

# **Rural Economic Development Prospects in a High Energy Cost Environment**

By

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## 1. Motivation

A persistent “urban legend” is that rural America is on its last legs, but its plight is often exaggerated.<sup>1</sup> Using Bureau of Economic Analysis data, nonmetropolitan America grew 8.9% during the 1990s, or only 5 percentage points less than metropolitan America.<sup>2</sup> In fact, amenity and recreation based rural areas are faring quite well in terms of population growth, which also holds for many rural counties located near urban centers.

Yet, this does not mean that all of rural America is faring well. Counties more distant from urban centers and farm/mining dependent counties have long struggled (predominately in the Great Plains). Out of a total of just over 2,000 nonmetropolitan counties, 750 lost population between 1995-2000, and recently, a staggering 900+ lost population between 2003-2004. Thus, rural America presents a diverse picture ranging from communities fighting for their existence, communities wrestling with urban sprawl, and recreation communities striving to ensure their prosperity trickles to all income groups. However, one overriding theme of this essay is that rural growth generally takes place in broad regions surrounding an urban center. Rural American communities need to ensure they participate in these broader regional dynamics.

One wildcard is the steady rise in energy prices since 2000. Growing energy demand in Asia and elsewhere suggest that this trend should continue. In addition, as the devastating 2005 hurricane season illustrates, it is increasingly difficult to dismiss global warming predictions. Of course, policies to reduce global warming generally require greater carbon taxes, reinforcing the upward price trend.

Rising energy costs are particularly worrisome for rural America because it relies more on the energy-intensive primary sector and long-work commutes. Even when allowing for potentially offsetting factors such as bio-fuel production, it is hard to escape the notion that high-energy costs mean that most of rural America would lose more ground to urban areas.

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<sup>1</sup>Unless defined, rural and nonmetropolitan will be used interchangeably as well as urban and metropolitan.

<sup>2</sup>Nonmetropolitan America grew 1.1% between 2000-2003 compared to 3.4% in metropolitan areas. More discussion of rural population growth can be found in the USDA Economic Research Service Briefing Note on Rural Population Change and Net Migration, which can be accessed at: <http://www.ers.usda.gov/Briefing/Population/popchange/> and *Rural America at a Glance, 2005*, which can be accessed at <http://www.ers.usda.gov/publications/EIB4/>. Specific details of metropolitan and rural population using the latest metropolitan boundaries can be found at Bureau of Economic Analysis, Regional Economic Information System website at <http://bea.gov/bea/regional/reis/> (last accessed on December 9, 2005).

## 2. Rural America and the Reality of Urban Growth

Though it is well documented that rural communities endowed with natural amenities have fared well in recent decades (Deller et al., 2001), a far-reaching pattern is that proximity to an urban center is a key growth determinant. Table 1 illustrates this point. It shows 1990-2000 county population growth (weighted by 1990 population) for two “urban” groups: metropolitan and micropolitan areas.

Micropolitan areas are roughly defined as a county(ies) with a city of 10,000-50,000 population plus other counties with tight commuting links to the urban center.<sup>3</sup> Also, four (non-urban) rural county groupings are defined based on distance from their nearest urban center: (1) less than 30kms ( $\approx$ 19 miles), (2) 30-60kms, (3) 60-100kms, and (4) over 100kms, which is measured from the center of the county to the center of the nearest metropolitan/micropolitan area.

Row 1 shows that metropolitan counties grew by 14.1% on average during the 1990s while micropolitan counties grew almost 10%. As a result of sprawl and exurban growth, rural counties within 30kms actually grew faster than micropolitan counties on average. Yet, rural population growth quickly tapers off further from an urban center. A typical rural county over 100kms (62 miles) from an urban center grew a remarkable 8.4 percent less than the typical metropolitan county. When considering the longer 1980-2000 period (not shown), an even stronger pattern emerges. During the 20 year period, the typical metropolitan county grew over 23 percentage points faster than the average rural county located over 100kms from an urban center.

Preliminary regression analysis suggests that after controlling for a host of economic, amenity, demographic causes of population growth (including state effects), a rural county located 62 miles from its nearest urban center grew approximately 10% less during the 1990s than an otherwise equal rural county adjacent to the urban center (or about 0.1% less growth per km, not shown). Thus, even after accounting for these key factors, urban accessibility is of paramount importance for rural vitality. There are many reasons why access to an urban center matters including: urban residents relocating to take advantage of lower housing costs; rural workers having more urban-center commuting options; rural residents accessing urban goods, services, and amenities; and urban firms/residents purchasing rural

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<sup>3</sup>Metropolitan areas are defined as an urbanized population of at least 50,000 people and all counties with tight commuting links to the urban center. For details, see the U.S.D.A. Economic Research Service Briefing, *Measuring Rurality: New Definitions in 2003*, accessed at: <http://www.ers.usda.gov/Briefing/Rurality/Newdefinitions/>.

goods and services (c.f., Partridge et al., 2005).

The unmistakable reality of American economic geography is that outside of high amenity areas, population growth generally occurs in broad regions centered on their largest urban center. For rural counties/communities to fully benefit from these dynamics, they should be more closely aligned with their region's urban center in terms of governance.

For exurban rural counties trying to manage/contain sprawl and rising congestion, a comprehensive regional approach that addresses zoning, transportation, environmental degradation, and economic development will greatly help in charting a sustainable future. Conversely, more remote rural communities often lack the critical mass to initiate economic growth. The good news is that rural areas share a significant amount of urban centered growth, in which urban growth can extend to rural areas up to about 100 miles—i.e., urban growth is not a zero sum game that “steals” from nearby rural communities (Henry et al., 1997; Khan et al., 2001; Partridge et al., 2005). By linking with their city cousins, small rural communities can achieve a critical mass and participate in the urban growth process. Besides tighter governance arrangements, declining and remote rural communities should also support better transportation links to improve commuting options as well as enhance accessibility to urban services and amenities that help retain rural population.

### **3. High Energy Costs and Rural Development**

The six year trend of rising energy costs suggests that more planning is necessary to assess how this phenomenon will affect settlement patterns, state and local public finances, and the delivery of public services. One reason why virtually no related planning has occurred is that it is hard to make predictions when there is little past experience with such high U.S. energy costs—i.e., out of sample forecasts are notoriously tricky. Yet, Canada provides a nice backdrop for this assessment. Despite having similar geography, settlement history, and institutional arrangements, Canada has long had significantly higher energy costs due to very high taxes. Thus, even as there are many reasons for different settlement patterns, Canada does offer evidence as to whether rural communities suffer in a high energy cost environment.

Row 2 of Table 1 reports the corresponding 1990s population change for Canadian communities (see Table 1's notes for details). To facilitate the comparison, Row 3 shows the difference between U.S. and

Canadian averages. One general pattern is that Canadian population growth follows the general U.S. pattern with the exception that the Canadian equivalent of micropolitan areas fared worse than their American counterparts.

On average, U.S. growth was about 3.4% faster than in Canada during the 1990s. The gap between the typical rural U.S. county and rural Canadian community was actually larger across all distance categories, indicating that rural Canada fared worse. Indeed, the Canadian equivalent to metropolitan areas grew an average of just 1.6% less than their American counterparts, but rural Canadian communities more than 100kms from an urban center grew fully 6.7% less than their American counterparts.<sup>4</sup>

In sum, “high energy cost” rural Canada has fared worse than “low energy cost” rural America on average, while proximity to urban centers took on even more importance. Even more telling is when using regression analysis and controlling for economic; demographic; province; and amenity effects, a rural Canadian community located 62 miles from the nearest urban center grew about 18% less during the 1990s than an otherwise equivalent community adjacent to the urban center (0.3% less growth per km, see Partridge et al., 2005). Although many factors are at work, this is three times the corresponding U.S. response. With Canada as our guide, rural American communities will face severe adjustments, regardless of considering sprawling exurban communities to struggling remote communities. The unwinding of the low-energy cost U.S. rural economy will likely be drawn out affair, certainly warranting much more policy attention.

#### **4. Policy Discussion**

Given the growth patterns of recent decades and the potential permanence of the high energy-cost environment, U.S. policymakers would be advised to:

1. Regardless of the cost of energy, these trends suggest that state policymakers need to facilitate more regional mechanisms—perhaps through financial incentives and expanded local option taxes.
2. Rising energy costs will not only hurt rural communities in general, but they will particularly harm more remote communities as commuting becomes prohibitively expensive and obtaining urban goods and services becomes more costly. Besides governance arrangements, legislators should also consider what type of supports are needed to cushion the fall for remote communities and plan for the resulting in-migration to their state’s urban centers (which will require more infrastructure investment and service delivery).

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<sup>4</sup>The gap is even wider when considering both the 1980s and 1990s. Population in Canadian metropolitan areas grew 3.3% faster than their U.S. counterparts over the 20 year spell, but for rural counties/communities greater 100km from an urban center, U.S. counties grew almost 8% faster than their Canadian counterparts.

3. Along with rising mortgage rates, more expensive exurban commutes will likely put downward pressure on exurban housing prices and population growth. A bursting of the exurban housing bubble would present two planning challenges. First, legislators may need to help bridge exurban property tax shortfalls for schools and local government services. Second, legislators should be especially wary of funding additional infrastructure in outlying suburbs and exurban communities, in which population-growth projections should be questioned unless they incorporate the effects of higher energy costs.
4. Higher energy costs and the resulting spillovers will likely place great strains on already financially overcommitted exurban households trying to make mortgage payments and pay commuting costs. Similar pressures will be faced by the poor and lower-middle class households trying to adjust to declining conditions in remote rural communities. Workplace supports such as with daycare and commuting may be necessary to help bridge the short-term gap. Long-term policies may need to resort to relocation assistance as current rural commuting patterns may be unsustainable in this energy environment and rural communities fall below key population thresholds.

This analysis indicates that much of rural America may undergo a very difficult period if energy prices continue their upward trajectory. Indeed, given the severity of the possible restructuring, it is quite surprising how little forethought has gone towards this issue. Hopefully, this essay stimulates more discussion.

## References

Deller, S.C., T. Tsung-Hsiu, D.W. Marcouiller, and D.B.K. English. 2001. "The Role of Amenities and Quality of Life in Rural Economic Growth." *American Journal of Agricultural Economics*. 83(2): 352-365.

Henry, M.S., Barkley, D.L. and Bao, S. 1997. "The Hinterland's Stake in Metropolitan Area Growth." *Journal of Regional Science*. 37(3): 479-501.

Kahn, R., P.F. Orazem, and D.M. Otto. 2001. "Deriving Empirical Definitions of Spatial Labor Markets: The Roles of Competing versus Complementary Growth." *Journal of Regional Science*, 41: 735-756.

Partridge, M.D.; R. Bollman; M.R. Olfert; and A. Alasia. 2005. "Riding the Wave of Urban Growth in the Countryside: Spread, Backwash, or Stagnation." University of Saskatchewan, Canada Rural Economy Research Lab Working Paper. Available at [www.crerl.usask.ca](http://www.crerl.usask.ca).

Partridge, M. D. and D.S. Rickman. Forthcoming. *The Spatial Dimension of Economic Performance and American Poverty*. Kalamazoo, MI: W.E. Upjohn Employment Institute.

**Table 1: 1990s Urban and Rural U.S. and Canadian Population Growth (Std Dev)**

	All Ctys	Metro Ctys (Urban)	Micro Ctys (Urban)	Rural ≤30km to Urban	Rural 30 to 60km to Urban	Rural 60km-100km to Urban	Rural Over 100km to Urban
U.S.	13.2% (14.1)	14.1% (14.4)	9.9% (12.1)	11.4% (11.5)	8.0% (11.2)	6.4% (13.5)	5.7% (14.6)
Canada	9.8% (14.3)	12.5% (13.9)	3.4% (10.0)	7.2% (12.2)	3.8% (13.4)	1.0% (15.1)	-1.0% (14.2)
U.S.-Canada	3.4%	1.6%	6.5%	4.2%	4.2%	5.4%	6.7%
U.S. N=	3,072	1,061	679	88	753	346	145
Canada N=	2,376	364	142	512	637	458	263

Notes: U.S. 1990 and 2000 Census population figures are from U.S. Department of Commerce, REIS. See Partridge and Rickman (forthcoming) for more discussion of the derivation of the U.S. data. Canadian 1991 and 2001 Census data are from Statistics Canada. See Partridge et al. (2005) for more details. All 10 year growth figures are weighted by initial year population (1990 or 1991). U.S. distances are calculated from the population weighted centroid of the county to the population-weighted centroid of the nearest metropolitan or micropolitan area using 2003 metropolitan/micropolitan definitions. Canadian distances are calculated from the rural community's geographic centroid to the Census Metropolitan Area/Census Agglomeration (CMA/CA) geographic centroid using 1996 boundaries. CMAs and CAs are Statistics Canada's respective equivalents to a U.S. metropolitan or micropolitan area in which the unit of observation is a Census Consolidated Subdivision (roughly a community). A CA has an urban population center of 10,000-99,000 people. To ease comparison to the U.S., the CA sample was split into CA's with less than and more than 50,000 people. Rural is defined as U.S. counties or Canadian Consolidated Census Subdivisions outside of a metropolitan or micropolitan area (or outside of a CMA/CA). Row 3 is the difference between the U.S. and Canadian figures.