The Economic Status of Rural America in the Trump Era

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To set the stage for future policies aimed at supporting economic prosperity in rural areas, we review the current economic conditions of rural America and the current literature. Rural America is often characterized as a uniform, distressed place where agriculture dominates. In fact, rural America is quite diverse with some regions doing well economically. In some areas, labor-saving technologies have reduced the workforce in many manufacturing and resource-dependent industries. However, integration with urban areas has weakened the economic divide between urban and some rural areas, while natural amenities have boosted the fortune of others. There is also evidence that homegrown enterprises can support growth even in the most remote, distressed regions. Policies to enhance growth should recognize the unique features of each place or region. Federal policies also need to strike a better balance between the farm sector and the much larger nonfarm rural economy that typically has been shortchanged; and such policies need to be rigorously evaluated.

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Introduction to Rural Trends.

Rural America is often described as sleepy, declining, and primarily dependent on agriculture or other extractive sectors. Urban Americans rarely give much thought to their rural compatriots. One reason may be that rural America appears to be in decline. Another is that few urbanites have a personal attachment to rural America. While rural-to-urban migration heavily dominated from the 1920s to the 1970s, it has since tapered off. A wave of recent events, culminating with the 2016 Presidential election, has recently put rural America in the spotlight. Nonmetropolitan America significantly voted for President Trump in higher percentages than metropolitan America, propelling him into the White House.[1] Clearly the divergence between urban and rural America has renewed interest in understanding rural America.

Before delving further into recent trends, some historical background is needed. Labor-saving technological change in agriculture and other primary sectors led to a great expansion of output that has assisted all global citizens. Yet it also dramatically increased rural America's surplus labor, leading to migration to urban areas. At the same time, improvements in automobiles and construction of modern highways that unlocked rural-to-urban commuting opportunities, mitigated these effects and allowed some of the redundant labor to find work while remaining in and supporting their rural communities. This led to the emergence of large city-centered functional economic regions in which the largest urban center represents the engine of growth for rural and urban residents alike. During this same period, rural communities in areas with beautiful landscapes, mountains, lakes, oceans, and nice climate benefited from amenity-driven in-migration (Partridge, 2010). The net effect was that, beginning in the 1970s, rural areas with access to urban labor markets and high amenity rural areas essentially reversed the long-run net out-migration from rural areas. Rural America is now very diverse, being comprised of three distinct types of areas: (1) high-amenity regions; (2) metro-adjacent rural communities; and (3) remote or extractive-based rural communities that have generally struggled.

To illustrate this, Figures 1a-1b and 2a-2b, respectively, show population growth over the

[1]We will use the terms metropolitan/urban and nonmetropolitan/rural interchangeably.

1969-2015 and 2000-2015 periods for nonmetropolitan and metropolitan areas. In parentheses are the number of counties in each definition, which shows the declining number of nonmetro counties over time. Population growth is measured in several ways: using the 1950 metropolitan area definitions that reflect older core cities with virtually no recent history of a "rural" heritage; using 1973 definitions that reflect the beginning of urban expansion into suburban and exurban areas; and using subsequent redefinitions of metropolitan areas in 1983, 1993, 2003, and 2013. Most notable is that the 2003 and 2013 definitions include more counties that had previously been considered rural due to a change in classification because the Census Bureau lowered the cross-commuting threshold required for a county to be part of a metro region to 25%. While we agree with the Census Bureau's conceptual approach in using functional economic areas to define metropolitan areas, this reclassification notably changed what is considered "rural."

The metropolitan definitions are split across time to make several points. First, the validity of the notion that rural America is in decline depends on the definition of rural. Using the (virtually) current 2013 definition, metro population grew by 67% between 1969-2015, compared to 26% for nonmetro areas. However, much of this apparent lagging performance for rural America relates to reclassification over time of the fastest growing nonmetropolitan counties as metropolitan (Partridge et al., 2008). The late Andy Isserman stated that this metropolitan area reclassification is like taking the best team out of a sports league every year; pretty soon the league would become low-quality.

Using the most urbanized **1950** definitions, Figures 1a-2b show that 1969-2015 and 2000-2015 population growth for nonmetropolitan (rural) counties was double that of metropolitan counties in the earlier period, and also greatly exceeded it in the 21st century. In other words, counties considered rural in 1955 have done quite well. Subsequently, as previously nonmetropolitan counties are redefined as metropolitan, one sees in all cases that nonmetro growth is subsequently slower over time and metro county growth increases as these counties are added—i.e., the reclassified counties were actually growing faster than the original metro counties. In that sense, the story of rural malaise is just as much a story of some nonmetro

counties being remarkably successful. For instance, using the 1973 nonmetropolitan definition, rural population growth equaled the national (and metro) average up until 2007. Moreover, if the 500 counties that were reclassified as metropolitan between 1973 and 2013 had remained in the nonmetro category, the nonmetropolitan population growth rate would have tripled.[2]

The figures also show an inflection point in 2007 when *relative* rural population growth slowed across all definitions, while relative metropolitan growth either slightly increased or showed no discernable change. This suggests that both current nonmetropolitan areas and reclassified (former) nonmetropolitan counties are experiencing slower growth. Some of the slowdown relates to the housing bust's effects on reducing exurban residential development. Another is that lower-wage rural manufacturing has experienced productivity growth and fierce foreign competition that reduces job growth (though since 2001, urban and rural manufacturing performed about equally in terms of negative job growth). It is not surprising that metro job growth exceeds rural job growth, mainly because many rural residents commute to urban jobs. Yet, using 2013 definitions, between 2001-07 and 2007-2015, total nonmetropolitan job growth slowed from positive 4.6% to a decrease of 0.3%, whereas metro job growth slowed from 9.7% to 6.6%, further increasing the rural-urban gap.

One can see why rural America has recently lagged. Despite the 2003-13 super-commodity cycle that should have helped rural areas (as was the case with the 1970s super cycle), agriculture continues to shed employment and rural mining job growth has lagged. This shows that even traditional rural engines are no longer sufficient to lift local growth (on average).

President Trump, to his political credit, exploited this angst in rural America in the 2016 election. Table 1 divides the 2016 vote into metropolitan/nonmetropolitan areas using the 1950 and 2013 definitions based on when the previously rural county was reclassified as metropolitan. The 1950 metro group only gave President Trump 37% of the vote, but those reclassified between 1950 and 1973 gave him 53%. President Trump's vote share steadily increased to 63%

[2]There are 2,494 nonmetro counties using the 1973 definition and 1,975 nonmetro counties under the 2013 definition.

for the group of counties redefined between 2003 and 13. The 2003-2013 reclassified counties' 63% Trump vote share almost equaled his 2013 nonmetropolitan county share of 64%. There are other reasons including economics for this pattern, but the amount of time an area has been classified as part of a metro area is a good predictor of how President Trump performed. Future research could examine the reasons for this, including whether the longer a county is part of an urban region, the more it loses its rural heritage and assimilates into urban culture.

What is Rural? The Rural-Urban Continuum.

Rural America is an important source of our food, water, energy, and other natural resources, as well as a source of spectacular natural beauty. Yet the question as to what is rural has lingered for decades. There is no binary rural/urban dichotomy, but some sort of strict division is helpful for informing policy and analysis. In truth there is an urbanized continuum that reaches out from the urban core, through the suburbs to exurban areas with high urban commuting rates, and rural areas (and we could add very sparse and remote rural as well as a distinct category). There are two key ways of thinking about rural in trying to make a reasonable division. First is the popular notion that is often portrayed by the media of rural being sparsely populated, with a relatively large number of farms or high intensity in other primary sectors—i.e., "real rural." In this case, rural definitions based on population density would be useful in understanding rural/urban differences in culture and other beliefs.

However, this notion of rural is very simplistic and can produce misleading results when conducting economic analysis. Namely, local economic questions relate to behaviors in functional economic regions. If people live and work as well as conduct their other economic business in the same region, then that is their functional economic region regardless of the density of the resident's particular "neighborhood." For example, a researcher examining the effects of job growth on poverty should not separate functional economic regions into heterogeneous groups that are unrelated to the actual economic processes.

The good news is that the Census Bureau's current metropolitan (micropolitan)/nonmetropolitan (core rural) designations are functional economic areas. Census

uses a 25% commuting rate threshold and a minimum principal-city size of 50,000 in defining metropolitan area thresholds. No economist interested in rural economic issues should apologize on a theoretical basis for using this delineation. Yet, that does not mean that the current metropolitan definition is without problems. For one, the current definition (and beginning with the 2003 definition), the commuting threshold, or the percentage of a county that cross-commutes with the principal city, was lowered to the current 25% level; the result is that the 50 to 100 most populous metro areas are typically geographically spread out up to a radius of 100 miles or more. It also means more distant counties from the urban core were reclassified as metropolitan. These are counties with lower population density and a little higher reliance on agriculture and resource-based industries, the type of reclassified counties that voted in large numbers for President Trump. This relatively low commuting threshold extends metro areas to peripheral rural places that are less economically integrated with the urban center. We suggest that the commuting threshold be raised to 30% or 35% to mitigate this problem.

In 1950, it was reasonable to assume that an urban core of 50,000 people represented sufficient agglomeration economies to be "urban." Yet, agglomeration thresholds appear to be increasing over time as economic functions that were found in smaller locales are now only found in larger locales (Partridge et al., 2008; 2010). Hence, it would be reasonable to change the definition such that cities with 100,000 people constitute the urban core of metro areas. These two proposed changes would put the US definition closer to the standard in other advanced economies and would limit the seemingly excessive geographical size and number of metropolitan areas, incorrectly classifying some nonintegrated rural counties into metro areas.[3] It would also be helpful if the Census Bureau or the US Department of Agriculture (USDA) to report detailed county-level commuting data for metro counties in order to understand the percentage of cross-commuting. This would help researchers and policymakers construct metro definitions based on modern concepts of commuting and economic integration.

[3]For example, Statistics Canada uses a 100,000 population threshold and a 50% commuting threshold to define metropolitan areas, which is considerably more restrictive that the U.S. definition.

USDA already has some alternatives that measure the degree of urbanity or rurality and help delineate local labor markets. The first, commuting zones (CZ) based on clustering of commuting patterns with the most current definitions being from 1993. While CZs have been used in many recent labor economics papers (e.g., Autor et al., 2013), they are not generally used in urban/regional economic research. This is because of the concern that the CZs were derived without using any labor market conceptualization or even commuting thresholds. Instead, they were derived solely based on clustering of commuting patterns with no recognition of whether the clusters represent any degrees of local labor-market integration. The result is a patchwork of CZs that: (1) typically break metropolitan areas (functional economic areas) into multiple CZs without any coherence; (2) add nonmetropolitan counties to metropolitan areas even though, by definition, nonmetropolitan counties have low labor market integration with metropolitan areas (and, as we previously argued, the commuting threshold is too low to begin with); and (3) combines very sparsely populated counties into CZs even though there is no center of agglomeration or evidence of market integration. Thus, we urge researchers to avoid using CZs and stick with constructs based on economic principles.

The second major USDA categorization includes the urban influence codes (UICs) and Beale codes (BC). Over 30 years ago, when these codes were introduced, they were invaluable in delineating rural and urban America to describe socioeconomic behavior. We now describe the UICs in detail, as the BCs are similar. The 2013 UICs split metropolitan areas into two groups – those with more and less than one million residents. The nonmetro counties are then divided into ten groups, based on a three-way division: (1) micropolitan areas, (2) noncore rural areas with a city of greater than 2,500, and (3) noncore rural areas with a city less than 2,500.[4] Historically, these codes did a great job of describing rural growth and how it was much stronger for counties adjacent to metro areas. Conversely, remote locations without a city of at least 2,500 people were generally stagnant or in decline (Wu and Gopinath, 2008).

[4]The USDA UICs can be found at: https://www.ers.usda.gov/data-products/urban-influence-codes/documentation.aspx [downloaded February 26, 2017]. Micropolitan areas have the same commuting thresholds as metropolitan areas but the principal city has a population of 10,000 to 49,999.

Over time, and especially after 2000, the BCs and the UIC have become less valuable and have explained less of the variation in socioeconomic outcomes. This is partly due to the current deficiencies in defining metropolitan areas. The low 25% commuting threshold means that counties that would have previously been considered adjacent nonmetropolitan are now designated metropolitan. Now rural counties "adjacent" to metropolitan areas can actually be quite remote, meaning that the expected positive spillovers are considerably less than before. Likewise, when these codes were introduced, the meaning of a town of 2,500 was different from today for the same reasons that a 50,000 urban-core population appears to be insufficiently large to capture sufficient agglomeration economies to be classified metropolitan.

Though their value is waning, the BCs and UICs were very helpful in gaining a better understanding of how many economic outcomes decline with remoteness from urban centers (Partridge et al., 2008; 2010). This has led to a more recent literature that more finely describes distant effects than simple adjacency and illustrating that the rural remoteness costs are rising over time as technological change favors larger cities (e.g., Partridge et al., 2010).[5]

Industrial Composition in Rural Areas

For the most remote, rural regions, economic integration with urban areas is limited. Historically, the economy in these regions is more likely to have been dominated by agriculture or other resource-based industries. For example, Figure 3 shows 1969-2015 farm share of employment using Bureau of Economic Analysis (BEA) data for nonmetropolitan areas, metropolitan areas, and total United States, as well as Current Population Survey data for the U.S. share of total employment in which agriculture is the primary job. It shows that in rural America, the farm employment share declined from 15% in 1969 to 6% in 2015, illustrating the restructuring across rural America. Likewise the farm share also declined in urban areas, but agriculture is an even less important part of metropolitan economies.

[5]In discussions over the last 20 years, a common theme in rural development is that improvements in information communication technologies will/have made it easier for people to live and work in rural areas because they are more connected to larger markets. Yet, such a view misses that the same information technologies are also making it easier for workers to telecommute and not physically commute to work every day, improving their quality of life and generally reducing urban congestion—i.e., making urban areas more livable.

The over reliance on export-based industries (such as mining, manufacturing, and large-scale agriculture) has led to lower growth, persistent unemployment, and a highly-segmented labor market that is not adaptable to change (Kilkenny and Partridge, 2009; Weiler, 2001). Increasing global trade has also wiped out the traditional wage and land cost advantages for rural manufacturers. While many rural economic development leaders and politicians believe the solution is to recruit another large employer, rural areas are increasingly at a disadvantage in recruiting any large firms because of limited workforce availability, low education levels, insufficient infrastructure, or high transportation costs.

In addition, rural areas with large natural resource endowments (coal, oil, natural gas) have long experienced boom and bust cycles. With new technologies (hydraulic fracturing) making possible the extraction of previously hard to get to natural gas and oil, a boom developed in the mid-late 2000s. This boom affected traditional oil and gas rural areas in Texas as well as new areas such as North Dakota, and areas covered by the Marcellus and Utica shale formation in the Eastern United States, especially Ohio, Pennsylvania, and West Virginia. However, as natural gas (and oil) prices declined so did the exploration and jobs. At the same time, the coal industry experienced large-scale layoffs, in large part due to stricter regulations, which has especially affected eastern coal-mining communities. Combined, these economic busts helped drive the support for President Trump in many resource-dependent communities. Natural gas exploration and jobs may rebound, as natural gas replaces coal as a cheaper and more environmentally-friendly source for electricity generation, though talk of *vast* numbers of energy jobs are generally wishful thinking (Kelsey, et al., 2016).

At the same time, coal mining employment is unlikely to rebound, even if plans for new environmental regulations are abandoned. Dating back to the end of World War II, coal mining employment has been declining as the industry implemented labor saving technologies and this is exacerbated by declining foreign markets for US coal. From 1989 to 2012, data from the Mine Safety and Health Administration shows that as coal output held relatively steady in Kentucky and West Virginia, coal-related employment declined from 79,000 to 41,000. Even if mines do

reopen, they are likely to be more automated and the industry has already said it will pay lower wages. Indeed, scaling back environmental protections is the exact opposite of what coal mining regions need for long-term growth (Fan et al. 2016). With the coal industry in decline, it will be nearly impossible to attract the human capital and the other firms needed replace coal if quality-of-life is degraded.

For some rural areas with natural amenities, there is the potential for future amenity-led growth. This may include an influx of new population or tourists and vacation home owners seeking better climates and natural surroundings (Wehrwein and Johnson, 1943; Deller et al., 2001; Carruthers and Vias, 2005; McGranahan, 2008; Wu and Gopinath, 2008; Fan et al. 2016). However, since not all rural areas are endowed with high levels of natural amenities or a favorable climate, this is not the solution for all communities. Even if natural amenities exist, if communities are impacted by energy development and have suffered from a degraded environment, efforts by rural communities to benefit from such growth will be hampered.

Despite the challenges facing the most distressed rural communities, there is some evidence that having more local entrepreneurs and self-employed can help rural and remote communities sustain growth and prosper (Rupasingha and Goetz, 2013; Stephens and Partridge, 2011; Stephens et al., 2013), as well as mitigate trade shocks (Liang and Goetz, 2016). Stephens et al. (2013) find that even in the most distressed rural areas where there may be a large number of necessity entrepreneurs (Acs et al., 2009; Low, Henderson, and Weiler, 2005) – or those who start businesses because of a lack of other opportunities – there still are spillovers into the greater region including more wage and salary jobs (e.g., people working for someone other than themselves). Moreover, local entrepreneurs further magnify the positive economic impacts of their business activity on the community by favoring procurement from other local businesses (Fleming & Goetz, 2011). Local entrepreneurs can be successfully "home-grown," as rural entrepreneurship often relies on relatively low educational levels, purchases inputs locally, fulfills local demand and benefits from local assets, is perceptive to regional milieu, and further builds the existing entrepreneurial culture (Akgün, Nijkamp, Baycan, & Brons, 2010; Fritsch &

Wyrwich, 2014; Stephens et al., 2013; Li et al. 2016). Yet, there is a gap in understanding of which types of entrepreneurs or self-employed are most important for rural growth.

Poverty and Social Issues in Rural America

As outlined above, increasing economic opportunities is an important concern in rural areas, especially where globalization and automation have caused profound structural change in labor markets. Rising productivity has displaced blue-collar workers and, in general, the economic winners from trade and automation have not compensated the losers. How exactly to implement such compensation, if the political will existed, is not clear.

Although poverty is an important urban problem in terms of numbers of poor, rates especially of child poverty, tend to be higher in rural areas, and over 85% of poor counties are rural (USDA 2017, p.5). Deteriorating social and economic conditions are now reducing life expectancy in many rural communities, partly as a result of rising rates of drug use and suicide; and recent studies show that where individuals live influences their likely cause of death (Moy et al. 2017). Clearly, geography and space play roles in deteriorating socioeconomic outcomes, but the precise causal mechanisms remain poorly understood (Goetz et al. 2015).

While both local poverty and inequality have been long studied (e.g., Levernier et al., 1998; Rupasingha and Goetz, 2007), they are receiving heightened attention with the work of Chetty et al. (2014) and Picketty (2013). Using big data in the form of individual tax records, Chetty et al. (2014) show that geography affects economic mobility. Interestingly, rural areas perform better at promoting youth up the income ladder than urban areas, other factors held constant. Yet it is not clear whether this occurs because rural youth leave in pursuit of better urban opportunities, or whether rural areas inherently have advantages, perhaps because of better and smaller schools that, among other benefits, provide more leadership opportunities. Select studies are starting to examine this question. Recent research that reevaluates the Moving to Opportunities project, that moved families from low-income housing to wealthier neighborhoods, may also have implications for rural areas (Chetty et al., 2016).

Of particular importance for research are the questions of (*a*) how poverty and inequality

evolve over time and space, and the rural-urban continuum in particular, and what forces are driving the changes; (*b*) what role government can play (if any) in mitigating rising poverty and inequality through programs and policy; (*c*) the effects of globalization and automation, including robots and 3-D printing technology on the changing relationship between poverty and inequality; and (*d*) the interrelationship between inequality and poverty, or economic growth.

Poverty and inequality occur to different degrees across counties. Since 1989, the number of counties with both high poverty rates and high inequality levels has increased. This has been especially true in counties in small and midsize metropolitan areas, where nearly one-half of all counties now have high rates of both poverty and inequality, up from on 22% in 1989 (Jarosz and Mather 2014). Additionally 44% (up from 35%) of the most rural counties have high rates of both poverty and inequality, compared with only 21% (up from 11%) of the most urban counties (*ibid.*). Clearly, the forces causing the expanding coexistence of poor people and uneven income distributions are weakest in urban areas, strongest in the next larger category of counties, and somewhat milder in the most rural counties, but still prominent. Understanding why these changes are happening in the different sized communities and across the rural-urban continuum is an important first step to addressing them.

Although some inequality is beneficial for growth because it provides an incentive for people to work harder, evidence is mounting that the U.S. has now reached overall levels that may be suppressing overall economic growth (Partridge and Weinstein, 2013). At the subnational level, early research tended to find a positive linkage with growth, especially in the long-run (Partridge, 1997, 2005). However, more recent evidence suggests a negative linkage, especially in the short-run (Atems, 2013). This relationship has not been investigated rigorously at the subnational, regional or levels, or for rural versus urban areas. There is also evidence, at the level of nations, that higher rates of inequality are associated with shorter periods of economic growth (Berg and Ostrey 2011). And, this could have important implications for the economic future of the entire United States and its rural communities.

Rural Policy

Given the important differences across counties and the heterogeneity in what is rural, it is clear that a one-size-fits-all rural policy will not work. Federal labor, fiscal, trade and interest rate policies all have disparate spatial impacts that depend, among other factors, on the export dependence and capital intensity of local industries. And, perhaps anachronistically, most rural policy continues to be equated with farm policy, even as the USDA budget is overwhelmingly claimed by urban consumers, with nutrition assistance programs making up 71% of the $151billion in USDA outlays in fiscal year 2017. Of the remaining USDA outlays, 16% are for farm and commodity programs and 7% for conservation and forestry (compared to agriculture accounting 5% of rural employment). The remainder (6%) is shared across rural development, research, food safety, marketing and regulation, and management functions. Rural development is largely an afterthought in terms of federal spending and early signs are that it will further lose out under President Trump (OPM, 2017).

Not surprisingly, the policy-related word network analysis of Reimer et al. (2016) confirms that rural development issues are overwhelmingly framed as agricultural issues, even though a relatively small number of counties remain dependent on agriculture. Researchers concerned with rural policy have long lamented the lack of common problems and goals, and therefore lack of a unified policy stance, of nonfarm interests. Even though farm interests tend to be split along commodity lines, farmers overall have been able to articulate their policy choices effectively (thanks in part to the power of farm state Senators). It remains to be seen whether the coalition that voted for the President Trump can change rural policy to focus more on nonfarm rural issues, but policy researchers and political scientists concerned about rural economies should find this phenomenon to be an important area of inquiry (O'Brien and Ahearn, 2016).

Recent research suggests that Extension or other technical assistance programs are considerably more cost-effective than direct farm subsidy grants in keeping farmers on the farm (Goetz and Davlsheridze 2016). In other words, helping farmers through technical assistance or human capital training is more effective. This is a critical research area that deserves more attention especially given the importance of traditional federal farm programs, and the evidence

that they may, in fact, accelerate the consolidation of farms and rural depopulation (Goetz and Debertin, 2001). Future research could help increase our understanding of the interrelated effects of farm programs on farm size distribution, farm productivity and the aging of farmers. Here the experience of New Zealand may offer fruitful guidance for structuring research questions (Johnston and Frengley, 1991; Evans et al., 1996).

A significant research void also exists in evaluating the effectiveness of existing USDA Rural Development programs and other rural development programs, including different types of policy designs and mechanisms. While there are important and carefully executed studies of individual programs, there are too few of these studies and they are piecemeal, focusing on only one program at a time. For example research on the broadband loan programs (e.g., Whitacre, Gallardo and Strover, 2014) shows somewhat mixed results, but finds that, on balance, it has positive effects. To understand the impact of these efforts and any synergies between programs, more holistic and comprehensive evaluations over time, ideally with panel data, of all rural development programs are needed. It would be especially useful to consider natural experiments, where they exist.

A critical research need lies in examining the benefits and the costs both of individual rural development policies and grant and loan programs and of their interactive effects. Related to this are questions of investing funds in people versus places. While economists have long held that investing in people is preferable to investing in places, as place-based investments tend to benefit the owners of fixed assets (e.g., in the form of higher housing prices), there is evidence that carefully-selected and targeted place-based investments can make a positive difference (Busso et al. 2013), even though these findings are controversial (e.g., Hanson, 2009; Hanson & and Rohlin, 2011). Even within mainstream economics, a strong interest has recently emerged in estimating the benefits and cost of local economic development programs and policies (e.g., Neumark and Simpson 2015). While much of this research has focused on more urban areas, extensions and applications to rural areas will likely have high pay-offs.

One key lesson from this research is that picking winners and losers in terms of

subsidizing individual firms or industries is ineffective if not counterproductive. Instead, it is important to improve overall economic conditions and workforce quality that benefit all businesses, so that the most competitive ones emerge. Further, economic spillovers in the form of externalities are also essential. For example, if a downtown business attracts consumers who also patronize other businesses on the same Main Street, a positive externality is created. In cases where barriers to entry prevent such public externalities, federal investments may make sense.

In practice, some rural and remote communities likely lack the critical mass needed to generate the externalities needed to make such federal investments cost-effective. In that case, it is difficult to make the economic case for intervention. However, researchers can help identify such communities, as well as the thresholds needed to establish conditions for not only survival but growth, though politically allocating funds on this basis will be difficult. Such research could use criteria such as a minimum set of businesses and services available within a given radius, considering population density and distance to major metropolitan areas. Moreover, examining why some communities are resilient and able to bounce back from major shocks, and others are not, may provide useful future policy insights (Han and Goetz, 2015). This research may be especially valuable if it extends into the past and considers the past local industry mix as well as location of the county on the rural-urban continuum.

Empirical Advances for Assessing Rural Economic Growth.

Understanding rural growth and assessing the impact of rural policy requires getting at the causal effect. Recent decades have seen a revolution in empirical identification in order to establish causation.[6] For example, there have been empirical advances using natural experiments, instrumental variables, regression discontinuity, quantile regressions, and spatial modelling, including locally weighted/geographically weighted regressions. We focus on advances related to estimating multipliers as they are extremely useful in evaluating economic development policy and in informing better decision-making.

Multipliers. Estimating the economic impacts of a new business in terms of total *net* job

[6]See Angrist and Pischke (2009) on advances in empirical modelling.

or income creation is essential in assessing whether community support should be provided to recruitment efforts. For a distressed rural area, providing tax incentives to recruit a new employer may be tempting. But with limited resources, they must be sure that the promises are not too good to be true. The impacts of new development include a combination of input-output and induced effects that positively create employment as well as offsetting displacement or crowding-out effects. Thus, in terms of evaluating economic development policy, or in understanding the impacts of exogenous shocks, knowing the *net* multiplier effects would be very valuable. A local manufacturing multiplier of 2.5, for example, means that 100 new manufacturing jobs would be expected to create a total of 250 jobs, of which 150 are indirectly created on *net* through spillovers—i.e., a multiplier greater than one indicates positive spillovers from an economic shock; while a multiplier less than one indicates that, while new jobs are being created, they are displacing other jobs, offsetting the positive effects.

Popular software to estimate these economic impacts and multipliers include private vendors IMPLAN and REMI among others, using research that dates to the 1950s. These tools are most effective in estimating the positive economic spillovers, but much less so in estimating displacement effects (see Drucker, 2015 for a critical discussion of impact assessments from commercial software.) For instance, an incentivized office park typically just rearranges workers from existing local office parks to the new office park, leading to no net increase in jobs/income even if the new office park is full. Similarly, an incentivized restaurant may simply displace an existing restaurant, creating no net jobs or wealth. A new rural manufacturer could bid up wages and land prices, reducing the competitiveness of existing local firms. Another issue is the "false precision" from commercial software estimates, in which the software "spits" out exact employment/income estimates by detailed sector, ignoring any indication of the potentially large standard errors in those estimates due to imposing a strict structure on the local economy.

To improve on the multiplier estimates for local economies, there has been a surge in interest in econometrically estimated multipliers, providing confidence intervals to the estimates, and avoiding the imposition of a strict structure on the local economy as done by the commercial

software; in other words, allowing the data to speak. The recent surge of interest began with Moretti's (2010) short paper on multipliers, though the precise empirical tools were clearly described in Bartik's (1991) seminal contribution.

A multiplier is precisely how much total employment responds to an *exogenous* shock. Using manufacturing as an example, regression equation (1) shows how a local multiplier is estimated for area *r* over a given timespan denoted by *t*, where %ΔTotemp and %ΔManemp are respectively the percent change in total employment and the percent change in *total* employment due to changes in *manufacturing* employment, **X** is a vector of regional characteristics including region fixed effects, and e is a residual:[7]

(1) $\%\Delta Totemp_{rt} = \beta_0 + \beta_1 \%\Delta Manemp_{rt} + \mathbf{\beta X}_{rt} + e_{rt}$,

The β_1 term is the multiplier when the equation is properly identified as an exogenous manufacturing shock. Of course, labor supply shocks (e.g., migration) would affect total employment and local demand for manufacturing and create endogeneity, as would other omitted variables. Thus estimating (1) using OLS leads to biased estimates of β_1.

Dating back to Bartik (1991) and before, a direct way to estimate (1) is to replace the manufacturing term with an (manufacturing-based) exogenous shock based on the industry mix shift-share term.[8] In sum, all that is required is to estimate the following equation by OLS:

(2) $\%\Delta Totemp_{rt} = \beta_0 + \beta_1 \%\Delta IMMAN_{rt} + \mathbf{\beta X}_{rt} + e_{rt}$,

where %ΔIMMAN is the shift-share growth term for manufacturing. Thus as long as a researcher has detailed local data on industry shares (most likely a county or metro area), it would be easy to identify an accurate multiplier that is not constrained by the strong assumptions in commercial modelling software and produces a confidence interval that more accurately conveys the

[7]The percent change in total employment due to manufacturing employment equals (Δmanufacturing employment/total employment)*100. The scaling of using total employment is to put the dependent variable and the manufacturing term on the same basis so that β_1 can be interpreted as a multiplier—i.e., β_1 is the percentage change in total employment after a one percent change in manufacturing employment as a share of total employment.

[8]The manufacturing industry mix term %ΔIMMAN equals $\sum_i Sh_{ir0} \%\Delta NEMP_{it}$ in which Sh is area *r*'s initial period employment share of industry of *i* and $\%\Delta NEMP_{it}$ the percent change in national employment in industry *i*. Summing over all industries *i* within manufacturing produces the predicted manufacturing growth rate in the area if all of the industries within manufacturing are growing at the national growth rate. Unless there is some labor supply response to the initial industry shares (or one that is not accounted for by any demographic control variable), because industry national growth rate are used, the shift-share term is assumed to be exogenous. If one needs a multiplier for another industry, then the shift-share should be calculated for that industry grouping.

uncertainty in the estimates.

Another way of economically estimating a multiplier is laid out in Moretti (2010). However, there are several advantages of the multiplier described above over the one proposed by Moretti.[9] Primary among these are that, even though multipliers are the response of employment (or another economic outcome) to an exogenous shock, Moretti indirectly estimates the multiplier. Instead of directly estimating the multiplier, by replacing manufacturing employment growth with its industry mix shift-share term, he uses IV methods with the industry mix (Bartik) multiplier as an instrument for manufacturing employment growth.

Rural Data.

In order to evaluate policies and hold politicians, policymakers, and the private sector accountable for performance, there is a need for good data. The federal government has an important role in producing subnational statistics (and all data in general). These data are also essential for providing the private sector key information for marketing and firm location and for academic research to identify better ways to achieve prosperity and improve quality-of-life (Partridge et al., 2013). The costs of federal statistical efforts are a trivial part of the overall federal budget suggesting that a benefit-cost analysis would be astronomically in their favor.

Despite the urgent need, there are long-running Congressional efforts to reduce and eliminate federal statistical programs even though the savings are trivial. One reason is that some of the surveys such as the *American Community Survey* are perceived by some as asking sensitive questions about income or demographics. The loss of federal statistical programs would have catastrophic consequences and it is unlikely that the private sector can fill the gap. Private collection of data would suffer from many problems associated with pure public goods and would be underprovided by the market. Such data are likely to be expensive in order to allow

[9] One reason is that the multiplier shown above is a direct product of the regression and not derived with intermediate steps that scale the multiplier by relative industry size as Moretti's. Because it is not scaled, it is not affected by the relative size of the base year industry size, which can significantly affect the magnitude of the estimated multiplier (Van Dijk, 2016). Another advantage is that unlike Moretti's multiplier, it does not use instrumental variables and hence there is no need to worry about strong instruments and any bias towards the OLS estimate. Moretti's multiplier is also nonlinear being based on log growth rates, which can be problematic for large changes. Finally, Moretti defined the multiplier in an unusual way by subtracting off the direct effect. To make his multiplier consistent with the long literature, a researcher using his method needs to add 1.0 for consistency.

vendors to recover the high costs. These expenses will make it nearly impossible for the public and media to hold government officials accountable, and increase costs for business and research. In addition, private sector data collection would inherently be less precise because federal agencies can incorporate administrative records, such as tax data, in their estimates. It would also be more *ad hoc* and less comparable over time. Important business decisions would be based on poor quality data, hurting the economy. Finally, private vendors would have little incentive to fill in the gap for rural data. Because the market for a tiny rural county's socioeconomic data is so small, rural areas would be especially hurt by such efforts.

Big Data and New Data Sources. In the last decade, there has been a deluge of potentially new data sources such as Google Analytics, Facebook data, as well as private companies' customer and sales data. Without considering the ethical and privacy concerns of academics using such data for research, there are clearly some interesting questions that can be analyzed with Big Data that could not be done with conventional data. However, there are reasons to believe the Big Data fad is overhyped. Big Data shares with other private data the same problems of reliability and comparability over time, as well as problems for replication, a key standard for scientific research. These drawbacks may cool the enthusiasm over time.

Policy Discussion and Conclusion:

Over the next few years, the federal government will consider many policies that affect rural economies. Beginning immediately, there will be decisions about funding a host of rural development (RD) components, including infrastructure, USDA Rural Development programs, Small Business Administration (SBA), Economic Development Agency (EDA), and Appalachian Regional Commission (ARC). In 2018, this will be followed by debate on a new Farm Bill, including its RD efforts. Early signs are that the new Administration is not supportive of current RD programs, especially place-based policies, as indicated by initial proposals to strike key elements of the USDA RD infrastructure and USDA RD and SBA business financing activities, as well to entirely eliminate whole agencies such as the EDA and ARC (OPM, 2017). One potentially positive theme that emerged is the consolidation of economic development

activities, rather than having them spread out over dozens of different departments and agencies. However, these proposals suggest that the Administration is leaving Rural America behind; instead of making the economically-based investments that could help those most distressed communities. As we pointed out in our Introduction, this could have future electoral consequences.

Going forward, we have suggestions for improving RD policy without "breaking the bank." First, while place-based policies have a mixed track record, primarily due to poor implementation, there are examples of place-based policies that have potential, including the ARC, an expanded Delta Regional Authority, and other regional initiatives. For example, the ARC provides bridge loans and seed grants for infrastructure and supports other programs such as workforce training. Yet, given their limited resources, the ARC's main role is as a broker that can foster regional collaborations of businesses, communities, nonprofits, local development districts, and various state and federal agencies while providing small funding matches to ensure projects can be implemented. Congress could learn from this model and should create new federal-state regional development organizations so that the entire country is covered. Additionally, effective agencies cannot be expected to carry out their mission if they are insufficiently funded. Funding for many agencies is well below the authorized amount. The ARC, with a federal allocation of $90 million in FY 2015 and $146 in FY 2016 (with some temporary expenditures), is limited in what it can do for its over 25 million residents spread across 13 states. Still, the ARC is a fantastic example of what a regional organization with modest resources can accomplish. Indeed, Isserman and Rephann (1995), for example, is one of many supportive studies finding that ARC counties had significantly better economic outcomes than observationally similar counties.

Another feature of the federal-state regional commissions and other effective regional programs is that they can initiate multi-county regional development districts (the ARC refers to them as local development districts). These districts are composed of functional economic regions that can help facilitate cooperation and collaboration between neighboring communities,

which is especially important for rural communities who may lack capacity to tackle programs on their own. Since functional economic areas are predominantly centered on urban areas, it allows rural communities to work with their urban neighbors, which is especially important since urban-led growth is typically more sustainable because of the agglomeration advantages possessed by cities.

RD programs should also focus on "building from within" by stressing education and entrepreneurship/small business development. There is evidence that large firm attraction is typically unsuccessful, especially for rural areas. However, all areas have the potential to build a locally diverse business environment based on higher human capital. In addition, the type of parents that demand high-quality local schools are the types of workers a successful community needs. As mentioned previously, there is also evidence that even distressed areas can benefit from home-grown businesses. Policymakers can assist with these efforts by providing subsidies for early childhood education in rural America and helping support the infrastructure development and technical-assistance support (including business planning) to help grow develop and grow local businesses.

Rural development needs the support of environmental laws that include cost-benefit analysis. For rural areas that have historically been dependent on resource extraction industries, environmental degradation is a threat to future growth. People are unwilling to remain in or migrate to areas that have been degraded and this impacts future economic prosperity.

Though US policymakers often eagerly support various programs and policies they believe help their rural constituents, they generally have less patience for formal and systematic evaluation of such programs once implemented. It takes time for the full effects of programs and policies to play out, and it takes resources to conduct rigorous and impartial assessments. Above all, policymakers who have a genuine interest in understanding the effects of their policies, and who want to make the best possible use of taxpayer dollars, should be concerned about any efforts to scale back public data collection efforts. And, overall, there should be a more balanced approach to RD that weighs agriculture with the much larger rural nonfarm economy.

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Table 1
2016 Election Result for Trump

	Metro Definition and Change	Total Metro Votes	Trump Metro Votes	Trump Metro Votes Share
(1)	Metro 1950	68,380,703	25,469,903	37%
(2)	Metro Def. Change 1950-1973	26,522,379	14,147,642	53%
(3)	Metro Def. Change 1973-1983	6,245,681	3,457,467	55%
(4)	Metro Def. Change 1983-1993	3,764,839	2,214,950	59%
(5)	Metro Def. Change 1993-2003	3,548,019	2,075,511	60%
(6)	Metro Def. Change 2003-2013	2,040,345	1,298,349	63%
(7)	Metro 2013	110,501,966	48,663,822	44%
(8)	Nonmetro 2013	19,409,615	12,401,021	64%
(9)	Total US	129,911,581	61,064,843	47%

* Source: Townhall.com. Missing county-level data for Alaska. For current metropolitan counties, they are split into those metropolitan counties defined in 1950 and those that were subsequently reclassified as metropolitan by time period of reclassification.

Figure 1a, Population Growth of Non-Metro Area by historical MSA Definition: 100 = 1969 Population

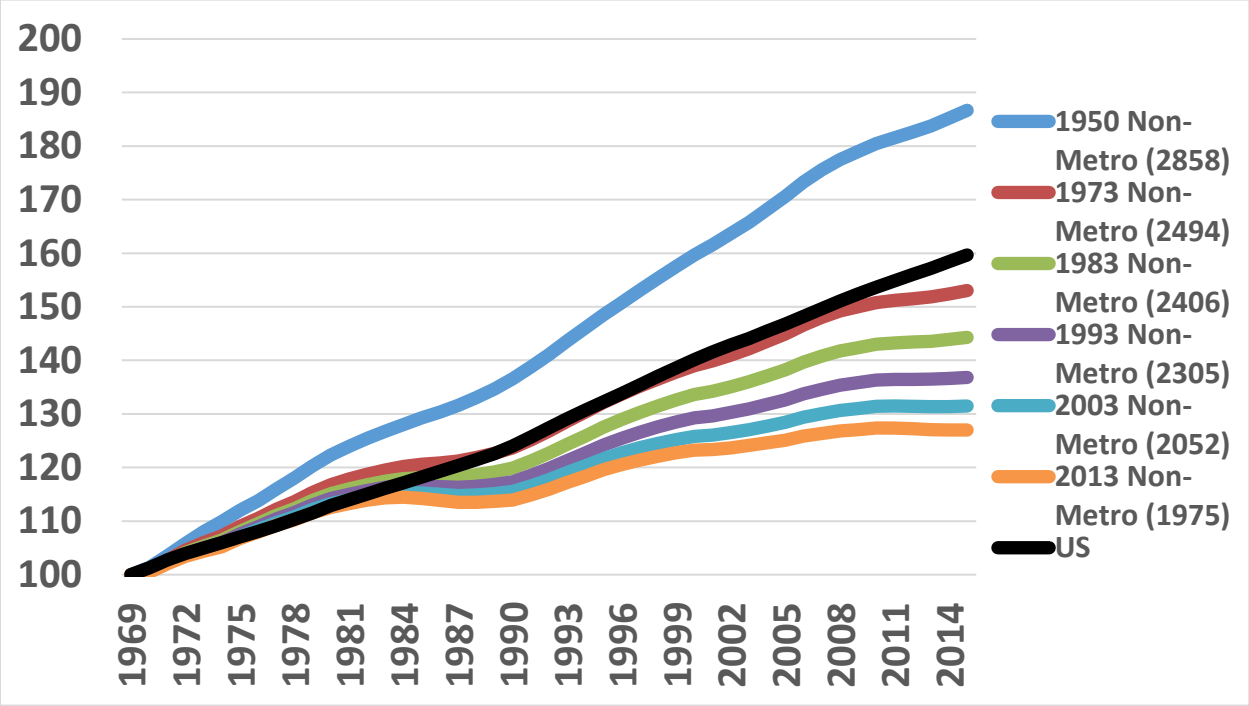
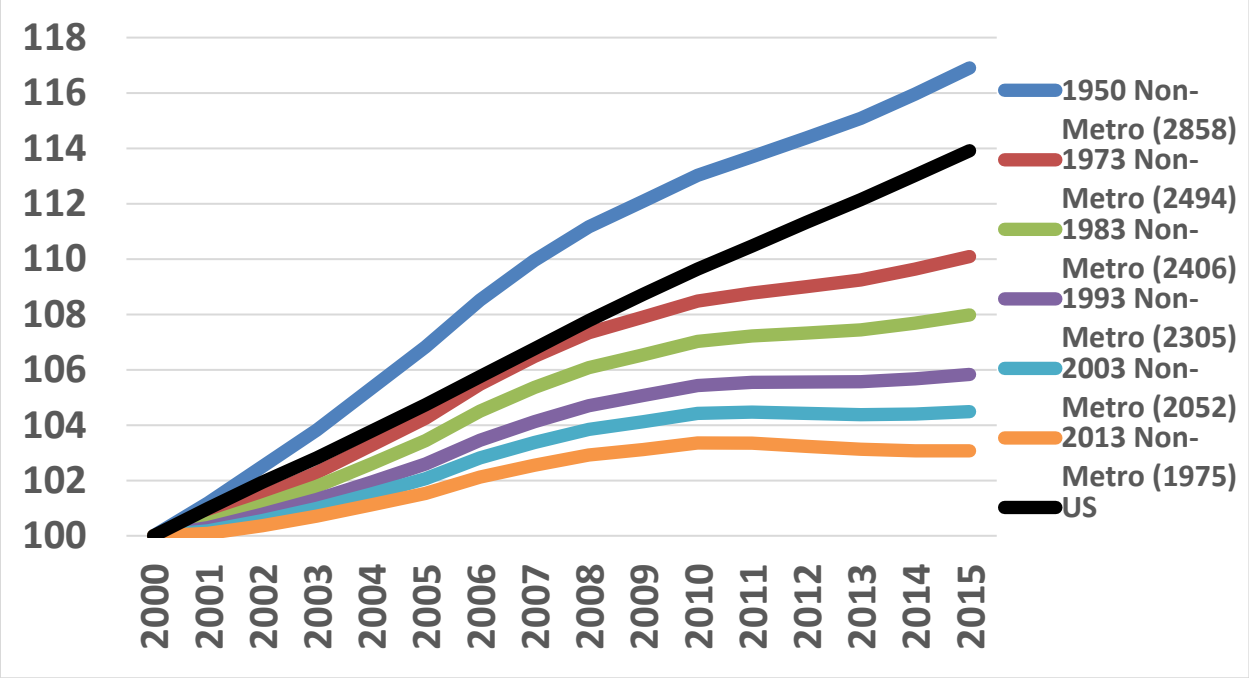


Figure 1b, Population Growth of Non-Metro Area by historical MSA Definition: 100 = 2000 Population



*Source for Figures 1a and 1b: Population – BEA; MSA Definitions – USDA

Figure 2a, Population Growth of Metro Area by historical MSA Definition: 100 = 1969 Population

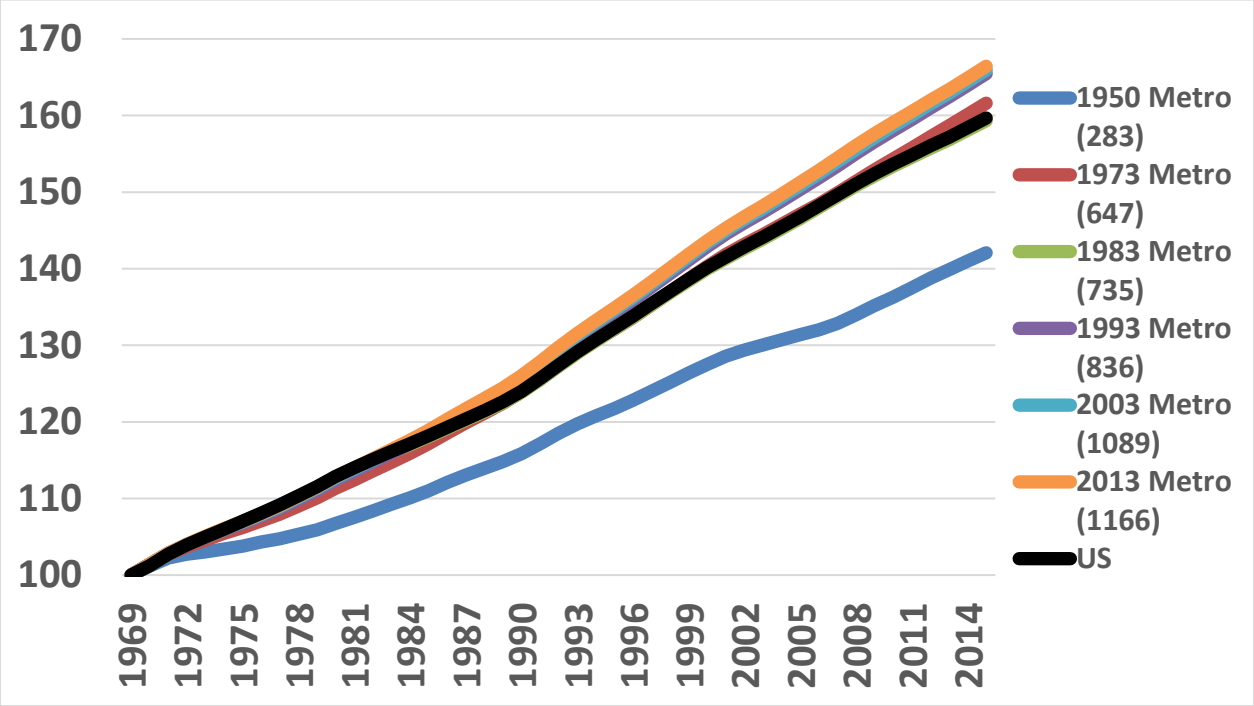
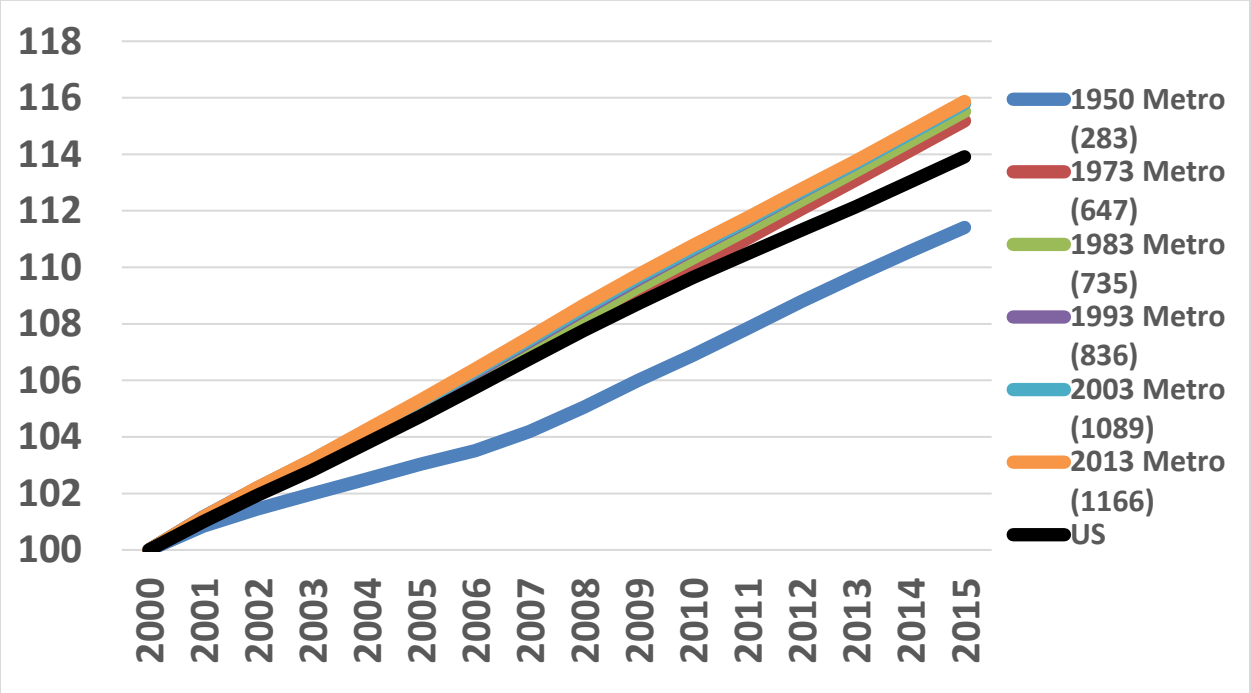
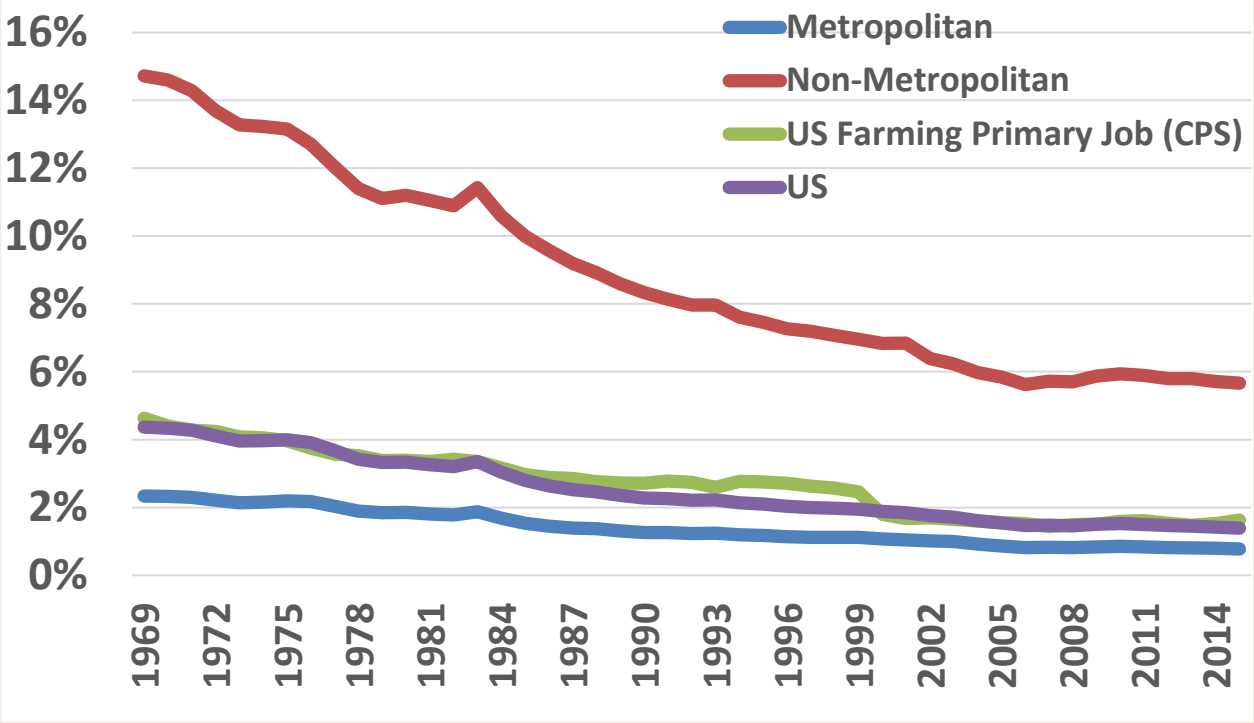


Figure 2b, Population Growth of Metro Area by historical MSA Definition: 100 = 2000 Population



*Source for Figure 2a and 2b: Population – BEA; MSA Definitions – USDA

Figure 3, Percentage of Total Jobs in Farming: 1969 - 2015



* Source: Farming share of total employment for Metropolitan, Non-Metropolitan, and US : Bureau of Economic Analysis; Total Full-Time and Part-Time Employment CA25 (1969 – 2000) CA25N (2001 – 2015). Farming as primary job as a share of total employment: Bureau of Labor Statistics, Table cpsaat01