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Land Use Change, Resource Competition and Conflict in the Southern United States: Discussion

Patricia E. Norris

These three papers together characterize trends in land use, resource issues, and research responses that are being observed in all regions of the country. However, southern states are the locus of the most recent and rapid changes in land use. The latest National Resources Inventory data shows that the increase in acreage of *land in developed uses* from 1992 through 1997 was most pronounced in the southern states. Figure 1 compares, for all states but Alaska, the average annual rate of land development (this is land moved into the urban and built-up category and the rural transportation land category) between 1992 and 1997. Eight of the top 13 states are in the southern region, and Louisiana, the southern state with the lowest rate of land development, is ranked at 29th out of 49.

Land Use Change

In his paper on land use change in the South, John Reynolds provides a good overview of some of the economic and social drivers of land development patterns, and his presentation of urban land use coefficients compares, for the farm production regions of the south, the amount of land being developed for each additional person in the region. Put another way, these coefficients indicate the density of land use—albeit over very large geographical areas. His description of differences in coef-

ficient values between metropolitan and non-metropolitan areas in Florida illustrates the value of conducting this type of analysis on a smaller geographic scale.

It would be interesting to investigate how this measure of density of development has changed over time. Sprawl, as a land use pattern, is characterized by a lower-density pattern of development, and these coefficients calculated for several distinct periods of time for small geographic areas would provide some quantitative estimates of the increase (or lack of an increase) in sprawl development in the region.

Changes in population and land use in Michigan suggest that some caution is in order when using these urban land use coefficients to draw conclusions about impacts of future population growth. Multiplying the urban land use coefficient by projected population growth to assess potential land development can underestimate the rate of land use change where there is significant population movement within the state. In some areas, higher rates of land development may be likely in the absence of significant increases in population. Table 1 compares changes in population and changes in amount of developed land for the six states ranked first, second, third, ninth, tenth and eleventh in Figure 1. Michigan experienced a smaller percentage population growth between 1992 and 1997 than the other five states. However, the change in amount of developed land compares, on a percentage basis, to land development in Texas and, on an acreage basis, to land development in South Carolina. Ana-

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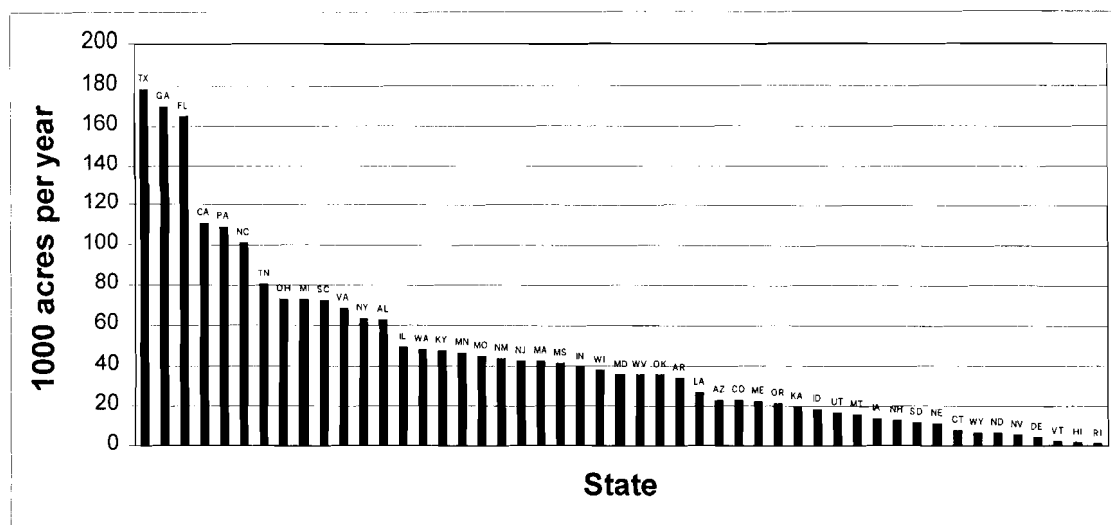


Figure 1. States Ranked by Average Annual Rate of Land Development, 1992–1997 (Alaska not included) Source: 1997 National Resources Inventory, USDA, NRCS, December 2000

lysts have concluded that Michigan's population is using more and more land simply by moving around and spreading out, not because of significant growth in size (Wyckoff). The impact of improved transportation routes on commuting patterns, the impact of economic conditions on the demand for recreational second homes, and movement of the burgeoning retirement population are likely causes for this phenomenon.

The Value of Natural Capital

As competition for land resources grows, understanding the values placed on goods and services provided by land will be increasingly important. John Bergstrom presents a useful framework within which to assess these values. Agricultural land preservation efforts illustrate one area in which a thorough understanding of the values associated with agricultural land is being sought. Agricultural interests and environmental organizations are working to stem the conversion of agricultural land to non-agricultural uses across the country. There is strong evidence, however, that production of agricultural commodities is not necessarily the most highly valued attribute of agricultural land uses. Rather, as research in several states has shown, things such as open

space, rural character, green space, and lack of congestion are cited by the public as attributes that would influence them to support preservation of agricultural land (Kline and Wichelns; Rosenberger). In Bergstrom's matrix, these are the non-exclusive, non-rival, quality-of-life aspects of an agricultural landscape.

Many public and private land preservation activities are aimed at preventing the conversion of undeveloped land to developed uses. The private efforts are among the most interesting. While there are a few programs around the country that use public funds to appropriate land or the development rights to land, there is much more activity within private land trusts and other non-governmental efforts. An interesting research question is whether the actions of these groups provide for an alternative approach to assessing the value of the non-rival, non-exclusive benefits of undeveloped landscapes that could be added to the list of valuation techniques offered by Bergstrom.

Land Use and Resource Conflict

Teachers of natural resource economics offer the fixed location factor—that land must be used where it is located—as a unique characteristic of the land resource that introduces potential conflicts related to spillover effects.

Table 1. Changes in Population and Developed and Area, 1992–1997, For Six States

	TX	GA	FL	MI	SC	VA
(1) 1992 population	17,650,479	6,759,474	13,504,775	9,470,323	3,600,576	6,383,315
(2) 1997 population	19,355,427	7,486,094	14,683,350	9,785,450	3,790,066	6,732,878
(3) Change in population	1,704,948	726,620	1,178,575	315,127	189,490	349,563
(4) % change in population	9.66	10.75	8.73	3.33	5.26	5.48
(5) 1992 developed acres	7,673,500	3,105,400	4,359,600	3,181,400	1,735,300	2,282,300
(6) 1997 developed acres	8,567,000	3,957,300	5,184,800	3,545,500	2,097,300	2,625,800
(7) Change in developed acres	893,500	851,900	825,200	364,100	362,000	343,500
(8) % change in developed acres	11.64	27.43	18.93	11.44	20.86	15.05
Urban land use coefficient ¹ [(7) ÷ (3)]	.52	1.17	.70	1.15	1.91	.98

Sources: US Census and USDA National Resources Inventory.

¹ Using Reynolds' formula.

Central to the conflict described by Upton Hatch and Terry Hanson, however, is that water doesn't necessarily have to be used where it is found. Instead, changes in land use in areas of Alabama, Florida, and Georgia have changed the demand for water in various uses across the region and have raised the specter of interbasin transfers to satisfy changing demands. In particular, Hatch and Hanson describe water use issues in two watersheds and the potential economic impacts associated with changes in the management of water resources that are central to the ongoing debate between the three states.

Research of the type conducted by Hatch and Hanson will be in high demand across the country. Water battles are being waged in the southwest again, and the discussions about withdrawals and transfers of water from Great Lakes are heated. The impacts of land use trends on the demand for water in various uses (and locations) will be significant. Recently, Michigan's Commissioner of Agriculture stated that agriculture will always play a prominent role in Michigan's economy because of the abundant supply of fresh water, from the Great Lakes, available to agriculture. However, if non-agricultural uses of Michigan's land resources continue to grow and increasing land values crowd out agricultural uses, the value of that water to agriculture in other regions of the country may become more important. Of course, the kinds of issues that Hatch and Hanson address—whether consumptive uses and non-consumptive uses can co-exist—will arise if recreational water users in the Great Lakes region begin to compete with agricultural water users elsewhere.

Summary

The growing competition for land resources and the interdependence of land and other resources, such as water, set the stage for considerable resource use conflict and controversy in the Southern region and beyond. The papers by Reynolds, Bergstrom, and Hatch and Hanson provide a valuable overview of land use change and of economic and natural resource management issues associated with land use

change. Research and education in natural resource and environmental economics will be the keys to addressing these issues.

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