Persistent Rural Poverty: Is it Simply Remoteness and Scale?

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DEPARTMENT OF AGRICULTURAL, ENVIRONMENTAL, AND DEVELOPMENT ECONOMICS

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Also see our book: ***The Geography of American Poverty: Is there a Role for Place Based Policy?*** Just published by Upjohn Institute.

Motivation

- Rural Poverty is often ignored even though it is about as severe as in metropolitan America.
  - Most probably due to its dispersed nature in communities.
- Yet, rural poverty is a problem:

- *"Some of the same signs of despair and breakdown that wore out aging American industrial cities in the 1960's have come to the rural plains. Among teenagers, there is now a higher level of illicit drug use in rural areas than in cities or suburbs, recent surveys indicate. The middle class is dwindling, leaving pockets of hard poverty amid large agribusinesses supported by taxpayers."* Timothy Egan, "Vanishing Point; Amid Dying Towns of Rural Plains, One Makes a Stand," *New York Times* (December 1, 2003, Late Edition), p. A1.

- *"Fundamental structural changes in technology, markets, and organizations are redrawing our nation's economic map and leaving many rural areas behind."* Robert D. Atkinson of the Progressive Policy Institute.

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- The major view in regional science and econ geog. is that rural areas are disadvantaged due to small scale and geographical remoteness:
  - Lack Agglomeration economies
    - Low wages, weak job growth
    - Remoteness from cities exacerbates access to agglomeration.
- *Examples:*
- *"Oakridge, Oregon was a prosperous timber community of about 4,000 people until its last mill closed in 1990. Many households now struggle in or just above poverty, though they seem determined to remain in their scenic community. Flourishing Eugene could provide employment opportunities, but being 55 miles away limits the ability of Oakridge's residents to take advantage."* (Eckholm)

- *"Among Appalachia's problems are that it is "too far from big cities to easily attract businesses."* (Altman)

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Overview of National Poverty

- U.S. poverty-employment growth link was re-established in the 1990s
    - Strong link in 1960s and early 1970s
    - Weak between 1973-1993 (high poverty in 1993)
    - The link mostly reestablished itself after 1993.

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1959-2003 U.S. Family and Person Poverty Rates
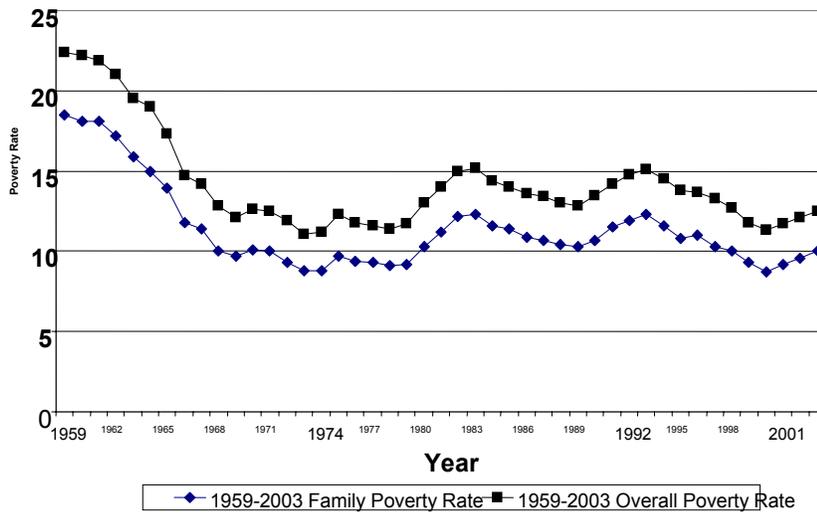
Source: Partridge, M.D. and D.S. Rickman. *The Geography of American Poverty: Is there a Role for Place-Based Policies?*, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2006

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- Nonmetropolitan America has higher poverty rate than in metropolitan America
  - ["Rural" and "nonmetropolitan" in my discussion]
  - We will use the official poverty measure.
  - Problems with official poverty rate
    - What is poverty?
    - How to measure cost of living?
    - In Rural America, there is lower housing costs vs higher transport and other costs (no Wal-Mart)
    - Some public/private services simply don't exist.
    - But high poverty rate captures notion of economic degradation.
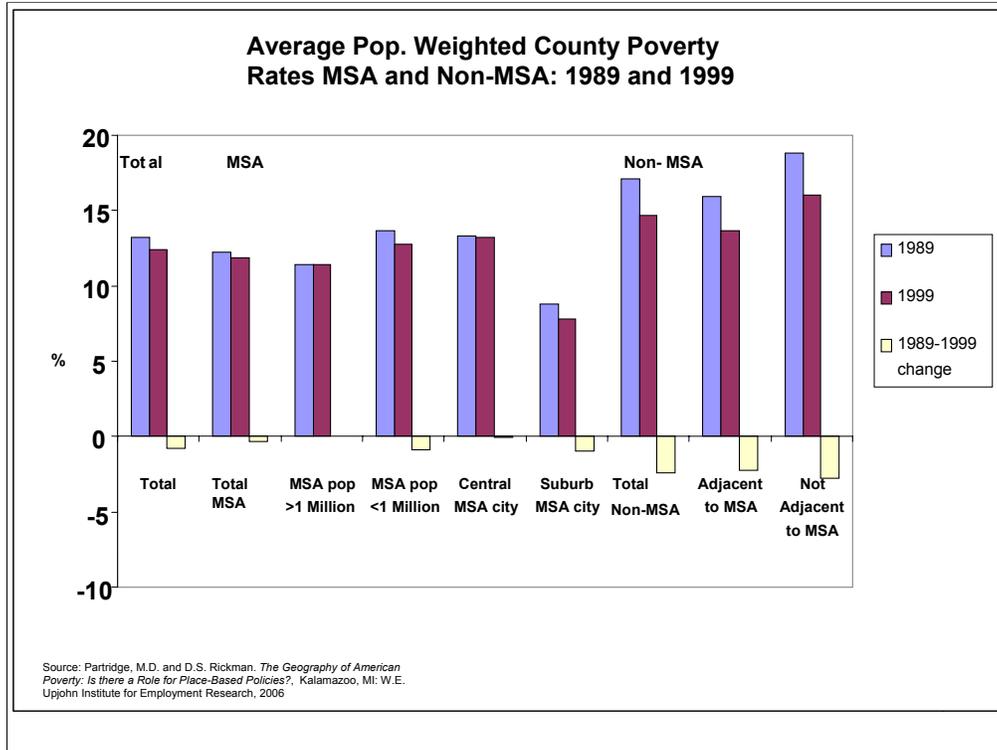
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Measuring poverty rates is more art than science. What is poverty and so on? Is it a relative or absolute concept?

Rural America has lower cost of living, but not as low as implied by lower housing costs.

Note that we will only use rural areas, thus so-called cost of living differentials across rural America are small (especially compared to metro America)—i.e., cost of living differences are not driving differences in rural poverty rates.
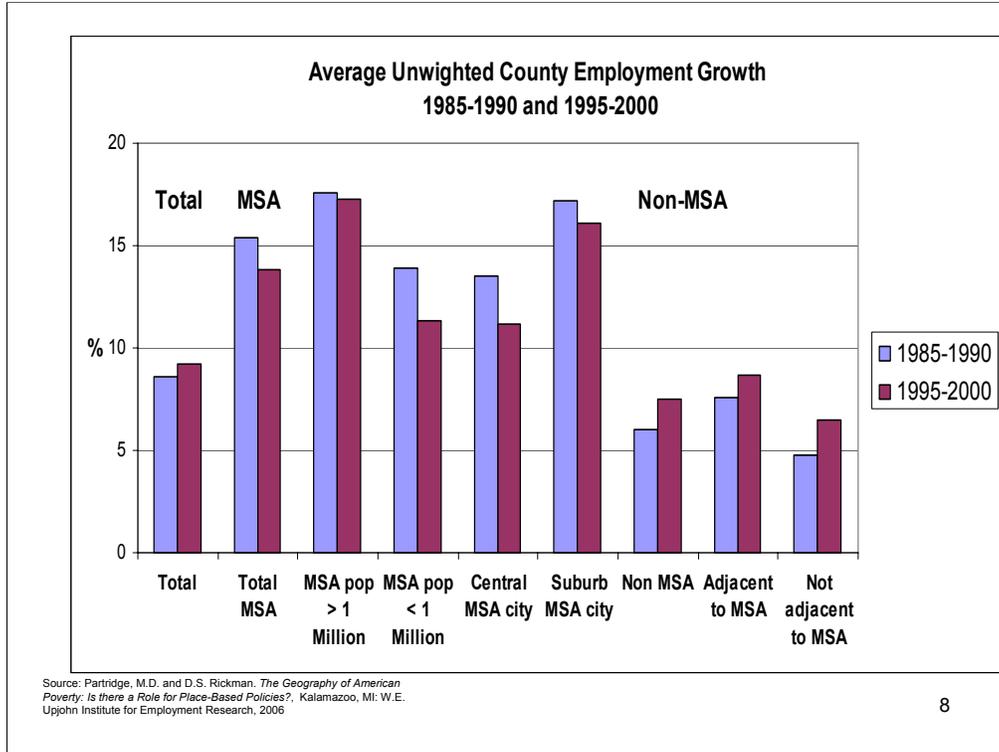
Also, we control for population in a county, which is the largest determinant of underlying cost of living differentials

Nonetheless, the official poverty rate is very highly correlated with what we are trying to measure and that is whether a community has a large share of its population living under economic degradation, however defined.

Average Pop. Weighted County Poverty Rates MSA and Non-MSA: 1989 and 1999

Source: Partridge, M.D. and D.S. Rickman. *The Geography of American Poverty: Is there a Role for Place-Based Policies?*, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2006

Poverty rates are inversely related to urban scale and access to urban areas in metro adjacent rural counties.

However, rural areas, especially the most remote rural counties had the largest decline in poverty rates in the 1990s

**Average Unwighted County Employment Growth
1985-1990 and 1995-2000**

Source: Partridge, M.D. and D.S. Rickman. *The Geography of American Poverty: Is there a Role for Place-Based Policies?*, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2006

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Note that job growth is directly related to size of MA, and job growth is faster in metro-adjacent rural counties.

But, improvements in job growth during the 1990s mostly occurred in more remote rural counties.

Spatial Diversity of Rural Poverty

- Rural poverty is somewhat clustered.
- Low poverty in the Midwest and Northeast.
- High poverty in the South and West Coast.
    - Persistent High Poverty Clusters
        - (USDA, 1959-1989 or 1969-99, 20%+ in every year)
            - Central Appalachia, Historic Southern Cotton Belt, Rio Grande Valley and Western Reservations.
            - Each poverty rate cluster seems a little different demographically and in geographical region.
- Poverty rates are spatially persistent.
- Can be large *intra-regional* variation in levels.
- Large *inter-regional* variation.

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Poverty Rates, United States, 1979
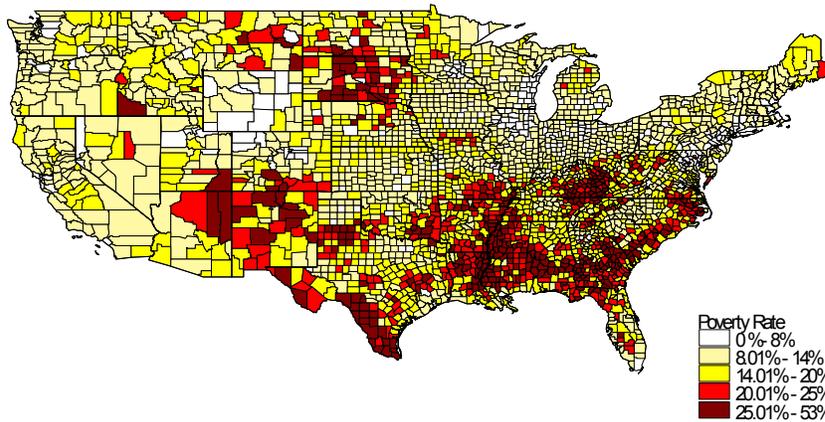
Poverty Rate
0% - 8%
8.01% - 14%
14.01% - 20%
20.01% - 25%
25.01% - 53%

Source: Partridge, M.D. and D.S. Rickman. *The Geography of American Poverty: Is there a Role for Place-Based Policies?*, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2006
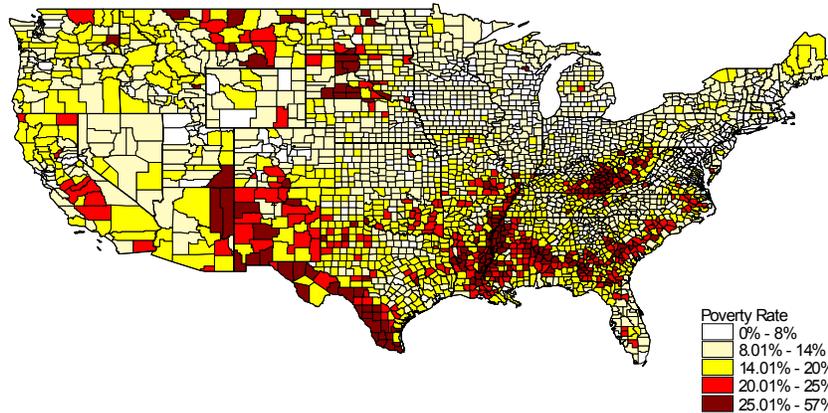
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Notice spatial diversity across the country

Notice the 4/5 clusters of high poverty

1. Western reservations
2. Rio Grande
3. MS Delta through historic Cotton Belt
4. Central Appalachia

Poverty Rates, United States, 1999

Poverty Rate
0% - 8%
8.01% - 14%
14.01% - 20%
20.01% - 25%
25.01% - 57%

Source: Partridge, M.D. and D.S. Rickman. *The Geography of American Poverty: Is there a Role for Place-Based Policies?*, Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2006

356 rural counties (out of about 2200) had poverty rates exceeding 20% in each of 1979, 1989, and 1999 with about 28% of the rural population living in these counties.

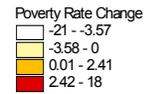Notice that 1999 map is similar to the 1979 map in terms of regional patterns, illustrating persistence

Note Lowest Poverty is in Northern Midwest and New England

High poverty creeping up in California where there are more immigrants.

Poverty Rate Change, 1979-1999
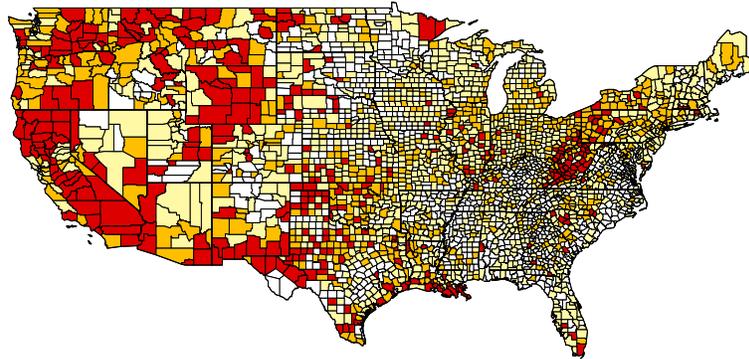
Poverty Rate Change
- -21 - -3.57
- -3.58 - 0
- 0.01 - 2.41
- 2.42 - 18

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There are some spatial differences in 1979-1999 changes in poverty with the West faring the worst between 79-99 and the interior of the country faring better.

Overview of Past Rural Poverty Research

- Many of the same structural problems as for urban poverty
- A rural spatial mismatch of jobs
  - Jobs are often in the city, but not in the country
    - Thin labor markets weakens rural employment matches
    - Lacks transportation, childcare, work supports
    - Structural change out of primary sector & manufacturing
  - Debate on whether economic opportunities help poor rural families to the same degree as in urban areas (Davis et al., 2003 vs. Partridge and Rickman, 2005, forthcoming).
- Social isolation, peer effects, insufficient community capacity or social capital also exist
  - (Glasmeier and Farrigan, 2003)
  - Race and ethnic differences: reservations, cotton belt (Leichenko, 2003).

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Persistent Poverty Counties/clusters

- What about persistent poverty counties/clusters?
    - Something seems deeply wrong.
  - Partridge and Rickman (2005) argue that these places are not hopeless poverty traps.
    - Job growth has even stronger poverty reduction impacts than in other rural counties (less in-migration and commuting).
    - Education has similar impacts
    - Single parent shares have stronger adverse poverty impacts in PP counties, while Assoc degree share has stronger favorable impacts
  - One simple solution is to spur economic growth in persistent poverty clusters.
    - Of course, how does one go about doing this?

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What we do in this paper?

- Is a key barrier facing persistent poverty clusters geographical remoteness from urban areas with agglomeration economies.

- Remoteness may cause:
  - Less access to higher-wage urban jobs
  - Fewer positive spillovers on local wages
  - Local businesses have less access to urban input-output linkages → lower wages
  - The weak social capacity and historic problems of high poverty clusters exacerbates problems of remoteness.

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- We use our past work that finds local job growth reduces poverty less in the long-run due to in-migration and changes in commuting behavior.
  - Local labor market effects differ from national labor markets because local labor supply is more elastic.
  - We argue these offsetting effects are smaller in remote rural areas because they attract fewer in-migrants and commuters.
    - I.e., their labor supply curve is more inelastic in the long-run.
    - Remote rural areas should benefit more from their local job growth

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Empirical Model

- Poverty is a reduced form outcome of structural labor supply and labor demand
- We will explore this issue using 1999 nonmetro county poverty rates as the dependent variable
- Employ a partial adjustment model:
- (1) $POV_{it}^* = \beta X_{it}$
- (2) $POV_t - POV_{t-1} = \alpha(POV_t^* - POV_{t-1})$
- (3) $POV_t = (1-\alpha)POV_{t-1} + \alpha\beta X_t$
- short-run poverty response to a change in the X variables is $\alpha\beta$ (long-run won't be stressed here)

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Aggregate data has the advantage when assessing policies that will be conducted at the aggregate level.

Indiv data cannot capture aggregation issues related to individuals and offsetting labor supply responses such as migration and commuting. Also aggregate areas (counties) respond differently than individuals. For example, raising someone's education raises their likelihood of rising above poverty, but it may move some other person lower in the job queue, which increases their odds of being in poverty. Or, they may be little net change in poverty rates at (say) the county level.

Thus, both individual and aggregate studies have their use and can be complementary.

County data allow us to explore place-based policy which is a concern of policymakers.

- Equil poverty rate is a function of past and current X's
- Current poverty rate only partially adjusts to long-run equilibrium. It could also capture reversion to the mean effects.

- Model for non-PP and PP counties, where "deep" lags of the explanatory X variables are used to avoid endogeneity: ≈1990 X's

- *(4) $POV_{is1999} = \alpha POV_{is1989} + \theta AVGNEIGHPOV_{is1989} + \delta \mathbf{PROX_{is}} + \boldsymbol{\varphi}\mathbf{ECON}_{is1990s} + \boldsymbol{\gamma}\mathbf{DEMOG}_{is1990} + \sigma_s + \varepsilon_{is1999}$.*

  - AVGNEIGHPOV is average 1989 poverty rate in contiguous counties (cluster/spillover effects)
  - **ECON** vector contains county economic measures
    - Use 1995-2000 industry mix job growth to avoid concerns with endogeneity of current economic conditions.
  - **DEMOG** vector includes initial demographic traits
  - σ_s denotes the state-fixed effect (state policies)
  - ε is the error term, t-statistics are adjusted for spatial clustering or spatial autocorrelation

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The lagged poverty rate also accounts for fixed effects of a county.

Avg neighbor surrounding poverty rate includes all adjacent counties including MA counties.

State fixed effects mean that we are talking about changes within a given state. We control for unmeasured attributes of each state.

We tried spatial error models, but we find little impact on the results. (see Partridge and Rickman, 2006, *Geography of American Poverty.)*

Key Urban Proximity Variables

- For **Prox:** key spatial measures that reflect proximity to cities higher in the urban hierarchy (land use)
  - Rural counties: distance in km to nearest MA of any size
  - the incremental distances to reach urban centers of at least 250,000, at least 500,000, and at least 1.5 million population
  - if nearest area is higher-tiered, remaining tier distances set equal to 0

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- Example: Rawlins, Wyoming
  - Rawlins 2000 pop: 8,538, rural county
    - 121 miles to Casper, WY, nearest MA
    - 190 miles to Ft. Collins, CO: incremental dist to MA>250,000: 69 miles (190-121)
    - 243 miles to Denver, CO: incremental dist to MA>500,000: 53 miles;
    - since Denver is 2.5 million, no other incremental dist var.
    - We convert this to kms

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Table 1. Selected Descriptive statistics and base regression results[a]						
	(1) PP (std dev)	(2) Non-PP (std dev)	(3) PP Base (t-stats)	(4) Non-PP Base (t-stats)	(5) PP Dist×Emp (t-stats)	(6) Non-PP Dist×Emp (t-stats)
1999 Poverty Rate (Dependent Variable)	**26.4** **(5.6)**	**13.2** **(4.1)**	na	na	na	na
Lagged 1989 Poverty Rate	**31.5** **(7.3)**	**15.8** **(5.0)**	0.46 (9.23)	0.44 (18.31)	0.45 (9.35)	0.43 (18.78)
1989 Surrounding Cty Avg. Poverty	27.0 (6.3)	16.1 (4.7)	0.08 (2.12)	0.10 (4.21)	0.06 (1.72)	0.10 (4.21)
Dist to Nearest MA (kms)	**87.4** **(40.6)**	**90.3** **(61.4)**	**0.002** **(0.28)**	**0.005** **(5.43)**	-0.001 (0.05)	0.025 (4.56)
Incremental Dist MA>250k (kms)	53.1 (98.2)	68.1 (104.2)	**0.001** **(0.37)**	**0.003** **(3.44)**	0.002 (0.47)	0.003 (3.78)
Incremental Dist MA>500k (kms)	52.2 (62.9)	41.4 (68.4)	**0.005** **(1.32)**	**0.004** **(4.32)**	0.007 (1.70)	0.004 (4.47)
Incremental Dist MA>1.5m (kms)	140.8 (131.9)	81.4 (108.5)	**0.003** **(1.28)**	**0.001** **(1.22)**	0.004 (1.50)	0.001 (1.48)
Nearest MA 1990Pop	151,906 (135741)	148,480 (135754)	**-8.5e-7** **(0.97)**	**-1.2e-6** **(4.26)**	-2.8e-7 (0.31)	-1.2e-6 (4.06)

Descriptive statistics in cols 1 and 2 show PP counties had about 13% higher poverty rates in 1999 than non-PP cnties, but their poverty rates fell more than in non-PP counties during the 1990s.

Also PP counties are surrounded by more high-poverty counties/clusters than non-PP counties.

However, both rural PP and non-PP counties avg about 90kms away from their nearest MA, or remoteness is not the cause of the higher PP county poverty, it must be something else such as different B coefs or differences in the other **X** variables.

Regression results: base model 1st in cols 3 and 4:

Note that greater distance from urban areas has a statistically insignificant effect on non-PP poverty. A one s.d. increase in distance to reach urban tiers is associated with about a 1% increase in non-PP county poverty rates. When all of the variables are omitted except distance and state FEs (not shown), we find that a one s.d. increase in distance increases non-PP poverty rates about 2.3% and by 2.9% in PP counties. Thus, there are some other variables associated with remoteness that make it appear as though remoteness is a factor—but the difference between PP and non-PP poverty rates due to remoteness is relatively small, regardless of a full or parsimonious model is considered.

MORAL: remoteness doesn't directly hurt PP counties.

Further showing closer non-PP link with nearby MA labor markets, the nearest MA pop is inversely associated with their poverty rates, but insignificant in the PP model.

	(1) PP (std dev)	(2) Non-PP (std dev)	(3) PP Base (t-stats)	(4) Non-PP Base (t-stats)	(5) PP Dist×Emp (t-stats)	(6) Non-PP Dist×Emp (t-stats)
Table 1-continued. Selected Descriptive statistics and base regression resu						
Nearest MA 90-00 Indmix Gr	0.175 (0.046)	0.166 (0.065)			**-31.3 (2.29)**	**-2.91 (1.21)**
Nearest MA Indmix Grth×Nearest MA Dist					**0.21 (2.41)**	**0.03 (2.11)**
%1995-00 Own Cty Indmix Grth	0.090 (0.016)	0.096 (0.018)	**-3.2 (0.35)**	**-15.1 (3.60)**	24.0 (1.13)	6.9 (1.10)
Dist Near MA × %95-00 Own Indmix Grth					**-0.27 (1.13)**	**-0.22 (3.52)**
1990-95 Own Emp Growth	10.2 (19.0)	10.5 (19.6)	**-0.026 (5.25)**	**-0.01 (1.75)**	-0.025 (5.83)	-0.010 (2.03)
1990 County Population	18,606 (14,934)	23,150 (21,614)	**-6.4e-5 (2.21)**	**7.0e-7 (0.13)**	-6.7e-5 (2.38)	-1.9e-6 (0.33)
R^2			0.815	0.803	0.822	0.806
N	356	1848	356	1848	356	1848

Job growth reduces poverty in both samples (depends on the timing).

In other results, we also find that distance reduces employment growth, which is an indirect way of reducing poverty (not shown). A one s.d. increase in distance to urban tiers is associated with respectively a 5.4% and 6.9% lower job growth rate in PP and non-PP counties (over the 1990s).

Own population is associated with lower PP-county poverty (local agglomeration rates, less outside linkages), but not non-PP county poverty rates.

Cols 5 and 6 models test whether the distance to nearest MA affects how job growth reduces poverty.

We find that nearest MA job growth reduces PP-Poverty more than non-PP poverty (attenuates faster as well). Or PP counties need the MA to be growing before it participates in growth, while non-PP counties participate by being proximate (regardless of whether the nearest MA is growing). This is how remoteness affects PP counties. A 1 s.d. increase in MA job growth is associated with 1.0% lower poverty rates in immediately adjacent PP county poverties, but only 0.2% lower in non-PP counties. At 90kms, PP counties still have 0.6% lower poverty rates (cet. Par.), while there is 0 effect in non-PP counties.

However, non-PP counties capture their own job growth, greater distance from the nearest MA implies that job growth has a stronger poverty reducing impact—but not in PP counties. [this suggests a lower commuting or in-migration effect, which we confirm in auxiliary regressions]. Also, job growth in PP counties may attract a disproportionate share of former out-commuters to now work in the county—which implies poverty may not decline.

Conclusions

- Remoteness (*per se*) has strong positive impacts on non-PP poverty. But not on PP county poverty.

- Persistent poverty counties do benefit if nearest MA is growing (very small impacts for non-PP areas). However, this effect attenuates with distance. This is where remoteness matters to PP counties.

- Unlike non-PP counties, PP counties benefit if they are more populous
- PP counties face barriers or impediments that keep even more proximate PP counties from participating in urban growth or in nearby urban labor markets
  - Lack social capacity/capital
  - Work supports including information about urban jobs.
  - Different migration tendencies
    - We have found that job growth promotes less population growth in PP counties.

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- What about a need for place-based policies?
  – In the past we said there is some justification.
  – Yet, we need a better understanding of why PP counties do not fully participate from urban proximity—only if nearby MAs are growing.
- Need structural research efforts to decompose the productivity/amenity costs. Then we can better trace how PP counties participate in urban growth.

Thank you!

Presentation will be posted at The Ohio State University, AED Economics, Swank Program website:

http://aede.osu.edu/programs/Swank/

(under presentations)

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