Poverty and the Binational Population: A Note on Poverty Measurement

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Previous Work

- “Poverty, Legal Status, and Pay Basis in U.S. Agriculture”
  - *Industrial Relations* (July 2010)
- Relationship between wage contract structures and poverty outcomes?
  - Piecerate workers earn higher average hourly wages than timerate workers; however, fewer hours per week and more poverty risk
  - Variability in piecerate contracts, secondary employment, nonwage income, family structure, agricultural season length, time abroad, weather
Poverty Definition and Transnational and Border Populations

- Thresholds and lines calculated under assumption that family faces common price level set throughout year
- Definitions of “thresholds” may differ substantially
  - Mexico: food-based and asset-based definitions
  - World Bank: Reference lines set at $1.25 and $2 per day (Purchasing Power Parity terms)
- Inequality and vulnerability as related concepts to poverty
- Income that put worker below U.S. thresholds may not put him/her below source country thresholds (or below “adjusted” U.S. thresholds)
## U.S. Poverty Thresholds 2009

- 1 person: $11,161
- 2 persons: $14,366
- 3 persons: $16,781
- 4 persons: $22,128
- 5 persons: $26,686
- 6 persons: $30,693
- 7 persons: $35,316
- 8 persons: $39,498
- 9+ persons: $47,514

Source: U.S. Census Bureau
Academic Literature on Immigration and Poverty

- Poverty among settled immigrants within receiving country
- Effects of transfers on family or community left behind
- Relationship between stagnant U.S. poverty rates and immigrant inflows
  - Poverty rate 0.1% higher due to immigration (1979 to 1999 comparison) (Hoynes, Page, and Stevens, JEL, 2006); lower bound if wage effects with immigration
- Here, outcomes of migrants themselves and immediate family members after adjusting for time spent abroad, extent of cost of living differences
Methodology

- Calculate poverty rates under alternative weighting schemes
- Are alternative schemes statistically and economically different from current U.S. poverty thresholds?
- Case study example from Mexico-U.S. migrant streams
“Reweighting” Poverty (starting point)

- Consider:

\[ \text{New\_threshold} = \frac{U.S.\_weeks}{total\_weeks} (U.S.\_threshold) + \frac{abroad\_weeks}{total\_weeks} (abroad\_threshold) \]

- U.S. and abroad thresholds functions of family size and year
- Compare total annual family income to this value
- Valid only if U.S. and abroad thresholds follow like methodology
  - General: “rich” nations more generous standards of poverty
Purchasing Power

• Ideally:
  • Index based on pricing differences
    • Separate for each county/region of interest
    • Common commodity bundle used by migrants (may be different from that of an average consumer in any country)

• Realistically:
  • Purchasing Power Parity (PPP) indices and time spent in the U.S. vs. abroad
    • Approximate differences in currency values
    • Imperfections if cross-country consumption patterns differ (Deaton, 2010)
PPP Ratio, Mexico-U.S. Example

Source: World Bank, World Development Indicators, and author’s calculations.
Poverty Adjustments (Take 2)

- Combine PPP information with time in U.S.:

\[
\text{Threshold} = \frac{U.S. \text{- weeks}}{\text{total weeks}}(U.S. \text{- threshold}) + \frac{\text{abroad weeks}}{\text{total weeks}}(\text{PPP ratio})(U.S. \text{- threshold})
\]

where \text{PPP ratio} is ratio of per capita PPP indices of country of interest to U.S.
Case Study: Mexico-U.S. Migration

- National Agricultural Workers Survey (NAWS)
  - FYs 1989-2006 (fall, winter/spring, summer)
  - Representative of employed farmworkers
    - Nationally
    - For 12 agricultural regions
    - For each year and season
  - Sampling from work sites, not houses
  - Total Sample Size: 46,566
    - 20% are U.S. born (25.0% weighted)
    - 73% from Mexico (68.7% weighted)
- Weeks Abroad?
  - Mexican workers: 11.5/year (family poverty 45.8%)
  - Mexican undocumented workers: 16.1/year (52.5%)
  - Native workers: 0.3/year (family poverty 29.2%)
## Family Structure in NAWS

For Mexican Farmworkers

<table>
<thead>
<tr>
<th>Family Size</th>
<th>Freq.</th>
<th>Percent</th>
<th>Weeks Abroad</th>
<th>Poverty</th>
<th>Poverty Abroad</th>
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<td>9.01</td>
<td>74.22</td>
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</tbody>
</table>

Source: NAWS pooled cross-sections 1993-2006, and author’s calculations.
**Adjusted Poverty Rates: Mexican Agricultural Workers**

$$Threshold = \frac{U.S. \_ weeks}{total \_ weeks} \left( U.S. \_ threshold \right) + \frac{abroad \_ weeks}{total \_ weeks} (PPP \_ ratio) \left( U.S. \_ threshold \right)$$

<table>
<thead>
<tr>
<th>Family Size</th>
<th>Weeks Abroad</th>
<th>Old Poverty</th>
<th>New Poverty</th>
<th>Difference</th>
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</table>

*** statistically significant at 1% level
Fraction of Mexican Farmworkers under Current and Adjusted Poverty Thresholds
Current and Adjusted Poverty Thresholds—Family Size of 1
Economic Significance

- Differences imply 833 misclassifications in the case study example
- 1.01M hired farmworkers in 2006 (Kandel 2008)
- NAWS suggested 68.7% Mexican
- Implies approximately 18,326 poverty misclassifications among Mexican agricultural workers alone
- Formula should still overcount poverty if positive remittances
Policy Relevance/Discussion

- Implications for not only international migrants, but also border commuters and interregional migration
- Public aid program eligibility often function of poverty status
- Relationship to “Hispanic buying power”
- Measures are not prescriptive of specific public policies but complementary to other inputs into policy making in immigration, population movements, and poverty alleviation
- Complementary to literatures on indices and border regions (e.g., COL, HDI)
Continuing Work

- Nonagricultural data sources?
- Adjustments for remittances
- Further adjustments for families not migrating together
  - equivalence scales?
- Misclassification from source country perspective?
  - Invert PPP formula
New “Poverty”

- March 2010: Obama administration announced new (controversial) poverty-measurement
- Thresholds plus “escalators”: rise proportionally to average American living standards
- Absolute vs. comparative purchasing power
- Similar ideas here: adjustments for binationality
  - Purchasing power differences across borders
  - “Poverty” traditionally defined relative to one country’s prices
  - Relevance of comparative purchasing power
  - Adjustment here could be developed alongside other improvements