental, and economic factors, including parents’ employment

- Tradeoff involved with parents’ employment: increased income helps, but time away from children may have detrimental effects

- This tradeoff may be heightened for children in migrant families
  - Left-behind children
  - Children who migrate with their parents
Motivation

• Our study contributes to this research with new evidence from China on how the socioeconomic status of migrant parents relates to nutritional status of their children

  – Examine both children left behind and children who migrate with their parents
  – Especially interested in effects of social and economic disadvantage

• China an interesting case study

  – World’s most populous country experiencing the biggest internal migration flow ever (245 million people in 2016)
Motivation

- China also interesting for several institutionalized forms of social disadvantage and discrimination:
  
  - Hukou system of household registration
    - Based on a rural or urban classification that depends mostly on birthplace of the household head; very difficult to change
    - Many public services in urban areas are restricted to individuals with urban hukou
  
  - Son preference and gender bias
    - Young girls in China’s migrant households may be more at risk for poor nutritional status than boys
    - Women migrants may have more trouble finding well-paying jobs
Motivation

• We study how nutritional status of children in migrant households differs across four dimensions of social disadvantage associated with China’s rural to urban migration flows:
  - children in households with rural hukou (vs. urban hukou)
  - children in female-headed households (vs. male hhh)
  - girl children (vs. boys)
  - children left-behind in rural villages in the care of others (vs. children who migrate with parents)

• Several previous studies have found mixed results for effects of parental migration on left-behind children, but none have examined migrating children
Background: Hukou System

- Favors households with an urban registration and discriminates against households with a rural registration in the allocation of resources and public services.

- Status is assigned at birth, based simply on a rural versus urban categorization, and created administratively.

- Upward mobility from a rural to urban hukou is difficult, but not impossible for people with specialized higher education and for members of the Communist Party.

- System evolved gradually after the Communist revolution in 1949 as the government tried to control flow of rural to urban migrants (not very successfully).
Background: Hukou System

• Growing body of research: China’s urban migrants with a rural hukou are at great risk of being disadvantaged in terms of access to subsidized products, education, healthcare, and other social services.

• Example: Large proportion of migrating children forced to enroll in migrant schools, commonly perceived as inferior to public schools.
  – These children have lower standardized test scores and other measures of school performance, relative to students enrolled in public schools.

• Also migrants with rural hukou have more difficulty getting high-wage formal sector jobs, especially in state-owned enterprises.
# Number of Rural-Urban Migrants

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1990</td>
<td>3.35 Million</td>
</tr>
<tr>
<td>1995</td>
<td>66 Million</td>
</tr>
<tr>
<td>2007</td>
<td>210 Million</td>
</tr>
<tr>
<td>2012</td>
<td>236 Million</td>
</tr>
<tr>
<td>2016</td>
<td>245 Million</td>
</tr>
</tbody>
</table>

Source: National Bureau of Statistics of China
47% live in rural China, but over 70% are registered "rural" in Hukou

Source: projectpartner.org
LIMITED ACCESS TO EDUCATION HAS LIMITED ECONOMIC OPPORTUNITY

**Education level of migrant workers**
- College and above: 7%
- Vocational secondary education: 6%
- High school: 13%
- Middle school: 63%

**Education level of all residents in cities, aged 19–59**
- College and above: 12%
- Vocational secondary education: 14%
- High school: 27%
- Middle school: 38%

Source: National Bureau of Statistics; Data as of 2013
Data and Methodology

• Data: Rural-to-Urban Migrants Surveys for 2008 and 2009 from the Longitudinal Survey on Rural Urban Migration in China (RUMiC). We used the Migrant Household Survey

• RUMiC is household-level data collected by researchers at Australian National University, University of Queensland, and the Beijing Normal University

• Next figure shows 15 cities in which survey was taken (either provincial capitals or other major migrant-receiving cities). Contained in 3 regions
  - Eastern region: Guangzhou, Dongguan, Shenzhen, Shanghai, Nanjing, Wuxi, Hangzhou, & Ningbo
  - Central region: Zhengzhou, Hefei, Luoyang, Bengbu, & Wuhan
  - Western region: Chengdu & Chongqing
Spatial Coverage of the Urban Migrant Survey in RUMiC Data
Data and Methodology

• Sample restricted to children ages 15 and below who live in households that report household expenditures
  – Results of our study are qualitatively consistent when we restrict sample to ages 0-12

• Dataset contains a total 3,235 children:
  – 1,429 live with their parents in urban areas
  – 1,806 left behind in the rural hometowns

• Imbalance between these categories consistent with previous evidence that among Chinese households with urban migrants, migration of entire families is less common so many children are left behind
Data and Methodology

- Children’s nutritional status measured as height-for-age and weight-for-age Z-scores
  - Both compare a child to a reference population
  - Z-score routinely considered to be the best way to analyze anthropometric data
  - Z-score specifies the anthropometric value as number of standard deviations (or Z-scores) above or below the reference median of the US CDC Reference Population for children of the same gender (CDC 2000)
  - Z-score = \((\text{observed value} - \text{median value of the reference population}) / \text{standard deviation of the reference population}\) by gender
- Survey asks parents current height and weight of child - less accurate than using scales, but surveyors are affiliated with National Bureau of Statistics of China and highly experienced, which could help to minimize measurement error
Data and Methodology

- Sample means indicate:
  - Children from migrant families who live with their parents have higher WAZ and HAZ scores than left-behind children.
  - Very high percent of children in migrant households have a rural hukou (97 percent).
  - Over ¼ of children are in female-headed households; this proportion is higher for children living with their parents.
  - On average mothers have about two years less schooling than fathers, a gap that is larger for the parents of left-behind children and smaller for parents who live with their children.
  - Most household heads identify their ethnicity as Han, the dominant ethnic group in China.
Distribution of Weight-for-Age Z scores

- Migrant Children Live with Parents
- Left-behind Children
Distribution of Height-for-Age Z scores

- Migrant Children Live with Parents
- Left-behind Children
Data and Methodology

• Summary of statistical methodology:
  – Regression analysis estimates determinants of children’s WAZ and HAZ scores
  – Focuses on effect of social disadvantage indicators, controlling for household characteristics, village of origin & current city characteristics, and year & region fixed effects
    • Results very similar if we use province-level fixed effects

• Additional work examines gap between left-behind children and child who migrate with parents, looking at how much of the gap is explained by observed characteristics

• Last stage: estimate a counterfactual scenario which captures what the WAZ or HAZ distribution would be if left-behind children were to live with their parents in cities
Summary of Results

- Rural hukou variable has a negative and statistically significant relationship with migrating children’s WAZ scores (even with the full set of control variables)
  - most of this effect comes from children who live with their parents; rural hukou does not matter as much for left-behind children
  - no effect for HAZ scores, a measure of longer-term nutritional status, suggesting that migrant households and children are resilient in the long run
Summary of Results

- Children from female-headed households do not appear to experience any drawback in terms of their WAZ scores as originally hypothesized, and the effect is actually positive for HAZ scores
  - Possible explanation: mothers spend proportionately more of household income on their children than fathers
- We do see a penalty for girl children: on average, a girl’s WAZ score is 0.20 points lower compared to a boy for migrating children and children left behind
  - Also a penalty for girls’ HAZ scores for migrating children only
- Results also show a substantial penalty in WAZ and HAZ scores for being left behind vs. living with one’s parents
## Summary of Results

<table>
<thead>
<tr>
<th>Social disadvantage indicators</th>
<th>Weight-for-Age Z-scores</th>
<th>Height-for-Age Z-scores</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Children</td>
<td>Children with Parents</td>
</tr>
<tr>
<td>Rural hukou</td>
<td>-0.334**</td>
<td>-0.313*</td>
</tr>
<tr>
<td></td>
<td>(.158)</td>
<td>(.167)</td>
</tr>
<tr>
<td>Female-headed HH</td>
<td>0.108</td>
<td>0.085</td>
</tr>
<tr>
<td></td>
<td>(.100)</td>
<td>(.140)</td>
</tr>
<tr>
<td>Child is a girl</td>
<td>-0.202***</td>
<td>-0.184**</td>
</tr>
<tr>
<td></td>
<td>(.054)</td>
<td>(.078)</td>
</tr>
<tr>
<td>Child left behind</td>
<td>-0.184***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(.067)</td>
<td></td>
</tr>
</tbody>
</table>

Each regression includes full set of household, village, and city characteristics, plus region and year effects.
Summary of Results

- Other interesting results:
  - Children whose parents work longer hours tend to have lower WAZ scores
  - Children from families where household heads are ethnically Han have lower WAZ and HAZ scores
    - Possibly due to biological reasons
  - Mother’s schooling is positively associated with WAZ and HAZ scores
  - Height of household head positively associated with WAZ and HAZ scores, signaling genetic factors
Summary of Results

• Results from a standard decomposition procedure, a detailed quantile decomposition, and a counterfactual distribution analysis all confirm that children who are left behind in rural villages – usually because of the hukou system – have poorer nutritional status than children who migrate with their parents.

• The gaps are biggest at lower portions of the distribution.

• At the mean, the gaps are explained more by differences in coefficients for WAZ scores but differences in characteristics for HAZ scores.
Quantile Decomposition Results for WAZ and HAZ-Score Gaps between Left-Behind Children and Children Who Live with Parents

Decomposition of differences in WAZ distribution

Decomposition of differences in HAZ distribution

<table>
<thead>
<tr>
<th>Raw difference (quantile)</th>
<th>Characteristics effects (quantile)</th>
<th>Coefficients effects (quantile)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
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</tbody>
</table>

Legend:
Results from Counterfactual Analysis

Counterfactual and Fitted Kernel Densities of WAZ

Counterfactual and Fitted Kernel Densities of HAZ
Conclusion

- This study offers lessons for other developing countries experiencing rapid rural-to-urban migration and urbanization.

- Other countries may not have the same registration system for migrants, but if their urban infrastructures cannot keep up with influx of new people, then children in migrant households may face similar risks of poor nutritional status.

- Overall our results point to importance of revising the hukou system so that children who migrate to urban centers with their parents do not suffer from denial of public services and resources.
Conclusion

• Improving accessibility of public services in urban areas will make it less likely that migrant parents leave their children behind, thus mitigating another disadvantage for child health caused by the hukou system.

• Results also support the implementation and enforcement of policies that boost the remunerative value and security of migrants’ jobs, improve the compatibility of market work with child care, and promote skill development.

• Also crucial to reduce income inequality between rural and urban areas to discourage migration:
  – Improve social safety net to reduce rural poverty
  – Invest in rural infrastructure
  – Promote wage-employment
  – Improve rural schooling opportunities and incentives (e.g. free lunch programs)