



REPORT

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IF YOU TAX SOMETHING, YOU GET LESS OF IT

THE EFFECTS OF EARNINGS TAXES ON ECONOMIC GROWTH IN ST. LOUIS, KANSAS CITY, AND MISSOURI

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KEY TAKEAWAY

- Earnings taxes have a negative effect on both employment growth and population growth in the cities that impose them.

INTRODUCTION

This paper examines and estimates how the taxes levied on individual earnings in St. Louis and Kansas City affect population and employment growth in the cities, their respective metro areas, and the state of Missouri. These one-percent earnings taxes are levied on those who live or work in the cities and have been shown to have significant negative effects on the allocation of income and population.¹ The purpose of this paper is to update and consolidate the examination of earnings taxes so that policymakers and the general public have the most-recent and most-comprehensive picture that is possible with available data.

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City governments across the country provide many services to their residents, including but not limited to police, roads, streetlights, parks, and education. To provide these services, governments need to raise revenue through taxes and fees that distort the city's economy and affect the decisions of people and businesses both inside and outside the city. These distortions result in what economists call deadweight losses and unintended consequences that are simply unavoidable whenever taxes are levied. Effective city governments will try to minimize these distortions relative to the benefits that residents receive from the services bought with the tax revenue.

A key to minimizing tax distortions is to remember economists' mantra about taxes: if you tax something, you get less of it. Property taxes will mean less-valuable property, sales taxes will mean reduced sales, and income taxes will mean less income. For cities, mobility is a crucial consideration when trying to minimize the distortions caused by taxes. Relative to taxes at the state or national level, city taxes are easy to avoid by simply relocating to a nearby or neighboring city without leaving the county, metro area, or state.²

Because of the relative ease of tax avoidance via mobility, cities tend to tax relatively immobile things to finance public services. In particular, they tend to rely much more heavily on property taxes rather than sales taxes and income taxes. Property won't move when it is taxed, unlike people who can be taxed as residents, employees, or customers. Because of this, localities in the United States collect about 15 times as much revenue from property taxes as they do from taxes on individual income, and about four times as much as they do from sales taxes. St. Louis City and Kansas City, on the other hand, do the opposite of what is prescribed by economists.³ In each city, government revenue from property taxes is about half the amount of government revenue from taxes on individual income.⁴

There are several direct ways that an earnings tax can affect individual location decisions and city/metro growth. For example, if the central city of a metro area has an earnings tax, the area's natural population growth will be distorted away from the center to elsewhere in the metro area. In addition, the tax means there is more incentive for residents to move out of the metro area and less

incentive for others to move into it. Overall, the earnings tax should reduce growth of the central city's population and employment, could increase or decrease population and employment growth in the rest of the metro area, and could decrease population and employment growth in the metro area as a whole. Given that earnings tax rates are not very high, we shouldn't expect massive numbers of people making their location decisions based on them in any given year. But even fewer than a hundred such decisions per year can mean thousands of mislocated people over a decade.

These numbers reflect only the direct effects of an earnings tax on people's decisions about where to live, as well as where and whether to work. They do not account for the geographic inefficiencies that an earnings tax leads to. In short, the earnings tax results in a misallocation of people and employers across the metro area relative to where they would be with undistorted choices. For example, efficient metro areas tend to have people and jobs concentrated in the central areas, with employment and population density decreasing the further you get from the center. Earnings taxes in the central city flatten the distribution of people and employment away from the center. The reduction in geographic efficiency has the consequence of lowering employment and population across the metro area.⁵ In other words, an earnings tax does not simply reallocate people and employment between cities within a metro area; it also can lead people and employment to leave the metro area altogether by weakening the metro economy.

DATA AND EMPIRICAL MODEL

To obtain up-to-date estimates of the effects of earnings taxes on city growth in population and employment, I used data from the Census Bureau's annual American Community Survey (ACS) and compared cities according to their growth between 2010 and 2019. I chose the nine-year period of 2010 to 2019 to avoid dealing with the Great Recession of 2008–09 and the start of the COVID pandemic in 2020.⁶ The one-year ACS includes all places within official metro areas that had populations in 2019 greater than 65,000. The smallest places in my dataset had populations just above 60,000 or employment just above 20,000 in 2010. Note that employment in the ACS is an estimate of the number of people who are employed,

rather than the number of jobs. Thus, it doesn't tell us where employment is happening, just whether a person who lives in a city is employed or not.⁷

The data on earnings taxes are from the Tax Foundation, which documents all local income taxes across the country, some of which are not comparable to the percent taxes on earnings that I am interested in. For example, several cities in Colorado and West Virginia levy taxes between \$2 and \$10 dollars per pay period on employed people. I simply ignored these taxes as being too small to matter. Iowa localities and Yonkers, New York, base their taxes on the amount of state income taxes paid rather than on earnings. These taxes are large enough to matter but are not comparable to taxes levied elsewhere, so I excluded those cities. Finally, Washington, D.C., and New York City impose their taxes on residents only, so they are really just traditional income taxes. As such, these cities and their metro areas are not included in the dataset. After eliminating cities with incomplete data, I have a dataset of 504 cities. Of these, 39 impose earnings taxes, with rates that range from Philadelphia's 3.8809 percent to San Francisco's 0.19 percent. A total of 73 cities are in metro areas in which at least one city—usually the central city of the metro area—imposes an earnings tax.

I use the model below to estimate the relationship between earnings taxes and city population and employment growth rates.⁸ The model includes three tax variables: (1) The direct effect of the tax is captured by city i 's earnings tax rate T_i . (2) The larger a city is within its metro area, the fewer options there are for living and working outside the city without leaving the metro area. To account for this, the model includes the interaction between a city's earnings tax rate and $popshare_i$, its share of its metro area's population. (3) Some metro areas include non-central cities with their own earnings taxes, so the model includes the difference between the city's earnings tax rate and T_i^C , the earnings tax in the central city in its metro area.⁹

To control for the initial geographic environment within which earnings taxes reallocate people and affect growth, the model controls for cities' size and agglomeration in 2010. Specifically, $population_i$ is a city's population in millions, $density_i$ is its population per square mile; and $(population_i \times density_i)$ is the interaction of the two. A city's share of its metro area's population is included to

capture agglomeration within its metro area. In addition to these agglomeration variables, I include $manufshare_i$ —a city's share of employment in the manufacturing sector in 2010—to control for the long-term decline of manufacturing.¹⁰ Regional and region-related factors are captured by dummy variables indicating whether the city is in the Southeast or Southwest regions of the country, where growth rates well above average were typical.¹¹ I estimated the model using Ordinary Least Squares and adjusted standard errors to account for heteroskedasticity.

The expectation is that the direct effect of an earnings tax is to reduce growth in the taxing city ($\beta < 0$), although this effect is ameliorated the larger the city is relative its metro area ($\gamma > 0$). For cities in the rest of the metro area, an earnings tax in a central city can lead to more population and employment growth because of the tax advantage ($\delta < 0$). On the other hand, the metro area might suffer from the geographic misallocation of people and firms along with a general decline in growth as the earnings tax pushes people out of the metro area altogether ($\delta > 0$). The net effect of the earnings tax on the metro area outside the central city depends, therefore, on the relative sizes of the tax-advantage and general-decline effects.

$$\begin{aligned}
 growth_i = & \alpha + \beta T_i + \gamma (popshare_i \times T_i) + \delta (T_i - T_i^C) \\
 & + \lambda population_i + \rho density_i + \kappa (population_i \times density_i) + \theta popshare_i \\
 & + \sigma manufshare_i + \omega Southeast_i + \mu Southwest_i + \epsilon_i
 \end{aligned}$$

The question I want to address with this model is what would happen if a city had used some other means, such as property taxes, to raise the same amount of revenue it raised with earnings taxes. That is, the coefficients on the tax variables would indicate the effects of differences in earnings tax rates for a given level of government revenue. One way to do so is for the model to include a measure of per-capita government revenue. Although that variable is not available for all of the cities in the dataset, it is available for a subset of them from the Government Finance Database produced by researchers at Willamette University.¹² When per-capita own-government revenue is included for the 458 cities for which it is available, its coefficient is statistically no different from zero, and the model without the variable is preferred.¹³ For parsimony and to maximize the number of observations, I do not

Table 1: Select Sample Statistics

Variables	St. Louis City	Kansas City	Sample Mean	25th %ile	Median	75th %ile
Population growth rate, 2010–19	−5.8	7.5	8.6	1.7	7.1	12.5
Employment growth rate, 2010–19	8.6	19.2	19.1	10.7	17.8	25.6
Population (thousands), 2010	319	460	184	81	104	175
Population density (1000s/sq. mile), 2010	5.2	1.5	3.7	1.9	2.9	4.5
Share of metro population, 2010	11.3	22.6	18.7	2.3	9.3	31.7
Manufacturing share of employment, 2010	7.7	9.0	9.6	6.1	9.0	12.5

Table 2: Regression Results: City Population Growth, 2010–2019

Independent variable	Coefficient	Std. error	t–statistic
Intercept (α)	17.898	1.752	10.21
Earnings tax rate (β)	−4.268	1.037	−4.12
Earnings tax \times share of metro area population (γ)	0.077 †	0.042	1.85
Difference between city and central–city earnings tax rates (δ)	1.912*	0.803	2.38
Population (millions, λ)	−1.208	2.444	−0.49
Population density (people per square mile, ρ)	−0.0012*	0.0002	−6.40
Population \times population density (κ)	0.0005	0.0003	1.31
Share of metro area population (percent, θ)	−0.127*	0.024	−5.29
Manufacturing share of payroll employment (percent, σ)	−0.360*	0.092	−3.91
Southeast region dummy (ω)	1.325	1.108	1.20
Southwest region dummy (κ)	6.563*	1.618	4.06
$R^2=0.240$		number of observations=504	

Standard errors are adjusted to account for heteroskedasticity. A “*” or a “†” indicate statistical significance at the 5 or 10 percent level, respectively.

include this variable. This exclusion does not bias the results, so it is safe to take my estimates as the marginal effects of revenue-neutral changes in earnings tax rates.

Table 1 provides some perspective on St. Louis City and Kansas City relative to the other cities in the dataset. Note first that St. Louis City saw its population drop by almost 6 percent while Kansas City’s population grew by 7.5 percent. And, whereas Kansas City’s population growth was in the top half of the sample, St. Louis City’s was in the bottom three percent of cities, just above Detroit and just below Baltimore. Given that the period included the recovery from the Great Recession, very few cities saw negative employment growth during the period. St. Louis City’s employment grew, but more slowly than more than 80 percent of the cities in the sample, whereas Kansas City’s employment grew faster than that of most other cities.

Both cities were among the largest cities in the sample, about half of which had fewer than 100,000 residents. The two cities are very different in terms of their position within their respective metro areas: St. Louis City is a relatively dense and small central city that held only 11 percent of its metro area's population, whereas Kansas City is much more sprawling and held nearly 23 percent of its metro area's population.

EMPIRICAL RESULTS

This section reports the estimation results for the empirical model described in the previous section. The results for population growth are provided by Table 2, and the results for employment growth are provided by Table 3. As expected, in both cases a city earnings tax has a negative growth effect that is positively related to the city's relative size ($\beta < 0$ and $\gamma > 0$). Further, the rest of the metro area will tend to see lower growth because the tax-advantage effect is dominated by the general-decline effect ($\delta > 0$). These results are consistent with those obtained previously for earlier periods.

Population Growth

As shown in Table 2, each percentage point of an earnings tax is estimated to have reduced a city's growth rate by close to 4.3 percentage points between 2010 and 2019 before accounting for the effect of the city's relative size. Each percentage point of the city's share of its metro area's employment would reduce the effect by 0.077 times the tax rate. In the case of St. Louis, the city accounted for about 11.3 percent of its metro area's population, so the estimated effect of the St. Louis earnings tax on the city's population growth rate is about 3.4 percentage points. For Kansas City, which accounted for 22.6 percent of its metro population, the earnings tax is estimated to have

Table 3: Regression Results: City Employment Growth, 2010–2019

Independent variable	Coefficient	Std. error	t–statistic
Intercept (α)	25.190*	2.472	10.19
Earnings tax rate (β)	–5.067*	1.377	–3.68
Earnings tax \times share of metro area population (γ)	0.137*	0.054	2.55
Difference between city and central–city earnings tax rates (δ)	1.607†	0.906	1.78
Population (millions, λ)	3.139	3.529	0.89
Population density (people per square mile, ρ)	–0.0007*	0.0003	–2.66
Population \times population density (κ)	0.0001	0.0004	0.32
Share of metro area population (percent, θ)	–0.154*	0.035	–4.43
Manufacturing share of payroll employment (percent, σ)	–0.202	0.139	–1.46
Southeast region dummy (ω)	1.652	1.753	0.94
Southwest region dummy (κ)	4.628*	1.917	2.41
$R^2=0.088$		number of observations=506	

Standard errors are adjusted to account for heteroskedasticity. A “*” or a “†” indicate statistical significance at the 5 or 10 percent level, respectively.

reduced the growth rate by 2.5 percentage points. Recall that the 2010–2019 population growth rates for St. Louis City and Kansas City were –5.8 percent and 7.5 percent, respectively.

Growth in a non-central city tended to be lower if its central city levied an earnings tax. Specifically, for each percentage point of the tax, population growth in these cities is estimated to have been reduced by about 1.9 percentage points. For perspective, excluding St. Louis City, the population of the St. Louis metro area grew by 1.3 percent between 2010 and 2019, so this result suggests that it would have grown by 3.2 percent were it not for St. Louis City's earnings tax. Excluding Kansas City, the Kansas City metro area grew by 7.2 percent between 2010 and 2019, but these estimates suggest that it would have grown by 9.1 percent without an earnings tax.

Table 4: Effects of Earnings Taxes on City and Metro Population Growth in St. Louis City and Kansas City, 2010–2019

	Level effect of earnings taxes	Actual 2010–19 growth	Growth without an earnings tax	% Effect of earnings taxes
St. Louis Metro Area				
St. Louis City	–10,800	–18,600	–7,800	139%
Rest of metro area	–47,700	32,000	79,700	–60%
Entire metro area	–58,500	13,400	71,900	–81%
Kansas City Metro Area				
Kansas City	–11,600	34,600	46,200	–25%
Rest of metro area	–29,700	110,000	139,700	–21%
Entire metro area	–41,300	144,600	185,900	–22%

Numbers might not sum due to rounding.

City metro area outside Kansas City, employment growth was 9.7 percent but would have been 11.2 percent without an earnings tax.

ST. LOUIS AND KANSAS CITY

This section takes the general empirical relationships described in the previous section and applies them to St. Louis City and Kansas City to obtain estimates of the population and employment lost because of earnings taxes. The estimates are for the taxing cities themselves,

portions of the metro areas outside the taxing cities, and each metro area as a whole.

The effects in this section are calculated by applying the estimated effects on growth rates (β , γ , and δ) reported in Tables 2 and 3 to population and employment levels for 2010. When calculating the effects for the parts of the metro areas outside St. Louis City and Kansas City, it is assumed that the effect of the central cities' taxes on other cities within their metro area, δ , is the same throughout the metro area. Also note that to do these calculations, it is necessary to bring in data from sources other than the ACS. Specifically, I use data from the Census Bureau to calculate the Missouri and Illinois portions of the St. Louis metro area and the Missouri and Kansas portions of the Kansas City metro area. I use data from the Bureau of Labor Statistics to do the same for employment.¹⁴

Employment Growth

As shown in Table 3, the marginal effect of each percentage point of a city earnings tax was about a 5-percentage-point decrease in city employment growth rate before accounting for the city's share of its metro area. Each percentage point of the city's share of its metro area population reduced the negative effect of the tax by 0.14 percentage points. Thus, recalling that St. Louis City accounts for 11.3 percent of its metro area, the St. Louis earnings tax is estimated to have reduced the city's employment growth rate by about 3.5 percentage points. Performing this exercise for Kansas City yields an estimated decrease of about 2.0 in the city's growth rate because of its earnings tax. Recall that employment growth rates for 2010 to 2019 in St. Louis City and Kansas City were 8.6 and 19.2 percent, respectively. This relatively robust growth included a significant amount of employment loss from the Great Recession.

Non-central cities faced a decrease in their employment growth rates of 1.5 percentage points for each percentage point of a central city's earnings tax. For the St. Louis metro area outside of St. Louis City, actual employment growth was 7.4 percent, so growth would have been 8.9 percent without the earnings tax. For the Kansas

Population Growth

The first column in Table 4 is estimated reductions in population between 2010 and 2019 attributed to earnings taxes. For reference and to illustrate the scale of the estimates, the second column of numbers provides

the actual change in population over the period. Consistent with estimates for previous periods, a sizable portion of the actual decrease in population in St. Louis City is attributed to the earnings tax: 10,800 of the nearly 19,000-person decrease in the city’s population (58 percent) is attributed to the earnings tax. Put another way, the city’s population loss was 138 percent of what it would have been if the city did not have an earnings tax. The rest of the St. Louis metro area saw its population increase over the period, but it would have increased much more if St. Louis City did not have an earnings tax. Specifically, without an earnings tax the rest of the metro area would have seen population growth of 79,700 instead of 32,000. For the St. Louis metro area as a whole, population grew by only 13,900 people, but it would have grown by 71,900 if St. Louis City did not have an earnings tax. Or, the metro area’s population growth was reduced by about 81 percent because St. Louis City levies an earnings tax.

The Kansas City metro area grew much more than the St. Louis metro area did, so the earnings tax had less dramatic effects relative to the growth that actually occurred. Nonetheless, the earnings tax had significant effects on population growth in the city and the rest of the metro area. Specifically, the tax is held responsible for reducing Kansas City population growth by 11,600 in 2019. In other words, the city’s population growth was 25 percent lower because of the earnings tax. The rest of the metro area saw 29,700 fewer new residents because of the tax, which would mean that the earnings tax reduced its population growth by about 21 percent. Population growth for the metro area as a whole was reduced by 41,300 people because of the tax, which equates to a

Table 5: Effects of Earnings Taxes on City and Metro Employment Growth in St. Louis City and Kansas City, 2010–2019

	Level effect of earnings taxes	Actual 2010–19 growth	Growth without an earnings tax	% Effect of earnings taxes
St. Louis Metro Area				
St. Louis City	-5,000	12,400	17,400	-29%
Rest of metro area	-19,100	88,200	107,300	-18%
Entire metro area	-24,100	100,600	124,700	-19%
Kansas City Metro Area				
Kansas City	-4,300	42,200	46,500	-9%
Rest of metro area	-12,300	74,600	86,900	-14%
Entire metro area	-16,600	116,800	133,400	-12%

Numbers might not sum due to rounding.

22-percent decrease in the relatively robust population growth that the metro area experienced.

Employment Growth

Both metro areas saw relatively steady employment growth throughout the period as the local and national economies recovered from the Great Recession of 2008–09. Nevertheless, as indicated by the estimates provided in Table 5, both would have seen even more growth without earnings taxes. St. Louis City saw employment rise by 12,400 between 2010 and 2019 but would have seen an extra 5,000 employed people if there had not been an earnings tax. Put another way, the tax reduced the city’s employment growth by 29 percent. The rest of the St. Louis metro area saw employment growth of 88,200, but without an earnings tax would have had growth of 107,300. For the metro area as a whole, the earnings tax meant that employment was 19,100 lower in 2019. The 19 percent reduction in employment growth between 2010 and 2019 amounts to a loss of nearly 2,500 in employment growth per year. The effects of Kansas City’s earnings tax were similarly large. For the city itself, employment growth was 4,300 lower than it would have been, which amounted to a nine percent loss. For the rest

of the metro area, the earnings tax meant that there were 12,300 fewer people employed in 2019, or about a 14 percent loss of employment growth because of the central city's earnings tax. Overall, the increase in Kansas City metro area employment between 2010 and 2019 was 16,600 lower than it would have been without an earnings tax, about a 12 percent loss, or more than 1,800 per year.

SUMMARY AND CONCLUDING REMARKS

This paper presents new estimates of the effects of the one-percent taxes on individuals' earnings in St. Louis City and Kansas City. More specifically, it estimates their effects on population and employment growth in the cities and their metro areas using data for 504 cities from across the United States for 2010 to 2019. The results indicate that cities with earnings taxes tended to have lower growth than otherwise similar cities. The taxes also were related to decreased growth in the rest of the cities' metro areas:

- For St. Louis, the results indicate that the earnings tax:
 - Reduced population growth for the city itself by 10,800 (about 58 percent of the actual decline) and for the metro area as a whole by 58,500 (about 81 percent).
 - Reduced employment growth in the city itself by 5,000 (about 29 percent) and for the metro area as a whole by 24,100 (about 19 percent).
- For Kansas City, the results indicate that the earnings tax:
 - Reduced population growth in the city itself by 11,600 (about 25 percent) and in the metro area as a whole by 41,300 (about 22 percent).
 - Reduced employment growth in the city itself by 4,300 (about 9 percent) and for the metro area as a whole by 16,600 (about 12 percent).

These metro-area results might not be the end of the story, however, because the effects of the earnings taxes might reach beyond the two metro areas. In a separate paper, I found that growth in outstate Missouri tends to follow growth in the St. Louis metro area.¹⁵ That is,

extra employment of 1,000 in the St. Louis metro area has tended to mean extra employment of about 300 in outstate Missouri. Applying this rule of thumb to the estimated effect of the earning tax on the St. Louis metro area suggests a decrease of 7,200 in outstate Missouri employment growth. Further, such a drop in employment growth might have been accompanied by a 16,000 reduction in outstate population growth.¹⁶

These numbers are not direct estimates of the effects on outstate Missouri, so they should be handled with care. Nonetheless, they do suggest that earnings taxes are not simply local issues but could affect the Missouri economy more broadly. Specifically, combining them with the estimated effects for the Missouri parts of the two metro areas would suggest that the taxes reduced Missouri-wide population growth by 95,400 (40 percent) and employment growth by 39,800 (15 percent) between 2010 and 2019.

For a relatively slow-growing state like Missouri, the numbers presented in this study indicate significant declines in growth from a single policy in the state's two largest cities. Finally, it is worth noting that the results do not suggest simply getting rid of the earnings taxes and eliminating the spending they support. As already noted, the estimates should be interpreted as the harmful effects of the inefficient tax structures in St. Louis City and Kansas City, not of the amount of tax revenue collected.¹⁷

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NOTES

1. For the effects on the intra-metro allocation of income, see Haslag, Joseph. “How an Earnings Tax Harms Cities Like St. Louis and Kansas City.” Show-Me Institute, Policy Study No. 1, March 2006. For the effects on population and employment in the 1990s, see Wall, Howard J. “New Evidence of the Effects of City Earnings Taxes on Growth.” Show-Me Institute Essay, October 2013. For the effects on population in the 2000s, see Wall, Howard J. “Updated Estimates of the Effects of Earnings Taxes on City Growth.” Show-Me Institute Essay, September 2014. For the effects on employment in the 2000s, see Wall, Howard J. “The Missouri-Wide Effects of City Earnings Taxes.” *Missouri Policy Journal*, 9, Spring/Summer 2020, 59–63, which also provides the employment effects for Missouri as a whole.
2. There is a large literature in economics considering the role of differences in taxes and services on the decision of where to live within a metro area. See, for example, Boehm, Thomas P.; Herzog Jr., Henry W.; and Schlottmann, Alan M. “Intra-Urban Mobility, Migration, and Tenure Choice.” *Review of Economics and Statistics*, 1991, 73(1), 59–68; Grassmuck, Georg. “What Drives Intra-County Migration: The Impact of Local Fiscal Factors on Tiebout Sorting.” *Review of Regional Studies*, 2011, 41, 119–138; Li, Wenjing; Cushing, Matthew J.; and Anderson, John E. “Household Mobility and Local Government Finance in U.S. Cities.” *Proceedings. Annual Conference on Taxation and Minutes of the Annual Meeting of the National Tax Association*, 2018, 111, 1–23; Saltz, Ira; and Capener, Don. “60 Years Later and Still Going Strong: The Continued Relevance of the Tiebout Hypothesis.” *Journal of Regional Analysis and Policy*, 2016, 46(1), 72–94; and Stohs, Mark Hoven; Childs, Paul; and Stevenson, Simon. “Tax Policies and Residential Mobility.” *International Real Estate Review*, 2001, 4(1), 95–117.
3. In 2015 in St. Louis City and Kansas City, 10.3 percent and 8.4 percent of government revenue from own sources was from property taxes, 28.7 percent and 19.7 percent was from sales/gross receipts taxes, and 19.7 percent and 15.5 percent was from income/payroll taxes, respectively. These figures are from the Lincoln Institute for Land Policy’s FiSC Database, which provides standardized revenue and spending data for more than 200 cities. The estimates in the FiSC database account for differences in the local government services that are provided by cities and overlying entities such as school districts, which are sometimes part of a city government’s budget. As such, they do not necessarily line up with the cities’ own accounting. The values for the United States are from the Census Bureau’s Annual Survey of State and Local Government Finances, 2015, Table 1. Nationally, in 2015, 46.5 percent of local government revenue from own sources was from property taxes, 11.3 percent was from sales/gross receipts taxes, and 3.2 percent was from taxes on individual income.
4. For a discussion of the differences in taxes and spending for the two cities relative to some peers, see Tsapelas, Elias. “Breaking Down Expenses and Revenues: Kansas City and St. Louis Compared to Six Other Cities.” Show-Me Institute Essay, May 2019.
5. For a discussion, see Glaeser, Edward. “Viewpoint: Triumph of the City.” *Journal of Transport and Land Use*, 5(4), 2013, 1–4.
6. Note that the 2020 ACS was not released because of the COVID-19 pandemic.
7. Employment data from the Bureau of Labor Statistics’ Household Survey is available for cities with population greater than 25,000. As there was no corresponding population data for these cities, I chose to use the ACS data, despite there being fewer observations for employment.
8. Tax Foundation, *Local Income Taxes in 2019*, <https://taxfoundation.org/publications/local-income-taxes>.
9. Note that some cities levy different tax rates on residents and nonresidents who work in the city. As a practical matter, there are too few such cities in the dataset to obtain useful estimates. The general results for St. Louis and Kansas City are not affected either way, so I have not included this consideration in my model.
10. Data for the agglomeration variables and *manufshare_{it}* are 1-year estimates from the ACS.

11. The regional groupings from the Bureau of Economic Analysis (BEA) were used to determine a city's region.
12. The database is available at <https://willamette.edu/mba/research-impact/public-datasets/index.html>.
13. That is, the version of the model with the variable scores worse on all goodness-of-fit measures. To illustrate the statistical irrelevance of this variable, an appendix provides the results using the smaller data set when it is included.
14. County population data are from the Census Bureau's Annual Estimates of the Resident Population: April 1, 2010, to July 1, 2019. Metro household employment by intrastate portions is available from the Local Area Unemployment Statistics produced by the Bureau of Labor Statistics.
15. Wall, Howard J. "Is Growth in Outstate Missouri Tied to Growth in the St. Louis and Kansas City Metro Areas?" Show-Me Institute Essay, June 2023. I did not, however, find links from the Kansas City metro or outstate Missouri to elsewhere in the state.
16. This number is obtained using the 2019 statewide employment-to-population ratio of 45.3 percent.
17. For discussions of how St. Louis and Kansas City can convert their tax systems to ones that are more reliant on property taxes, see Haslag, Joseph. "How to Replace the Earnings Tax in St. Louis." Show-Me Institute Policy Study, January 2007 and Haslag, Joseph. "How to Replace the Earnings Tax in Kansas City." Show-Me Institute Policy Study, January 2007.

APPENDIX: IRRELEVANCE OF PER-CAPITA TAX REVENUE

Population Growth

Independent variable	Coefficient	Std. error	t–statistic
Intercept (α)	16.054*	1.700	9.44
Per capita tax revenue	0.148	0.356	0.42
Earnings tax rate (β)	–4.868*	1.273	–3.82
Earnings tax \times share of metro area population (γ)	0.097*	0.048	2.01
Difference between city and central–city earnings tax rates (δ)	1.725*	0.787	2.19
Population (millions, λ)	–0.567	2.487	–0.23
Population density (people per square mile, ρ)	–0.001*	0.000	–5.92
Population \times population density (κ)	0.000	0.000	1.07
Share of metro area population (percent, θ)	–0.116*	0.025	–4.70
Manufacturing share of payroll employment (percent, σ)	–0.306*	0.080	–3.81
Southeast region dummy (ω)	1.311	1.074	1.22
Southwest region dummy (κ)	6.708*	1.674	4.01
$R^2=0.237$		number of observations=458	

Standard errors are adjusted to account for heteroskedasticity. A “*” or a “†” indicate statistical significance at the 5 or 10 percent level, respectively.

Employment Growth

Independent variable	Coefficient	Std. error	t-statistic
Intercept (α)	23.298*	2.435	9.57
Per capita tax revenue	0.101	0.456	0.22
Earnings tax rate (β)	-4.069*	1.802	-2.26
Earnings tax \times share of metro area population (γ)	0.107†	0.063	1.69
Difference between city and central-city earnings tax rates (δ)	1.337	0.909	1.47
Population (millions, λ)	3.955	3.569	1.11
Population density (people per square mile, ρ)	-0.001*	0.000	-2.00
Population \times population density (κ)	0.000	0.000	0.03
Share of metro area population (percent, θ)	-0.138*	0.035	-3.89
Manufacturing share of payroll employment (percent, σ)	-0.159	0.131	-1.21
Southeast region dummy (ω)	0.819	1.758	0.47
Southwest region dummy (κ)	4.642*	1.982	2.34
$R^2=0.075$		number of observations=458	

Standard errors are adjusted to account for heteroskedasticity. A “*” or a “†” indicates statistical significance at the 5 or 10 percent level, respectively.



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