



ESSAY

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WHERE IS MISSOURI GROWING?

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Abstract

Cities are the economic engines of the states. We may be able to garner a new perspective on economic growth in Missouri by analyzing the growth of Missouri's eight largest metropolitan areas. Four of these metro areas border neighboring states, which affords us the opportunity to compare growth in Missouri counties with growth in neighboring-state counties, within the same metropolitan areas. By separating our analysis into multiple components, we may be able to better document the economic performance of the state's economy and to see where Missouri's economy

is growing and which factors are determining this growth. We also research other American cities to determine aspects that lead to strong economic growth as well as steep economic decline.

Introduction

The Missouri economy has recorded relatively slow growth over the past 15 years. Between 1997 and 2013, Missouri's real Gross Domestic Product (GDP) increased at a 1.08 average annual rate.² Over this same period, only Michigan's growth rate is lower.

In this essay, we extend the analysis by considering economic growth

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...we ask whether economic growth is evenly distributed across Missouri, or if certain cities are reporting stronger economic growth than the statewide average.

1 The authors would like to thank Mike Podgursky for helpful comments on earlier drafts of this essay.

2 See Bureau of Economic Analysis, <http://bea.gov/regional/index.htm>, for directions to obtain these state-level data.

3 There are central cities in other states in which the designated metropolitan area includes counties in Missouri. The Fayetteville, Arkansas, metropolitan area includes McDonald County in Missouri. In another paper, we will analyze the effect of economic drift across state lines and how that has contributed, whether positively or negatively, to Missouri's economic growth.

rates of Missouri's metropolitan areas. A metro area is defined as a densely populated region composed of an urban core and its surrounding land, integrated by a shared infrastructure and economy. In particular, we ask whether economic growth is evenly distributed across Missouri, or if certain cities are reporting stronger economic growth than the statewide average. The Bureau of Economic Analysis (BEA) reports data on the inflation-adjusted value of final goods and services produced in eight Missouri metropolitan areas: Cape Girardeau, Columbia, Jefferson City, Joplin, Kansas City, Saint Louis, Saint Joseph, and Springfield. Metropolitan-area economic data are available for the period 2001 through 2013. To appropriately assess the contribution of each metropolitan area's growth to the state, there is one modification that has to be implemented. Because the Cape Girardeau, Kansas City, Saint Joseph, and Saint Louis metropolitan areas include parts of other states, we use personal income data from each county in the metropolitan area to allocate the proportion of metro area economic activity that occurred in Missouri.³

The results indicate that some of the metropolitan areas are growing at rates double those reported for the entire state over the same period. However, none of the metropolitan areas are growing at annual average rates that exceed 1.9 percent. So, we observe that some of the metropolitan areas boast relatively faster economic growth compared to others, but none of the metropolitan areas are reporting what people would consider

strong economic growth.

We begin by reporting the level of real GDP for Missouri and for each of the eight metropolitan areas within the state. In each case, we report the values of real GDP in 2001 and 2013. For Cape Girardeau, Kansas City, Saint Joseph, and Saint Louis, we attempt to get a clearer picture of where production occurs within the metropolitan area. For example, real GDP growth could be growing faster on the Missouri side than on the Illinois side of the Saint Louis metropolitan area. We use county-level personal income data to apportion the contribution to each metropolitan area's real GDP by Missouri counties. Lastly, we provide views expressed in Edward Glaeser (2011) and Enrico Moretti (2012) regarding the evolution of city economies. Glaeser in particular touts the city as an engine of economic growth, arguing that there are benefits associated with urban planning and development but such benefits do not automatically guarantee that a city will maintain its prosperity or become more prosperous. Rather, cities' economic fortunes wax and wane over time as a result of external market forces. Yet, as both Glaeser and Moretti argue, internal forces, like misguided development policy, can adversely affect present and future urban economic prosperity.

The Metro Data

Real GDP measures the dollar value of final goods and services produced within a specific geographic location in a given time period. Because prices change over time, the chain-weighted price index for 2009 is used

to control how inflation, or deflation, would affect the real GDP measure. In other words, real GDP measures the value of final goods and services controlling for price level changes.

Here, the geographic location is the metropolitan area. We use the definition of a metropolitan area as an entity delineated by the Office of Management and Budget (OMB). There are guidelines developed by the OMB as to what constitutes the inclusion of a county into a metropolitan area. Without going into detail, the central, or core, city is the dominant force accounting for economic development in the nearby set of outlying counties. In deciding to include a county in a metropolitan area, the OMB examines commuting patterns, commercial development, and broader social and economic interactions between the central city and outlying constituencies.⁴

Table 1 reports real GDP for the state of Missouri and the eight metropolitan areas in the state. The fourth column is the average annual growth rate in real GDP for each geographic area for the period 2001 through 2013.⁵ The table indicates that the Missouri statewide level of real GDP was

Table 1
Real GDP for Missouri and Its
Eight Metropolitan Areas, 2001 and 2013
(Millions of 2009 Dollars)

Geographic Area	2001	2013	Avg. Annual Growth Rate
Missouri	233,980	258,135	0.82%
Cape Girardeau	2,964	3,482	1.35%
Columbia	5,840	7,122	1.67%
Jefferson City	5,600	6,140	0.77%
Joplin	5,221	6,054	1.24%
Kansas City	94,851	110,278	1.26%
Saint Joseph	3,914	4,866	1.83%
Saint Louis	126,322	136,519	0.65%
Springfield	13,141	15,702	1.49%

\$233.98 billion in 2001 and was \$258.14 billion in 2013. Thus, for the 2001 through 2013 period, real GDP increased at an annual average rate of 0.82 percent. There are differences in growth among the major metropolitan areas within the state. The Saint Louis metropolitan area reported the slowest growth rate, averaging 0.65 percent per year over the 13-year period. Saint Joseph reported the fastest growth, averaging 1.83 percent, while Columbia reported a 1.67 percent annual average growth rate.

⁴ As of 2013, the OMB identified 381 metropolitan areas in the United States. These areas included 1,167 of the 3,143 U.S. counties.

⁵ The formula is as follows:

$$g = \left[\left(\frac{Y_{2013}}{Y_{2001}} \right)^{1/12} - 1 \right] \times 100$$

where g is the average annual growth rate and Y is the level of real GDP.

Figure 1
Cape Girardeau Metro Area Change in Real GDP

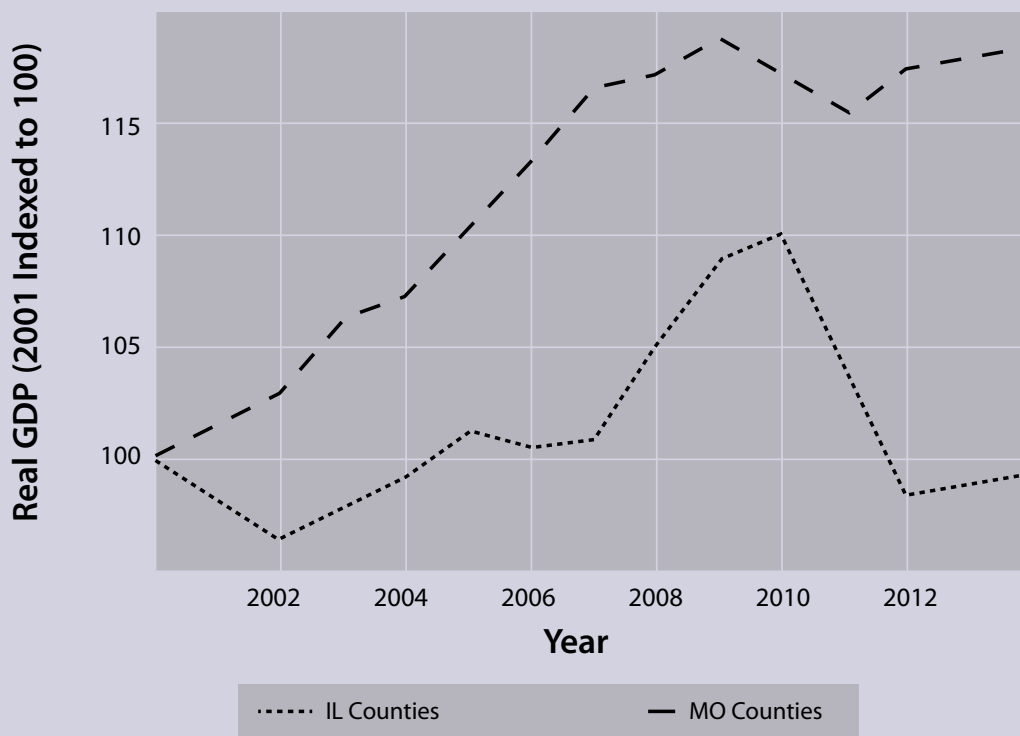


Figure 1 shows the breakdown for the change in total real GDP from a 2001 baseline of 100 for the Cape Girardeau metro area. The Illinois county of the Cape Girardeau area is growing at a slower rate than the Missouri counties.

Table 1 provides us with a snapshot of the distribution of economic growth in Missouri's eight metropolitan areas. In four of those eight metropolitan areas, however, the region includes both counties in Missouri and counties in other states. This begs the question, what fraction of the reported growth occurred in Missouri and what fraction occurred in the neighboring state?

the county level for each year that we have real GDP data. You might ask: Why not use personal income as our measure of economic activity? For one thing, personal income measures the income received by people living in the county. Income received will include interest and dividend payments, for example, that a person is paid from production that occurs outside the metropolitan area. In contrast, real GDP consists of production that occurs entirely

An Apportionment of the Metro Data

Next, we use the OMB metro area boundaries to apportion economic activity across state lines. Since the OMB delineates metropolitan areas by county lines, we can use county-level, personal-income data from the BEA to identify the fraction of metro GDP attributable to the Missouri side of the region. We do this for the four Missouri metropolitan areas that include counties across state lines—Cape Girardeau, Kansas City, Saint Joseph, and Saint Louis.

The BEA provides measures of real personal income at

within the confines of the specific metropolitan area. Thus, we cannot use real personal income as an apples-to-apples comparison with real GDP. Nonetheless, since county-level GDP data is not available annually, personal income data provides a useful, though admittedly imperfect, measure for estimating the proportion of GDP growth that occurs on either side of state borders for overlapping metropolitan areas.

Figure 1 shows the share of real GDP for the Illinois and Missouri counties in the Cape Girardeau metro area. Once we have computed the share of real GDP on

each side of the state line, we index the values to 100, using the 2001 level. Thus, the index value is simply $Y_{IL,year} / Y_{IL,2001}$ for the real GDP share of the Cape Girardeau metro area on the Illinois side. Table 1, in the Data Appendix, reports the data used to compute the share of real GDP attributable to the Illinois and Missouri sides of the Cape Girardeau metropolitan area. Based on real personal income by county,

Figure 2
Kansas City Metro Area Change in Real GDP

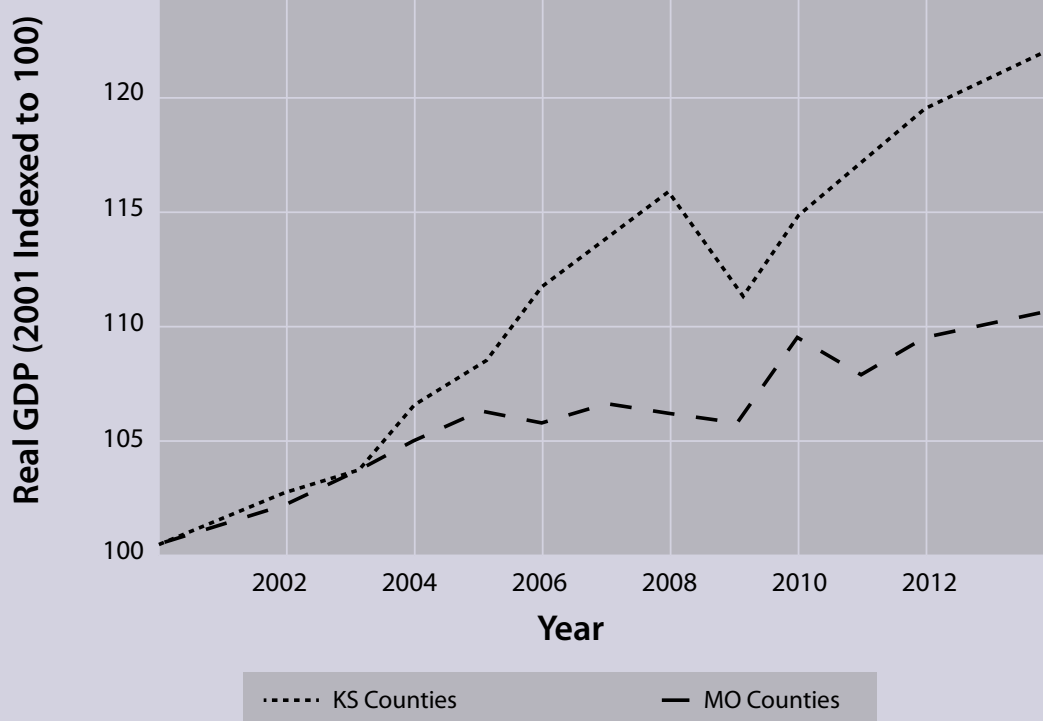


Figure 2 shows the breakdown for the change in total real GDP from a 2001 baseline of 100 for the Kansas City metro area. In the Kansas City area, Missouri counties are growing at a slower rate than the Kansas counties.

the two Missouri counties account for, on average, 93.2 percent of the metropolitan area's total real GDP. From these data, we see that production recorded its business-cycle minimum on the Illinois side of the Cape Girardeau metropolitan area in 2012. The business-cycle trough occurred in 2011 on the Missouri side. The evidence indicates that the recessionary trough for the Cape Girardeau metropolitan area followed that of the national Great Recession

Figure 3
Saint Joseph Metro Area Change in Real GDP

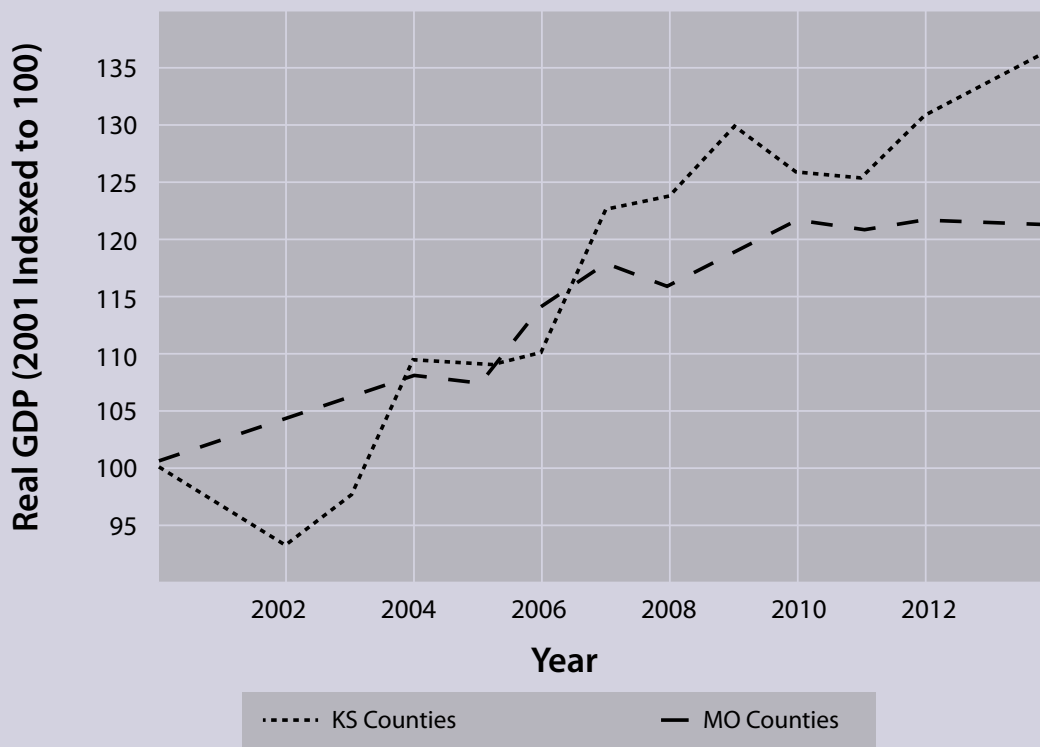


Figure 3 shows the breakdown for the change in total real GDP from a 2001 baseline of 100 for the Saint Joseph metro area. Although Missouri counties in the Saint Joseph area experienced a growth rate one percentage point greater than the statewide average, it was still considerably lower than the Kansas counties in the metro area.

real GDP for the Missouri and Kansas counties of the Kansas City metro area. The data behind this plot are provided in Table 2 in the Data Appendix. On the Missouri side, the percentage of real GDP is estimated to be just below 55 percent. The Missouri counties account for a much smaller fraction of metropolitan total real GDP when compared with the Missouri counties in the other bistate metropolitan areas. Based on the evidence, Kansas City's downturn coincided with the national recession in 2009. In terms of average annual growth, the Missouri side recorded a 0.9 percent rate, so

by two years. Over the 2001-13 period, the Missouri side of the Cape Girardeau metropolitan area grew at an average annual rate equal to 1.46 percent while the Illinois side decreased at an average annual rate equal to 0.1 percent. As Figure 1 shows, the Illinois side is growing at a slower rate than the Missouri side of the Cape Girardeau metropolitan area.

Figure 2 shows the magnitude of

economic activity on the Missouri side of the Kansas City metropolitan area increased at a slightly faster rate than the statewide average from 2001 to 2013. On the Kansas side, the evidence indicates that the average annual growth rate was 1.7 percent, nearly double the rate that occurred on the Missouri side.

Figure 3 shows the trajectories of real GDP growth since 2001 for

the Kansas and Missouri counties in the Saint Joseph Area. From Table 3 of the Data Appendix, we see that the Missouri side accounted for 94 percent of the value of total production in the Saint Joseph region. Like the Cape Girardeau metropolitan area, real GDP bottomed out in 2011 after the national recession was over. The Missouri side of the Saint Joseph metropolitan area reported an average annual growth rate equal to 1.8 percent, which represents a rate of growth roughly one percentage point greater than the statewide average. However, this may still only be a consolation prize because, on the Kansas side of the Saint Joseph metro area, real GDP increased at an average annual rate of 3 percent.

Figure 4 plots the shares of real GDP on the Illinois and Missouri sides within the Saint Louis metro area. The data are reported in Table 4 of the Data Appendix. Like Kansas City, the Saint Louis metropolitan area recorded its economic trough in

Figure 4
Saint Louis Metro Area Change in Real GDP

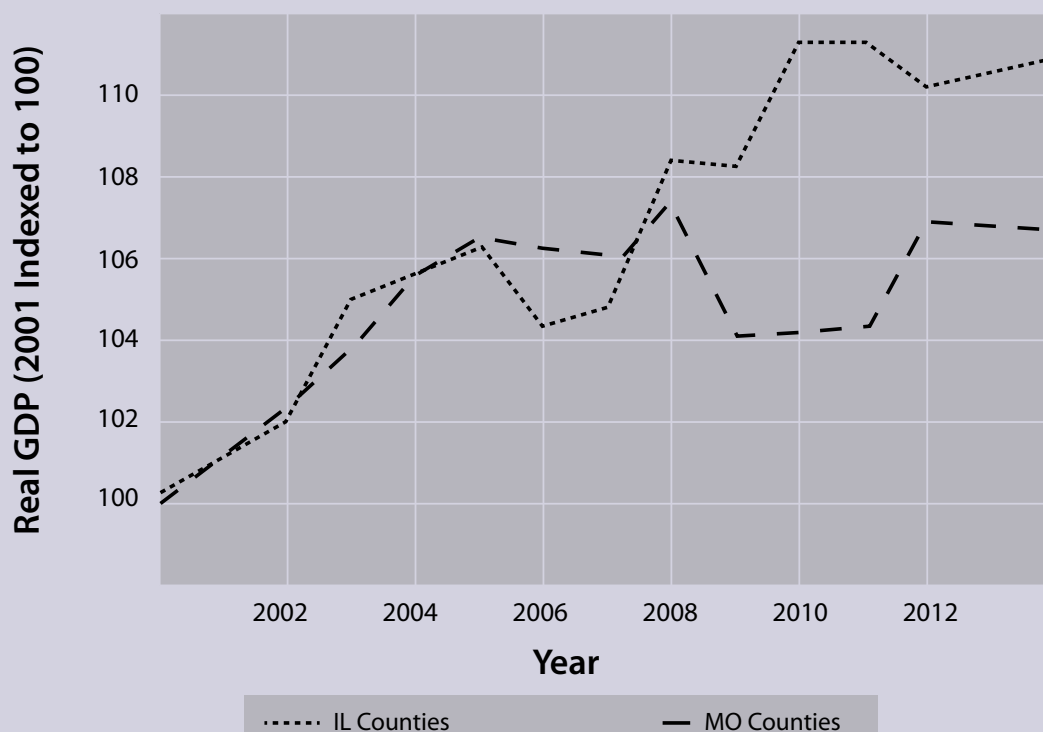


Figure 4 shows the breakdown for the change in total real GDP from a 2001 baseline of 100 for the Saint Louis metro area. Missouri counties of the Saint Louis area grew at a slower rate than the Illinois counties.

2009, coinciding with the national economic trough. Compared with Kansas City, the Missouri counties in the Saint Louis area account for a larger fraction of total real GDP, averaging 78 percent of regional output from 2001 to 2013, over 20 percentage points higher than the share of output for the Missouri side of the Kansas City metropolitan area. Figure 4 shows that real GDP grew faster on the Illinois side of the Saint Louis area than on the Missouri side

In 2013, real GDP in the Missouri counties of the eight metropolitan areas was \$208.33 billion, which is slightly greater than 80 percent of total statewide real GDP.

over this period. When we look at the average annual growth rate for the whole Saint Louis metropolitan area, the Missouri side reports a 0.6 percent annual rate while the Illinois side reports a 0.9 percent rate, both of which are substantially below the national average for the same period.

Overall, there are four metropolitan areas in Missouri that straddle two states. Based on our apportionment of real GDP, the two smaller areas—Cape Girardeau and Saint Joseph—reported economic growth that was higher than the statewide average. The Missouri counties of the Kansas City metropolitan area, meanwhile, account for the smallest fraction of regional real GDP relative to Missouri's other four overlapping metropolitan areas. Also, the Missouri side of Kansas City grew slightly faster than the statewide average, but at a much slower rate than the Kansas side. If the pace on the Kansas side relative to the Missouri side were to continue, the Kansas counties would contribute more than half of regional output by 2031. The state's largest metropolitan area—Saint Louis—is growing at the slowest rate. After breaking down the share of output attributable to the Missouri counties of the state-border metros, we easily can extend our analysis to compute the share of statewide real GDP attributable to metro areas. In 2013, real GDP in the Missouri counties of the eight metropolitan areas was \$208.33 billion, which is slightly greater than 80 percent of total statewide real GDP.

Why Do We Think Cities Are Important?

In the last decade, two economists have written books on the role that cities play as engines of economic growth.

Cities are one of mankind's most remarkable achievements. There are huge economies of scale associated with living in close proximity to one another. We can haul away trash, obtain clean water, and exchange ideas. Even with reduced transportation costs, with many people of varying skill sets working and living in proximity to each other, cities have always been hubs for growth-driving, creative innovation. Glaeser (2011) discusses how this proximity bolsters the free exchange of knowledge and market information. Since the free exchange of ideas provides the genesis for technological progress, economically vibrant and successful cities act as growth engines by naturally promoting and supporting such an exchange.

Glaeser, however, emphasizes that a city is, of course, just a collection of people. Since people are mobile, especially educated people with high-valued skill sets, they will naturally move to places where trade results in the highest return to a person's skills. Once established, the power of a city's economic growth engine can wane if the regional economy fails to adapt to broader, national, and global market changes. When this happens, the exodus of educated, mobile innovators and entrepreneurs soon follows.

The fate of Detroit in the wake of global competition with respect to automobile manufacturing is a relevant example. In his book, Moretti (2012) points out that while Detroit failed to adapt to an increasingly integrated global economy in the 1970s and 1980s other American cities like Seattle and San Francisco emerged as new bastions of economic growth driven by clusters of creative innovators developing advanced computing hardware and software.

The lessons of Detroit, Seattle, and San Francisco show that in the broader economy a city's long-term viability relative to that of other cities is dependent on its ability to continue attracting young, entrepreneurial creative talent to foster innovation. This means removing disincentives that discourage entrepreneurs and innovators from moving to the city or remaining a valuable component of the city's economy.

High local income taxes represent just one of many disincentives. In discussing income taxes implemented in 1963 under the leadership of then-Michigan state senate minority leader and later Detroit mayor, Coleman Young, Glaeser writes:

Local income taxes illustrate the problem of trying to create a just society city by city. The direct effect of Young's income tax was to take money from the rich to fund services that helped the poor. The indirect effect of a local income tax is to encourage richer citizens and businesses to leave. Research by four economists found that in three

out of four large cities, higher tax rates barely increase tax revenues because economic activity dissipates so quickly in response to higher tax rates. In a declining place like Detroit, well-meaning attempts at local redistribution can easily backfire by speeding the exodus of wealthier businesses and people, which only further isolates the poor. (Glaeser, p. 59)

Glaeser's assertion and reference to one piece of research on a small sample highlights a fundamental empirical question. Namely, is the demand to live in a particular city and utilize its amenities and attributes inelastic with respect to the income tax rate? Glaeser cites one research paper and concludes that the answer is "no." When past municipal administrations were implementing those income taxes, they were betting the answer was "yes." Thus, there is evidence that a city's long-term viability is correlated with local income tax levels. If income taxes are high compared to other cities with similar demographics, innovators and entrepreneurs have an incentive to take their knowledge and skills elsewhere.

Moretti focuses on how innovation and labor market changes are connected with a city's long-term economic viability. Over the last 20 years, the prosperity gap between the "haves" and the so-called "have-nots" of American metropolises has increased dramatically. Places like Austin, San Francisco, Seattle, Boston, and to some extent even Minneapolis and Pittsburgh have rebounded from two decades of urban decay to be centers of

If income taxes are high compared to other cities with similar demographics, innovators and entrepreneurs have an incentive to take their knowledge and skills elsewhere.

To attract the talent, a city must offer the kinds of jobs the talent want, and that means getting out of the way of the free market and the free exchange of ideas and knowledge.

innovation and economic activity. According to Moretti, each of these cities features a core creative class of young, educated entrepreneurs and workers who hold high-skilled jobs in research-intensive and innovation-driven business sectors like software development, robotics, and biotech. In turn, the local presence of these workers in profitable and growing industries causes increased demand for basic services and unskilled labor. As a result, unskilled workers or tradesmen in places like San Francisco and Seattle are economically better off than a worker of similar skills in a struggling city like Detroit. Metropolitan areas that feature a large population of high-skilled, high-educated workers benefit from what Moretti deems “thick labor markets.” More skilled workers means greater demand for the services of unskilled workers, which in turn raises the value of labor for unskilled workers. Everyone benefits in regions characterized by creative innovation and entrepreneurialism—a modern economic spin on the classic “a rising tide lifts all boats” phenomenon.

Moretti predicts that the divide between the “haves” and the “have-nots” will widen in the 21st century if cities like Saint Louis, and to a lesser extent Kansas City, continue to struggle to adapt to changing market conditions. The prosperity gap for workers of all skill levels between those living in the “haves” verses the “have-nots” is widening, and will likely continue to widen, Moretti predicts. Cities can hedge against economic malaise by reducing income taxes and limiting barriers to entry for new start-ups and small

businesses. Many cities, however, including Saint Louis and Kansas City, seek to lure young, creative talent to the area by encouraging the development of high-end retail spaces and condominiums without providing more substantial across-the-board economic incentives to encourage investment and growth. Moretti advises against these somewhat blind development policies, arguing that there is little evidence that a city attracts talented young professionals with shiny consumer amenities. Rather, in healthy urban economies, high-end retail and valuable condominiums typically appear after the start-ups and innovative small businesses have become successful. To attract the talent, a city must offer the kinds of jobs the talent want, and that means getting out of the way of the free market and the free exchange of ideas and knowledge.

Conclusion

Missouri’s economic growth is among the weakest in the nation over the past two decades. In this essay, we looked at disaggregate growth across the state. Are there metropolitan areas that are growing faster than others within Missouri? The new evidence does not offer an explanation for why Missouri has been growing relatively slowly. The disaggregated approach, however, does give us a different perspective that may help form new theories that will account for state growth patterns.

Overall, the Saint Louis metropolitan area has recorded the slowest economic growth rate among all of Missouri’s metros. Meanwhile,

Columbia and Saint Joseph outperform state-level growth with Saint Joseph's growth just about at the national average, while Columbia's is slightly below. Still, Missouri's fastest-growing cities aren't really growing that fast relative to the national average.

Since four of Missouri's metropolitan areas cross state borders, we can see whether growth just across the state line is significantly different. In the Kansas City and Saint Joseph metro areas, the evidence suggests it is. In both metropolitan areas, the average annual growth rate is greater in the Kansas counties than in the Missouri counties. In contrast, the evidence in the Saint Louis and Cape Girardeau metropolitan areas is mixed; that is, the Illinois counties in the Saint Louis metro area are growing faster than those on the Missouri side while Missouri counties are growing faster than the lone Illinois county in the Cape Girardeau metro area. This is probably too small of a sample to draw firm conclusions, but it is worth noting.

Here, we documented the economic performance of the Missouri economy by looking at each metropolitan area within the state. The key takeaway is that none of Missouri's cities are growing above the national average. There are simply no pockets of strength evident over the last 15 years. Such evidence begs for a theory that can account for why Missouri is growing slower than most of the rest of the United States. More than likely, the quantitative analysis would want to characterize the culture of tax rates, credits and incentive policies, and the regulatory

environment. We have learned that the economic growth rates across the states are tightly distributed. With this fact, the search seems naturally focused on the set of rules that are common across the state.

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The key takeaway is that none of Missouri's cities are growing above the national average. There are simply no pockets of strength evident over the last 15 years.

Data Appendix

Table 1
Share of Real GDP by State
for the Cape Girardeau Metro Area

Year	Illinois-side GDP	Missouri-side GDP	$\frac{Y_{MO}}{Y_{IL} + Y_{MO}}$
2001	221.38	2742.62	0.925
2002	215.66	2813.34	0.929
2003	218.08	2897.92	0.930
2004	219.56	2917.44	0.930
2005	223.97	3012.03	0.931
2006	221.93	3117.07	0.934
2007	223.81	3223.19	0.935
2008	229.28	3225.52	0.934
2009	241.39	3288.61	0.932
2010	243.42	3233.58	0.930
2011	231.64	3189.36	0.932
2012	216.32	3252.68	0.938
2013	218.82	3263.18	0.937

mean=0.932

Source: Bureau of Economic Analysis

Legend: $\frac{Y_{MO}}{Y_{IL} + Y_{MO}}$ is the ratio of real GDP in the Missouri counties to the sum of real GDP in the Missouri counties and Illinois counties.

Table 2
Breakdown of Real GDP Growth
for the Kansas City Metro Area

Year	Kansas-side GDP	Missouri-side GDP	$\frac{Y_{MO}}{Y_{KS} + Y_{MO}}$
2001	41,794.96	53,056.04	0.559
2002	42,641.94	53,861.06	0.558
2003	43,056.66	54,758.34	0.560
2004	44,589.87	55,720.13	0.555
2005	45,594.10	56,538.90	0.554
2006	46,941.75	56,247.25	0.545
2007	47,965.10	57,075.90	0.543
2008	48,957.70	58,869.30	0.537
2009	46,812.18	56,420.82	0.547
2010	48,344.18	58,221.82	0.546
2011	49,529.46	57,437.54	0.537
2012	50,519.55	58,280.45	0.536
2013	51,356.86	58,921.14	0.534

mean=0.547

Source: Bureau of Economic Analysis

Legend: $\frac{Y_{MO}}{Y_{KS} + Y_{MO}}$ is the ratio of real GDP in the Missouri counties to the sum of real GDP in the Missouri counties and Kansas counties.

Table 3
Breakdown of Real GDP Growth
for the Saint Joseph Metro Area

Year	Kansas-side GDP	Missouri-side GDP	$\frac{Y_{MO}}{Y_{KS} + Y_{MO}}$
2001	227.53	3686.47	0.942
2002	213.85	3743.15	0.946
2003	221.62	3818.38	0.945
2004	246.69	3968.31	0.941
2005	245.52	3946.47	0.941
2006	250.21	4190.79	0.944
2007	281.11	4355.89	0.939
2008	283.84	4288.16	0.938
2009	300.72	4366.28	0.936
2010	289.40	4553.60	0.940
2011	288.51	4499.49	0.940
2012	303.51	4562.49	0.937
2013	322.60	4543.40	0.934

mean=0.940

Source: Bureau of Economic Analysis

Legend: $\frac{Y_{MO}}{Y_{KS} + Y_{MO}}$ is the ratio of real GDP in the Missouri counties to the sum of real GDP in the Missouri counties and Kansas counties.

Table 4
Share of Real GDP by State
for the Saint Louis Metro Area

Year	Illinois-side GDP	Missouri-side GDP	$\frac{Y_{MO}}{Y_{IL} + Y_{MO}}$
2001	26,982.57	99,429.43	0.787
2002	27,421.11	101,742.89	0.788
2003	28,234.62	103,854.38	0.786
2004	28,464.81	104,872.19	0.787
2005	28,618.62	106,176.38	0.788
2006	28,155.08	105,716.92	0.790
2007	28,282.95	105,498.05	0.789
2008	29,206.54	107,078.46	0.786
2009	29,172.61	103,472.39	0.780
2010	30,022.37	103,545.63	0.775
2011	30,012.46	104,021.54	0.776
2012	29,681.69	106,757.31	0.782
2013	29,929.52	106,589.48	0.781

mean=0.784

Source: Bureau of Economic Analysis

Legend: $\frac{Y_{MO}}{Y_{IL} + Y_{MO}}$ is the ratio of real GDP in the Missouri counties to the sum of real GDP in the Missouri counties and Illinois counties.



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