

## Population Density and Municipal Government Expenditures

Randall G. Holcombe and DeEdgra W. Williams

In the past several decades, government land use policies have become increasingly oriented toward reducing urban sprawl by encouraging urban infill and increasing population density in already-developed areas. One of the frequently-cited motivations for promoting more compact urban development is that it can reduce local government expenditures because it is less costly to provide government services where population density is higher. This Policy Brief summarizes the results of a study that examined the effect of population density on municipal government expenditures. Population density is measured as the number of residents per square mile. Looking at data on municipal government expenditures in 487 cities with populations greater than 50,000, government expenditures per person are not lower where population density is higher; if anything higher population density is associated with higher levels of municipal government expenditures.

### *The Data Behind the Study*

To undertake this research we began with all municipalities listed in the Census Bureau's Historical Finance Database for 2000. Because we were most interested in the effects of population density on expenditures in municipalities that would be most likely to consider policies to increase their population densities, we limited our examination to cities larger than 50,000. We wanted to be able to examine population growth, so we used only cities listed in both the 1990 census and the 2000 census, which gave us 487 cities for the study.

Because our main concern was the effect of population density on the cost of government, we were mainly interested in seeing how total municipal expenditures and total operational expenditures were affected by higher population density. We also looked at three subcategories of infrastructure expenditures – highways, water, and sewer – and two subcategories of services – police and fire protection.

Many factors besides population density can affect per capita expenditures, so we also controlled for the total population of the city, population growth, the percent of the population in school and in college, the percent of the population below the poverty line, the median age of the city's population, median income, and the median house value in the jurisdiction. In addition, because we had data from all 50 states, and because of the variety that exists among states, we also controlled

in our analysis for the state within which each city was located. We undertook a detailed statistical analysis to see whether population density affected per capita expenditures in total and in the subcategories we examined.

The analysis took special care to separate out the effects of total population from the effects of population density, which was not always done in previous studies. Cities with higher population density also tend to have more residents in total, and it might be that it is cheaper (or more expensive) to provide government services to a larger population. We wanted to remove any effects that might be due to governments serving more citizens, to just look at how population density affects government expenditures, holding the number of citizens in a jurisdiction constant.

### *Findings*

If one is interested in whether policies that increase population density can reduce government expenditures, the most important thing to look at is total expenditures, or perhaps total operational expenditures. Higher population density may cause expenditures in some categories to go up and in others to go down, but it is more important to see how total expenditures are affected, because that ultimately determines the effect on taxpayers.

We found that there is no relationship between population density and total expenditures per person, or total operational expenditures per person, for cities with populations less than 500,000. For cities larger than 500,000, expenditures per person rise as population density increases. Higher population density is never associated with lower government expenditures, and for larger cities is associated with higher government expenditures. Policies to increase population density cannot be expected to reduce government expenditures.

Higher population density did tend to be associated with lower infrastructure expenditures except in the largest cities. Higher population density is associated with lower highway expenditures for cities with populations below 250,000, and is associated with lower sewer expenditures for cities with populations below 500,000. For services, the effects go the other way. For cities above 500,000, higher population density is associated with higher police expenditures and higher fire expenditures.

The findings within the subcategories are interesting in their own right, but if one is interested in the overall fiscal effects of policies to promote higher population density, the most important findings are those associated with total government expenditures and with total operating expenditures. There, we find that higher population density never lowers government expenditures and in some cases is associated with higher government expenditures.

In a growing state like Florida, we were also interested in seeing whether population growth affects municipal government expenditures. When looking at the most important categories of total government expenditures and total operational expenditures, population growth has very little effect. It has a very weak negative effect on operational expenditures, which means that if anything population growth can lower expenditures per person. However, from a statistical standpoint the effect is so weak that one cannot draw any reliable conclusion. There is no evidence that population growth raises government expenditures, and if anything, population growth leads to lower expenditures per person.

There are significant effects of population growth on infrastructure. Higher population growth leads to higher highway expenditures per person, and to lower sewer expenditures per person. So, the idea that population growth raises expenditures on roads as roads have to be built or widened to accommodate the growth is supported by the data, but population growth lowers government expenditures per person in other areas so that on net population growth does not raise government expenditures per person.

### ***Conclusions and Policy Implications***

Growth management policies in Florida and throughout the United States have been increasingly focused on reducing urban sprawl and increasing population density. Our motivation for doing this study was to critically examine the conjecture made by many proponents of these policies that one benefit of higher

densities is that they will result in lower government expenditures. The evidence does not support this claim. If anything, higher population densities are associated with higher government expenditures per person.

Higher densities can reduce expenditures in certain categories, most notably in some infrastructure areas. However, lower expenditures per person in these areas are offset by higher expenditures in other areas so that on net, higher densities do not reduce government expenditures per person. The claim that one benefit of policies to promote higher population densities is that higher densities will reduce government expenditures is not true, we conclude by looking at actual data on population density, government expenditures, and other relevant data. We also find that higher rates of population growth do not increase government expenditures per person, which sets aside some concerns about the costs imposed by population growth.

While in some instances higher population density is associated with higher government expenditures per person, this applies to the largest cities, and we do not see this as a major concern. Although the claim that policies that promote higher population densities will bring the benefit of lower per capita government expenditures does not hold up under scrutiny, all we would argue from this is that this is not one of the benefits of more compact urban development. Whether urban sprawl is a bad thing, or beneficial because it allows people to have more living space and reside in a less-congested environment, is a larger question that this study does not address. What we are arguing is that higher population density will not lower the cost of government, so the cost of government is irrelevant to the issue of whether to pursue policies that increase population density.

**Randall G. Holcombe** is DeVoe Moore Professor of Economics at Florida State University. DeEdgra W. Williams is Assistant Professor of Economics at Florida A&M University. This Policy Brief summarizes our article, "The Impact of Population Density on Municipal Government Expenditures," which will be published in *Public Finance Review*.

---

The DeVoe L. Moore Center at Florida State University is dedicated to increasing knowledge about how government rules, regulations, and programs affect the economy and individuals. The study of state and local regulations is a major focus of Center's program. For more information visit our home page at [www.fsu.edu/~policy](http://www.fsu.edu/~policy). If you would like to be put on our mailing list, contact the Center by phone or e-mail us at [sihlanfe@mailers.fsu.edu](mailto:sihlanfe@mailers.fsu.edu).

---

**DEVOE L. MOORE CENTER**  
150 BELLAMY BUILDING 2220  
THE FLORIDA STATE UNIVERSITY  
Tallahassee, FL 32306-2220  
Telephone: (850) 644-3848 • Fax: (850) 644-0581  
[www.fsu.edu/~policy](http://www.fsu.edu/~policy)