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# Does Rural Land-use Planning and Zoning Enhance Local Economic Development?

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*with Paul Counts and Benjamin Sussman*

## YES, BASED ON A CASE STUDY FROM GEORGIA

To some, land-use planning and implementation through zoning to regulate land-uses in rural areas may appear to be anathema to rural economic development. This view would be shared by those who are concerned that any land-use regulation in weak rural economies could dissuade economic development investment. This article addresses such concerns head-on through statistical analysis combined with focus-group interviews. It is based on the first comprehensive study of its kind to address **rural economic development issues related to land-use planning and zoning.** The finding is that land-use planning and zoning implementation protects industrial and commercial development from conflicts with residential land uses and thus facilitates rural economic development, rather than impedes it. For rural communities seeking economic development the implication is that planning and zoning supportive of industrial development may improve economic development prospects relative to its lack.

# does rural land-use

## PLANNING AND ZONING ENHANCE LOCAL ECONOMIC DEVELOPMENT?

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### INTRODUCTION

Community leaders in rural areas without zoning often find it challenging to convince their citizens of the benefits of zoning. Opponents often consider such regulation an unnecessary governmental intrusion on their property rights. Zoning advocates often cite quality-of-life advantages, such as protecting homeowners from unwanted uses next door as well as protecting economic development from opposition by residents.

This article reports research into the economic development benefits of zoning in rural areas. While the research, which included a variety of statistical and qualitative analyses, was completed in 2001, the findings and implications continue to be quite relevant. The statistical analyses involved a descriptive assessment, multi-variate regression, and matched-pair analysis between roughly comparable rural counties with and without zoning. The qualitative assessment includes a focus-group survey of economic development leaders divided evenly between rural counties with and without zoning. The study area was of rural counties in Georgia, which outside of Texas has the largest number of counties (159) in the nation. At the time of this research, nearly three-quarters of these counties were considered "rural" in that they were located outside of the boundaries of metropolitan statistical areas that had been defined by the U.S. Census Bureau.

*The city of Madison is one of Georgia's finer examples of quality growth within a rural setting. The city is located in Morgan County, which adopted its first zoning ordinance in 1973.*

Is there a need for land-use planning and zoning implementation in rural areas? A review of the experiences of 57 rural communities across Georgia, including 14 that had more than 20 years experience with zoning at the time of this research, confirmed the need. As reported here, a comparison of all rural counties with a zoning policy to all counties without one revealed that zoned counties have the tendency to have greater economic positioning than non-zoned counties. To them, land-use planning and subsequent zoning has a significant and positive impact on changes in employment and assessed property values.

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### YES, BASED ON A CASE STUDY FROM GEORGIA

*To some, land-use planning and implementation through zoning to regulate land-uses in rural areas may appear to be anathema to rural economic development. This view would be shared by those who are concerned that any land-use regulation in weak rural economies could dissuade economic development investment. This article addresses such concerns head-on through statistical analysis combined with focus-group interviews. It is based on the first comprehensive study of its kind to address rural economic development issues related to land-use planning and zoning. The finding is that land-use planning and zoning implementation protects industrial and commercial development from conflicts with residential land uses and thus facilitates rural economic development, rather than impedes it. For rural communities seeking economic development, the implication is that planning and zoning supportive of industrial development may improve economic development prospects relative to its lack.*

To officials, economic development benefits are numerous, including, but not limited to (1) business and citizen preference for the kind of land-use predictability zoning uniquely provides, (2) assurance for prospects that their investment will be protected, (3) the ability to guide future development and prevent haphazard, (e.g., patchwork), harmful or unwanted development, and (4) the minimization of potential conflict between industry and residents.

Findings from the investigation reported here suggest that land-use planning and zoning makes a difference in facilitating economic development, and, specifically, that the presence of land-use planning and zoning generally helps a rural community's economy grow. The findings also suggest that zoning appears to improve a rural community's competitive advantage for economic development. The extent to which zoning can make a difference is affected by several considerations including, but not limited to (1) leadership and citizen support and understanding, (2) quality of the zoning code, (3) integration with a well-conceived comprehensive plan, (4) applicability and enforcement, (5) the zoning process itself, and (6) the merits of the existing economic development program.

**Table 1. Self-sufficiency Tendencies Within Zoned and Non-Zoned Counties**

| | Per Capita Income, 1999 | Average Weekly Manufacturing Wage, 1999 | Food Stamp Participation Rate, 1999[a] |
|---|---|---|---|
| With Zoning - Mean | $19,431 | $475 | 107.3 |
| Without Zoning - Mean | $18,364 | $414 | 126.9 |
| With Zoning - Median | $18,948 | $500 | 90.2 |
| Without Zoning - Median | $18,101 | $456 | 124.8 |

Source: Author's analysis of U.S. Bureau of Economic Analysis and County Business Pattern 1999 data for rural Georgia counties. Food stamp participation rate is the number of food stamp recipients per 1,000 residents derived from analysis by the authors of Georgia Department of Human Resources - Division of Family & Children Services data.

## CONTEXT

Georgia is composed of 159 counties, the most of any state other than Texas. More than 60 percent of the counties had zoning ordinances in place at the time of the study. Although every jurisdiction in Georgia must have a land-use plan in order to qualify for state grants and most do, 63 mostly rural counties had not implemented the plans through zoning. Surveys indicated the following general concerns about zoning in those counties:

- An unnecessary governmental interference with private property,
- Too restrictive on what property owners can do,
- Compliance burdens (e.g., cost, effort),
- Complexity of the code (e.g., difficult to understand),
- Outdated, inflexible, or inappropriate zoning that is incapable of addressing changing development needs (e.g., unsuitable for mixed-use development),
- "Loopholes" in zoning code,
- Residential sprawl permitted,
- Automobile dependence (e.g., designation of commercial zoning),
- Lot size requirements and impact on land prices,
- Restrictions resulting in lack of affordable housing,
- Citizens lack understanding about zoning and need education,
- Citizen complaints (e.g., 'not in my backyard' residents),
- Conflicts with landowners,
- Red tape – bureaucratic, time-consuming process,
- Politics,
- Updating and modifying efforts,
- Lack of enforcement,
- Nonconforming uses permitted, and
- Leadership lacks understanding about zoning.

These are likely concerns raised in numerous rural counties throughout the nation. They all may be credible, but in terms of overall economic development the overriding question is whether land-use planning and zoning implementation advances or impedes rural economic development. That issue was addressed first through statistical analysis based on descriptive, regression, and matched-pair analysis and qualitative survey research based on economic development officials representing equally counties with and without zoning implementation of land-use plans.

## DESCRIPTIVE ANALYSIS

This section describes historical economic development indicators among all Georgia counties considered rural at the time of this research – prior to the release of the findings from the 2000 Census – in that they were located outside of a metropolitan statistical area. There were in all 120 rural counties in Georgia, including 57 with county-level zoning and 63 without. Comparisons are made with respect to earnings, employment, and assessed property values.

### *Earnings*

Per capita income is the average income earned per resident in a community. It is calculated by dividing the community's total income by total population. It can be inferred that the higher the per capita income, the higher the buying power of the average resident. In this assessment, average manufacturing weekly wage rate reflects the earning potential available in what continues to be a significant industry sector for rural areas. It is calculated by dividing total annual wages in manufacturing by total employment in manufacturing, then dividing this total by 52. In 1999 (based on data from the U.S. Bureau of Economic Analysis), per capita income ranged from $14,838 to $26,129 among counties with

**Table 2. Employment Tendencies of Zoned and Non-Zoned Counties**

| | Employment, 1999 | Unemployment Rate, 1999 | Labor Force Participation Rate, 1999 |
|---|---|---|---|
| With Zoning - Average | 13,717 | 5.4 | 64.0% |
| Without Zoning – Average | 6,144 | 6.3 | 60.0% |
| With Zoning - Median | 8,442 | 4.9 | 63.4% |
| Without Zoning - Median | 4,649 | 5.7 | 59.8% |

Source: Author's analysis of Georgia Department of Labor, Tourism and Trade data for rural Georgia counties.

zoning and from $13,245 to $22,197 among counties without zoning. The data revealed that rural counties with zoning tend to have a higher per capita income and average manufacturing wage rate. (See Table 1.)

The food stamp participation rate is a useful measure of self-sufficiency within a community such that the higher the rate, the lower the ability to provide for basic food needs without outside assistance. Corresponding with the findings regarding earning potential, the food stamp participation rate tends to be lower for counties with zoning, signaling a higher level of self-sufficiency among residents living within such communities.

### *Employment*

Employment represents the number of people working (not living) within a community. The unemployment rate reflects the percentage of the civilian labor force that is not employed. It is calculated by dividing the number of unemployed persons by the number of people comprising the civilian labor force (number of employed and unemployed persons 16 years and older) and multiplying by 100.

Labor force participation rate represents the percentage of the working-age residents (that is, population 16 years and older) who are either employed or are actively seeking employment. It can be inferred that the higher the labor force participation rate, the higher the willingness to work among those legally able.

The average employment for counties with a zoning policy was more than double that for counties without such a policy, or approximately 123.3 percent greater in 1999. However, given the wide range in employment among counties with zoning (2,140 to 69,170) and those without (650 to 20,842), a second measure of central tendency should be observed. Looking at the median, it appears that the tendency for counties with zoning to have a larger employment base than counties without remains but to a lesser, though still significant, degree (81.6 percent). Counties with zoning tend to post lower unemployment rates and higher labor force participation rates. Communities with zoning tend to have larger employment bases than communities without such a policy. (See Table 2.)

### *Assessed Property Values*

In Georgia, assessed property values represent 40 percent of the fair market value as determined by the local tax appraiser. The average property value for counties with a zoning policy is more than double than that for counties without such a policy. Given the wide range in assessed property values among counties with zoning ($94.9 million to $3.7 billion) and those without ($43.1 million to $1.6 billion), a second measure of central tendency should be observed. Looking at the median, it appears that the tendency for counties with zoning to have higher assessed property value than counties without remains to a lesser, but still significant, degree. (See Table 3.)

It would appear that data indicate there is a relationship showing that rural counties with zoning implementation of land-use plans may be economically better off, in general, than those without. Counties with zoning tend to have higher per capita incomes and average manufacturing wage rates and lower food stamp participation rates. They also tend to have a lower unemployment rate and higher labor force participation rate. However, it is difficult with these data alone to ascertain the cause-and-effect relationship that may or may not exist. The next two statistical investigations helped clarify this.

**Table 3. Assessed Property Value Tendencies of Zoned and Non-Zoned Counties**

| | Assessed Property Value, 2000 ($) |
|---|---|
| With Zoning - Average | 684,986,865 |
| Without Zoning - Average | 312,252,290 |
| With Zoning – Median | 442,702,720 |
| Without Zoning - Median | 254,611,586 |

Source: Author's analysis of Georgia Department of Revenue and Taxation data for rural Georgia counties.

## MULTI-VARIATE ANALYSIS

This section provides the results of statistical analyses to determine whether there are any significant changes that occur from adopting a zoning policy. The analysis reviewed the relationship between years of zoning and selected economic indicators. For example, an increase in property values is one such indicator that is often cited by proponents of zoning legislation as a key benefit of zoning. Is there a significant change in property values among communities that have adopted a zoning ordinance? Other indicators analyzed include changes in per capita income and employment. Similar data was analyzed for over two-dozen matched pairs of counties, comparing counties with zoning to similar counties

without zoning to determine if there are any significant differences in their economic performance.

The statistical relationship between zoning and economic development is not well covered in the existing literature, and the results have been sometimes ambiguous. This lack of universal agreement on how zoning interacts with local economic development progress is, in part, attributable to measurement problems on significant explanatory factors and the complexity of this interaction. But some insights can be gained from a brief review of previous results.

*Rural Georgia offers an open canvas for smart, environmentally sensitive, and strategic economic development with the proper land use protections in place.*

Pogodzinski and Sass completed a comprehensive review of research relating to zoning in 1991. One of the first observations to be made about the existing literature is the relative lack of research that includes, much less focuses on, rural areas. Of the 28 papers reviewed by Pogodzinski and Sass, only two contained any rural components (1991, p. 599) at all. The other 26 studies dealt only with urban and/or suburban environments.

Another observation is that most studies focus almost exclusively on the relationship between the value of residential housing and zoning. This is an important relationship, but it does not consider other measures of economic development that most communities find significant. The value of the existing literature to this analysis is therefore largely in providing likely candidates for other variables that can affect local economic performance other than zoning.

Nelson, et al. (1992) found that improved transportation access to major cities (especially via interstate highway systems) helps encourage the establishment of industry outside the immediate metropolitan area and thus increases employment. Higher levels of both education and agricultural population are also correlated with economic development in rural counties, the former may relate to the availability of a local labor market (either for the industry in question, or its supporting industries), while the latter tends to be correlated with the availability of inexpensive land.

The literature also suggests additional dependent variables, as well as related control variables. Erickson and Wasylenko (1980) analyzed the change in employment and found that the distance to major highways was a significant factor. Carlino and Mills (1982) associated the change in county population with education level (also a proxy for family income) and the density of interstate highways among other factors.

Identifying these other variables (often called control variables) is important because we do not want the measures of zoning to be influenced by other factors. This would lead to a bias in the results.

Because this statistical analysis breaks some new ground, two approaches were chosen and results compared. The first approach uses observations on all rural counties in a regression analysis. The second uses a comparison-of-means test on a subset of counties consisting of matched pairs.

In both approaches, each variable included can be assessed by three measures. The one generally considered primary is the level of statistical significance. This measure is based on the level of influence a variable has relative to the amount of variation around that value.

The second measure of a variable is the degree to which it explains either the variation or the level of a dependent variable. A common measure of this is called the standardized beta. This value, which can range from one to zero, is highest when the influence of a variable is larger.

Variables are frequently classified either as explanatory, control, dependent, or independent. Explanatory and control variables together make up the independent variables, i.e., those that influence something – with that "something" being the dependent variable. Control variables are the factors that correct for some differences in the dependent variable so that further differences can be tested for influence by the explanatory variables. The explanatory variables in this analysis are related to the presence or duration of zoning; dependent variables are things such as income, employment, and property values. Examples of control variables would be the percentage of the population with a high school or higher level of education, or the distance from either a city or interstate highway.

The analysis examined the economic development performance of 70 rural counties, where "rural" counties are defined by Nelson, et al., for the Economic Development Administration (EDA). The EDA classification scheme includes six categories: large urban, suburban, small urban, inner exurban, outer exurban, and rural. The definition of rural depends largely on a county's relationship to the boundaries of Metropolitan Statistical Areas (MSA). The U.S. Census Bureau considers those communities located outside an MSA to be

rural. Nelson, et al. define rural counties as those that (1) fall entirely outside of any MSA and (2) are beyond reasonable commuting and trucking ranges. These counties have greater rural attributes and are less affected by the ripple effect of a metro area's economic growth than counties in closer proximity to an MSA. This definition of "rural" was employed in this analysis to determine whether there are economic benefits to zoning. The counties included in this analysis are shown in Figure 1.

The dependent variables were (1) change in assessed value and (2) change in employment over the period 1994 to 2000 and 1999, respectively. This was a time when Georgia saw unprecedented growth. It is also the period of time during which Georgia's counties elevated the accuracy of their local assessment practices and when nearly all local governments had comprehensive land use plans prepared pursuant to the Georgia Planning Act of 1989.

Consistent with independent variables found to be important predictors of economic development in the literature, we considered (1) the percentage of the population living in poverty, (2) the percentage of population with a high school education or higher, (3) the size of the local economy measured as the number of non-resource workers (those not in mining or agriculture) in the base year 1994, and (4) accessibility to major transportation principally being the nearest interstate freeway. Table 4 lists the dependent, experimental, and control variables. Specification and sources of data for the variables follows.

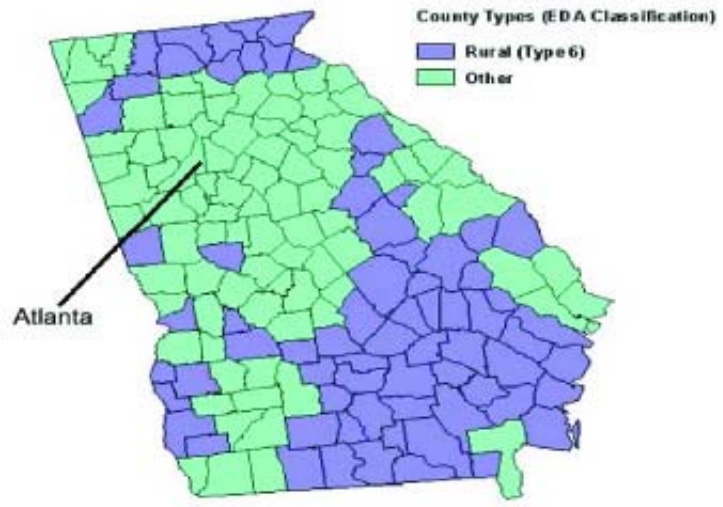
### *Dependent Variables*

The dependent variables were (1) change in countywide assessed value and (2) change in countywide employment.

- *Change in Countywide Assessed Value*

  This variable is a measure of the assessed value of all privately owned property (including personal property) in a given county. It is a reasonable estimate of aggregate county wealth. Data for this variable were obtained from the Georgia Department of Revenue, which tracked the total countywide assessed value from 1994 through 2000. This variable was logged so researchers could estimate the percentage change in assessed value with relation to years of zoning.

## Figure 1. Rural Counties




*In Georgia, there are six county classifications ranging from 1 being the most populated to 6 being the least. Analysis based on data from the Georgia Department of Community Affairs.*

- *Change in Countywide Employment*

  Logic follows that economic development will necessarily bring with it increased employment from the new industries, as well as complementary jobs that arise to serve those new employees. Countywide employment data were retrieved from the Bureau of Economic Analysis' Regional Economic Information System (REIS). This variable was also logged for an estimate of the percentage change in employment with relation to years of zoning.

### *Experimental Variable*

Characterizing the presence of zoning is not as straightforward as it would seem. At its most basic level, it could be characterized as simply whether it exists or not – but this ignores the practice followed by some counties of having zoning, but not enforcing it. Also, it takes time for zoning effects to be felt, and those effects are not likely to be evenly distributed over time or geography. All of these factors made this statistical analysis a difficult one. Its results suggested that the most appropriate experimental variable to use would be years of zoning.

## Table 4. Regression Variables

| Dependent Variables | Experimental Variables | Control Variables |
|---|---|---|
| Change in Per Capita Assessed Land Value | Presence of zoning | Population in Poverty |
| Change in county employment | Number of years of zoning | Population with High School or Higher Level of Education |
| Change in county population | | Non-Farm, Non-Mining Employment |
| | | Distance to Atlanta |
| | | Distance to Other Major City |
| | | Distance to Nearest Interstate |

This variable calculates the number of years that comprehensive zoning was in place in the county, from its inception through 2001. Data came from the Georgia Department of Community Affairs and staff of the Economic Development Institute. A positive association between this variable and the dependent variables was hypothesized.

### *Control Variables*

The control variables in this equation isolated the effects of zoning, eliminating potential biases from factors related to the county's existing population and geography.

- *Percent Population in Poverty 1990*

  A number of socioeconomic variables were considered, such as minority population, population of specific races and ethnicities, income levels, and so forth. As poverty levels are an economic development concern and a reasonably reliable proxy for minority populations, we used the percentage of county population living in poverty in 1990. These data came from the U.S. Census for 1990. (This year is used because it helps to detect cause-and-effect relationships over the study period.) It is expected that this variable would have a negative relationship to economic development measures used as dependent variables.

- *Percent Population with High School or Better Education in 1990*

  Economic development is attracted in part to skilled labor. Nelson, et al. found a reasonable proxy for this is percentage of the population that has a high school education or higher. Data came from the 1990 Census. (The year is also selected to help establish cause-and-effect relationships.) A positive association between this variable and the dependent variables was expected.

- *Non-Farm, Non-Mining Employment*

  This variable addresses the presence of existing industry in rural counties, and the possibility that such existing basic industries help make further industrialization more feasible. Data were obtained through the Regional Economic Information System published by the Bureau of Economic Analysis. A positive association between this variable and the dependent variables was expected.

- *Perpendicular Distance to Nearest Interstate*

  Accessibility appears to be another important determinant of industrial location. Therefore, consistent with Nelson, et al. and other researchers the location control variable was defined as the perpendicular distance from the county centroid to the nearest interstate-quality highway (including Georgia 400, for example). This definition included all multi-lane, controlled-access, divided highways. Distance was measured using ARC-VIEW Geographic Information Systems (GIS) software. A negative association between this variable and the dependent variables was expected.

Table 5 reports results of the regression analysis. In both equations, the amount of variation explained by our variables is modest as indicated by an "$R^2$" that is much less than one. Another test (called an F-test) did show, however, that both equations are statistically significant.

All variables have the expected sign of direction and are mostly significant using a one-tailed test. A county with relatively high levels of poverty has a more difficult time attracting new jobs relative to a county with less, but a county with relatively high levels of high school graduates or better has an easier time attracting new jobs than those that do not. The base of employment is also important - the higher the base of employment, the greater the likelihood that new jobs will follow. In contrast, the farther a county is from the nearest interstate highway, the less likely it will see job growth relative to counties that are closer.

**Table 5. Regression Equations**

| Statistic | Assessed Value Change | Employment Change |
|---|---|---|
| Model Significance | 0.000 | 0.000 |
| Adjusted $R^2$ | 0.554 | 0.286 |
| Year of zoning | 0.090* | 0.215* |
| Percent Population in Poverty | -0.174* | -.253* |
| Percent Population with HS or better | 0.186* | 0.019 |
| Log of Non-Agricultural, Non-Mining Employment | 0.471* | 0.429* |
| Distance to Nearest Interstate | -0.071* | -0.055* |
| *One-tailed significance at 0.10 level. | | |

Of interest here is the performance of zoning. In terms of its association with change in assessed value, the length of years in place has an estimated statistically significant value of 0.083, which suggests that the relationship is not likely to be random but instead systematic. Analysis covering longer periods of time may help determine whether there is indeed a statistically significant association. The analysis is stronger in terms of the association between zoning and job growth, being positive well within conventionally accepted levels ($p = 0.018$).

The standardized betas generally show how important a variable is to the overall explanation of change in the dependent variable. For explaining the variation in property values, years of zoning have a relatively small explanatory power, although it is comparable to the distance to an interstate's explanatory power. Years of zoning have a stronger explanatory power when applied to changes in employment where the zoning variable has explanatory power comparable to the other variables and significantly greater than distance from the interstate.

## MATCHED-PAIR ANALYSIS

The matched-pair analysis is based on a simple concept. It is a test of whether differences exist between counties with zoning and counties without when counties are matched to reduce the differences that might come from some other sources besides zoning. In practice, this matching is never perfect, and the "other sources" of difference are never completely identified. One cannot, therefore, rely on simply whether differences exist, but must, instead, use statistical analysis tools that can help determine whether the difference between zoned and non-zoned counties reflects reality or just the luck of the draw. The selection process started with the list of non-zoned, rural counties and their characteristics according to the four selection criteria discussed previously. A similar list of rural counties with zoning was then compared with the non-zoned counties and matches were made as closely as possible.

When the list of rural counties with zoning was exhausted, there remained a large number of rural counties without zoning that were not matched. Additional matches were then sought from the list of non-rural counties. The counties that resulted from this match fall primarily into the categories of rural and outer exurban, according to the EDA-accepted typology, with two classified as inner exurban in 1992. By most definitions, all of the matched counties would be considered rural. If the EDA classification types are considered on a spectrum from more to less urban, they would be large urban, suburban, small urban, inner exurban, outer exurban, and rural.

One cannot, therefore, rely on simply whether differences exist, but must, instead, use statistical analysis tools that can help determine whether the difference between zoned and non-zoned counties reflects reality or just the luck of the draw. The selection process started with the list of non-zoned, rural counties and their characteristics according to the four selection criteria discussed previously. A similar list of rural counties with zoning was then compared with the non-zoned counties and matches were made as closely as possible.

After the initial pairings were completed, researchers conducted an analysis to determine whether significant differences existed between the elements of each pair. Where differences were found to exist, the pairs that showed the most differences were systematically eliminated until the remaining differences in the selection criteria were insignificant. The remaining pairs represented about one-half of the rural counties without zoning.

The four measures used to match the counties were (1) the distance to a major city, (2) the distance to an interstate, (3) the percentage of the population that is minority, and (4) the percentage of the population with a high-school or greater education. These measures reflect the results of other research, indicating they may be important to explaining differences in various measures of economic performance. If counties without zoning can be matched to counties with zoning along each of these measures, any remaining differences can be attributed to the presence or absence of zoning.

The four criteria used for matching are presented in Table 6. The columns in the table can be interpreted very straightforwardly. The mean difference is simply the average of the differences between the county in the pair without zoning and the county in the pair with zoning. The mean difference in the "Distance to Major City" row, for example, says that, on average, the counties without zoning were 2.83 miles closer to a major city than the counties with zoning. Similarly, the non-zoned counties have 1.54 percent higher minority populations, are .45 miles closer to an interstate, and .01 percent more of their populations are high-school graduates. These data tell us that the matchings are not perfect.

**Table 6. Statistical Comparison of Chosen Pairs**

| | Mean Difference | Statistical Significance Two-Tailed |
|---|---|---|
| Distance to Major City (miles) | 2.83 | 0.446 |
| Percent Population Minority (%) | -1.54 | 0.554 |
| Distance to Interstate (miles) | 0.45 | 0.775 |
| Percent Population with HS or Greater (%) | -0.01 | 0.429 |

The next question is whether these differences are statistically significant, which is not the same as "important." For example, something can be statistically significant, but still not be important. Statistical significance is an expression of probability, not importance. What the Statistical Significance column in Table 6 shows is the probability that the mean difference is not zero. Generally, a value of between .1 and 0 is considered statistically significant. The closer you get to zero, the smaller the probability that the mean difference is not zero. The values in Table 6 for +statistical significance vary between .429 and .775, well above the .1 value threshold for statistical significance. With mean differences as low as Table 6 depicts, and the absence of statistical significance, it can be concluded that the differences between the pairs of counties with zoning and those without are neither important nor statistically significant.

Table 7 provides the mean differences and tests of statistical significance of various measures of economic development performance. These include per capita income for 1984, 1994, and 2000; the percentage change in employment between 1984 and 1999, and between 1994 and 1999; and the change in the squared per capita income between 1984 and 2000, and the change between 1994 and 2000. And, lastly, two property value variables were also reviewed - the percentage change in property values and the change in per capita property values between the years 1994 and 1999.

The mean differences in this table represent the counties with zoning minus the counties without. For each of the matched pairs of counties, the difference was calculated and the average taken of the sum of these differences for all matched pairs. In 1984, for example, counties with zoning had per capita incomes $630 higher than counties without zoning. That difference grew to $866 and $1,415 in 1994 and 2000, respectively. On average, employment increased 19.5 percent more in zoned counties than non-zoned counties between 1984 and 2000, and increased 4.2 percent more between 1994 and 2000.

The change in squared per capita income cannot be interpreted meaningfully. These values were squared to examine the possibility that the relationship between per capita income over time is non-linear and has no literal interpretation. We could, however, examine how per capita income has changed over time for zoned versus non-zoned counties. Between 1994 and 2000, per capita incomes increased in zoned counties by about 1.6 percent more than in non-zoned counties. Within the matched pairs of this analysis, therefore, although the difference in changes in per capita incomes are statistically significant when squared, they do not appear to be particularly important.

However, as shown in Table 7, the change in property values, expressed as percentage changes and as percentage changes in per capita values, appears both statistically significant and important. On average, counties with zoning demonstrated an 11.4 percent higher increase in property values between 1994 and 1999. When expressed in per capita terms, the increases are similar. For both property value variables, the difference is statistically significant.

The two approaches to identifying statistical differences between zoned and non-zoned counties provided consistent and robust evidence to support the idea that having zoning improves a community's ability to create employment.

It appears from the regression analysis that other factors are more important than zoning in determining the value of property in a community with the exception of distance to the interstate. Years of zoning appear to be relatively more important in explaining the changes in employment, and, the category is comparable to the other factors in terms of explanatory power, with exception of distance to the interstate where years of zoning is a significantly more powerful explanatory variable. However, the regression analysis showed that the variables identified do not explain a great deal of the variation seen among zoned counties with different years of zoning. Still, it would appear from this analysis that counties with zoning should perform better over time in attracting new jobs than counties without. Also, the longer that zoning has been in place, the larger the increase in per capita assessed land value and overall county employment.

**Table 7. Statistical Comparison of Selected Performance Measures for Chosen Pairs**

| | Mean Difference | Statistical Significance One-Tailed |
|---|---|---|
| Per Capita Income: 1984 | $630 | 0.016 |
| Per Capita Income: 1994 | $866 | 0.044 |
| Per Capita Income: 2000 | $1,415 | 0.026 |
| Percent Change in Employment: 1984-1999 | 19.5% | 0.002 |
| Percent Change in Employment: 1994-1999 | 4.2% | 0.065 |
| Change in Squared Per Capita Income: 1984-2000 | $47,735,748 | 0.032 |
| Change in Squared Per Capita Income: 1994-2000 | $31,173,186 | 0.022 |
| Percent Change in Property Values: 1994-1999 | 11.4% | 0.005 |
| Percent Change in Per Capita Property Values: 1994-1999 | 10.4% | 0.003 |

Evidence from paired-samples analysis also indicated that zoning is beneficial to a community in terms of employment growth. This analysis supports the contention that zoning increases the growth, both in percentage and per capita terms, of the value of property in a county. The evidence for the relationship between zoning and income, however, is cloudy, as the differences between the zoned and non-zoned, while (possibly) statistically significant, do not seem to be important.

## Qualitative Assessment: What Economic Developers Said

What do rural economic development officials think about zoning that implements land-use plans? A survey of economic development officials representing equally rural counties with and without zoning was conducted for this research. The survey included an equal number

of economic development officials representing counties with and without zoning to implement land-use plans. Table 8 summarizes results.

Most economic developers of counties with a zoning policy who were interviewed reported that the presence of zoning has yielded community benefits and is an economic development asset. Alternatively, the majority of developers of counties without a zoning policy reported that the absence of zoning has resulted in community problems and is an economic development liability. In short, zoning is generally viewed as a positive measure by economic developers of zoned and non-zoned communities alike.

Opinions shared by some economic developers reflect a notion that the presence of zoning is synonymous with preventing development from entering the community. Although several developers of communities with zoning considered the ability to manage and guide where future development can go as a key benefit to zoning, few shared views that zoning should be used as a tool to exclude certain types of development in their entirety. The majority shared views that zoning can be a tool for both community and economic development.

Several economic developers explained that those who once argued against zoning because they viewed it as an infringement on their property rights are often also those who argued "not in my backyard" and eventually became strong proponents of zoning. In other words, they were willing to accept some restrictions regarding how they could develop their property in exchange for some assurance that they would be protected from a nuisance development.

## CONCLUSIONS

Does land-use planning implemented through zoning facilitate rural economic development? A review of the experiences of 57 rural communities across Georgia, including 14 with more than 20 years experience with zoning, provides ample evidence that it does. Looking at the experiences of Rural Georgia, it seems likely that some level of development may occur regardless of how rural a community may be. However, as many counties have

**Table 8. Qualitative Assessment: What Economic Developers Said**

| Economic Developers of Rural Counties WITHOUT Zoning (37 interviewed) | Economic Developers of Rural Counties WITH Zoning (37 interviewed) |
|---|---|
| 1) The majority of economic developers (62.2 percent) interviewed did not consider the lack of countywide zoning a benefit. | 1) When asked if their community has experienced any benefits from zoning, the vast majority of the economic developers interviewed (83.8 percent) responded "yes." |
| 2) When asked if their community has experienced any problems due to the lack of zoning, almost three-quarters (72.9 percent) of those interviewed replied "yes." | 2) The majority of those interviewed (62.2 percent) reported that their communities have not experienced problems as a result of their zoning processes. |
| 3) The majority of the economic developers interviewed (54.1 percent) did not consider the lack of zoning to be an asset from an economic development perspective. | 3) More than three-quarters of the economic developers interviewed (78.4 percent) viewed zoning as an economic development asset. |
| 4) Twenty-one economic developers viewed the lack of zoning to be an economic development liability, constituting the majority of those interviewed (56.8 percent). | 4) The vast majority of economic developers interviewed (81.6 percent) did not consider zoning to be an economic development liability. |
| 5) Over two-thirds of the economic developers (67.6 percent) reported that their community's prospects have asked about zoning. | 5) Over three-quarters of the economic developers interviewed (75.7 percent) reported that prospects have asked about zoning. |
| 6) Approximately one-third of the 25 economic developers (who have been asked by prospects about zoning) reported that their prospects would have preferred that their community have zoning; one-fourth (24 percent) reported that their prospects haven't liked zoning. [The remaining developers either reported that they didn't know whether prospects like zoning or it depends on the prospect, or they didn't provide an answer.] | 6) Of the 28 economic developers who reported that zoning is a fairly typical question asked by prospects, 13 (46.4 percent) reported that their prospects have viewed zoning as an asset; just over 10 percent report that their prospects have seemed wary of zoning. [The remaining developers either reported that there has been no feedback from prospects or it depends on the prospect, or they did not provide an answer.] |
| 7) The average score provided on the effectiveness of the community's planning process was 4.4, on a scale of 1 to 10. | 7) The average score provided on the effectiveness of the community's planning process was 6.4, on a scale of 1 to 10. |

learned and will continue to learn, zoning helps the community guide what that development will be and where it will go. Furthermore, communities with zoning may be better positioned for future economic development.

A comparison of all rural counties with a zoning policy to all rural counties without one reveals that zoned counties have larger economic bases than non-zoned counties. When reviewing the statistical relationship between years of zoning and economic performance, regressions analysis confirms that zoning does help to create new jobs, although other factors (e.g., accessibility to highways, education, poverty levels, and employment base) may likely play a greater role than zoning does. An analysis of matched pairs – that is, pairing counties with zoning to counties without according to similar economic positioning (e.g., distance to major city and interstate, education level, percentage of minority population) – also illustrates that zoning has a significant and positive impact on changes in employment as well as assessed property values.

Findings from interviews with economic developers also provide evidence that there are economic benefits related to zoning. More than three-quarters of the economic developers representing counties with zoning (78.4 percent) consider zoning an economic development asset. Benefits are numerous, including, but not limited to (1) business and citizen preference for land use predictability; (2) assurance for business prospects and residents that their investment will be protected; (3) the ability to guide future development and prevent haphazard (e.g., patchwork), harmful, or unwanted development; and (4) the minimization of potential conflict between industry and residents.

Zoning which implements a well-conceived land use plan is a proven tool to ensure quality development within a community. Lack of zoning reportedly deters those industries that want to be viewed as a good corporate citizen and avoid conflicts with neighbors. Overall, the weight of the evidence would make it appear that land-use planning implemented through zoning may help to better position rural communities for economic development.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