



# Comparing states with and without growth management analysis based on indicators with policy implications comment

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## Abstract

In a recent volume of this journal, Nelson (Land Use Policy 16 (1999) 121) defines and computes several statewide indicators designed to evaluate the effectiveness of growth management efforts in Oregon and Florida. Two indicators are intended to measure how well states have contained urban sprawl and preserved farmland. They are computed using US Census of Population and US Census of Agriculture data. In this comment, I highlight potential problems associated with using these data to evaluate urban sprawl and farmland preservation, and recompute Nelson's indicators using alternative land use data. Differences and similarities between my indicators and those computed by Nelson are discussed. Published by Elsevier Science Ltd.

*Keywords:* Growth management; Land use planning; Zoning

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## Introduction

In a recent volume of this journal, Nelson (1999) defines several indicators designed to evaluate the effectiveness of existing growth management efforts in Oregon and Florida. Nelson computes his indicators for Oregon and Florida, then compares each to indicators computed for Georgia which he describes as a reasonably comparable state without growth management (Nelson, 1999, p. 121). The first two of these indicators, the percent change in urbanized population density within urbanized areas and the amount of farmland lost per new resident, concern land use change while the other indicators concern transportation, energy conservation, and fiscal issues. My comments concern only those indicators dealing with land use change. Nelson's first indicator, the percentage change in urbanized population density in urbanized areas, is described as a measure of how well states have contained urban sprawl. Nelson's second indicator, the amount of farmland lost per new resident, is described as a measure of how well states have preserved farmland. Containing urban sprawl and preserving farmland are two goals of the Oregon and Florida growth management efforts.

Conceptually, the two indicators appear to be viable measures of urban sprawl and farmland preservation. However, potential problems can arise when computing such indicators using imperfect data. Both urban sprawl and farmland preservation involve changes in land use, and so data describing land use change are needed. Instead, Nelson relies on data reported by the US Census of Population and the US Census of Agriculture. Neither source provides the best data available regarding land use change because neither source is based on an inventory of land. Rather, the US Census of Population is a survey of people. The U.S. Census of Agriculture is a survey of agricultural operations. Computing these specific urban sprawl and farmland preservation indicators using data reported in these sources potentially can lead to misleading results regarding the effectiveness of growth management efforts. Land use policy analysts may prefer to minimize potential problems associated with these data sources by computing urban sprawl and farmland preservation indicators using data reported by land inventories specifically designed to document land use and land use change.

The purpose of this comment is to: (1) highlight the problems associated with relying on data reported in the US Census of Population and the US Census of Agriculture to evaluate urban sprawl and farmland preservation; (2) recompute Nelson's urban sprawl and farmland preservation indicators using land use data provided by the

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USDA Natural Resources Conservation Service's National Resources Inventory; (3) define and compute an additional indicator, the amount of developed land gained per new resident, that land use policy analysts also may find useful when evaluating the effectiveness of growth management efforts in different locations; and (4) briefly discuss the use of statewide indicators to evaluate the effectiveness of growth management efforts.

### An urban sprawl indicator

Nelson's urban sprawl indicator is computed by: (1) obtaining the ratios of urbanized population per area of urbanized land for 1980 and 1990; and (2) computing the percentage change in the two ratios (Nelson, 1999, Table 1). Data describing urbanized population and the area of urbanized land are reported in the US Census of Population. The indicator is the percentage change in the population density within urbanized areas as defined by the US Bureau of Census. The problem with using this computation as an indicator of urban sprawl is that Census-defined urbanized areas themselves are identified using population density as a primary criterion, rather than an actual determination of land use. The US Bureau of Census defines urbanized areas as comprising of one or more places (central place) and the adjacent densely settled surrounding territory (urban fringe) that together have a minimum of 50,000 persons. Urban fringe is defined as a contiguous territory having a density of at least 1000 persons per square mile, among other criteria (US Bureau of Census, 1992).

As computed, Nelson's urban sprawl indicator only describes land use changes occurring in areas already characterized by relatively high population densities. However, it is conceivable that other locations may experience significant growth yet not meet the criteria thresholds

for Census-defined urbanized areas. This situation seems most likely in places where relatively low-density residential, commercial, or industrial growth occurs on the edges of relatively small towns. This form of growth would seem to epitomize the notion of urban sprawl portrayed in the news media today, as a Wal-mart popping up in every small town across America. As computed, the urban sprawl indicator may not always account for new shopping malls, commercial strip development, and industrial parks. This problem could be compounded if land use policy analysts were to apply Nelson's indicator on more local scales, because the presence or absence of local population growth as reflected in dis-aggregated Census data could be more transparent than when computing an aggregated statewide indicator. At a minimum, US Census of Population data may not be the best available with which to compute an urban sprawl indicator.

An alternative indicator of urban sprawl would relate changes in population sizes to the areas of land actually in residential, commercial, and industrial uses over time. Data describing the areas of land in different uses are available from the USDA Natural Resources Conservation Service's National Resources Inventory. The Inventory is a comprehensive nationwide assessment of land use conducted at 5-year intervals using systematic sampling procedures specifically designed to identify the areas of land in forest, farm, and developed uses. Sampling procedures and land use definitions are consistent across the 1982, 1987, 1992, and 1997 inventories (Natural Resources Conservation Service, 1999). Of particular interest in computing an urban sprawl indicator is the area of developed land. Developed land is defined by the National Resources Inventory as urban and built-up areas and rural transportation land, including residential, commercial, and industrial lands, highways, and other infrastructure (see Natural Resources Conservation Service, 1999,

Table 1  
Population per acre developed land, 1982–1992 and 1982–1997<sup>a</sup>

Category	Nation <sup>b</sup>	Oregon	Florida	Georgia
Population, 1982	230,580,672	2,664,922	10,471,407	5,649,792
Developed land, 1982, acres	75,239,600	980,600	3,340,300	2,418,600
Population per acre developed land, 1982	3.06	2.72	3.13	2.34
Population, 1992	253,858,443	2,973,934	13,504,775	6,759,474
Developed land, 1992, acres	88,999,100	1,145,100	4,503,400	3,184,900
Population per acre developed land, 1992	2.85	2.60	3.00	2.12
Population, 1997	266,646,009	3,243,254	14,683,350	7,486,094
Developed land, 1997, acres	104,812,000	1,295,500	5,448,700	4,238,100
Population per acre developed land, 1997	2.54	2.50	2.69	1.77
Percent change in population per acre developed land, 1982–1992	– 6.9	– 4.4	– 4.3	– 9.1
Percent change in population per acre developed land, 1982–1997	– 17.0	– 7.9	– 14.0	– 24.4
Nelson's urban sprawl indicator <sup>c</sup>	—	– 0.53	– 5.14	– 15.85

<sup>a</sup>Sources: US Bureau of Census (1993, 1999) and Natural Resource Conservation Service (1999).

<sup>b</sup>Does not include Alaska.

<sup>c</sup>Percent change in population density within Census-defined urbanized areas, 1980–1990 (Nelson, 1999, p. 123).

Appendix 3 for a complete definition). The data provide an opportunity to examine rates of change in population densities occurring on lands in these intensive or developed uses.

Table 1 re-computes Nelson's urban sprawl indicators for 1980–1990 with percentage changes in population per acre of developed land from 1982 to 1992. Although the two different urban sprawl indicators are not directly comparable, indicators computed using National Resources Inventory data are similar to Nelson's indicators computed using US Bureau of Census data (Nelson, 1999, p. 123) in terms of the direction of differences across the three states. Oregon and Florida exhibit less reduction in population per acre of developed land than does Georgia (Table 1). However, the relative magnitudes of differences between the indicators across the three states are less than those computed by Nelson. For example, the magnitude of Nelson's indicator for Georgia (– 15.85%) is three times greater than his indicator for Florida (– 5.14%), while the magnitude of the Georgia indicator presented here (– 9.1%) is two times greater than Florida's (– 4.3%). The magnitude of Nelson's indicator for Georgia is nearly 30 times greater than his indicator for Oregon (– 0.53%), but the magnitude of the Georgia indicator presented here is just two times greater than Oregon's (– 4.4%). Urban sprawl indicators computed for 1982–1992 suggest that Oregon and Florida have performed somewhat better than the national average (– 6.9%) in preventing urban sprawl, while Georgia has performed somewhat worse.

Recently available preliminary data from the 1997 inventory enable us to update the urban sprawl indicators to examine percentage changes in population per

acre of developed lands from 1982–1997 (Table 1). The 1982–1997 indicators again show Oregon (– 7.9%) and Florida (– 14.0%) performing better than the national average (– 17.0%) in terms of urban sprawl, and Georgia (– 24.4%) performing worse. To put the 1982–1997 urban sprawl indicators in a national perspective, indicators for the three states are compared to those computed for all other states excluding Alaska (Table 2). In terms of percentage change in population per acre of developed land, Oregon ranks 11th, Florida ranks 21st, and Georgia ranks 37th. Based on the indicators alone, 10 states perform better than Oregon in preventing urban sprawl, while 12 states perform worse than Georgia.

### A farmland preservation indicator

Nelson's farmland preservation indicator is computed by: (1) obtaining the area of farmland lost and the amount of population gained from 1982 to 1992; and (2) computing the ratio of farmland lost per population gained (Nelson, 1999, Table 2). Data describing the area of farmland lost are extracted from the US Census of Agriculture. The indicator is the amount of US Bureau of Census-defined farmland lost per new resident. The problem with using this computation as an indicator of farmland preserved (or lost) is that the US Census of Agriculture is not a comprehensive inventory of land use. The US Census of Agriculture is based on a survey of agricultural operations, defined since 1978 as any place having \$1000 or more in total agricultural product sales during the census year (US Bureau of Census, 1989, Appendix B).

Table 2  
Comparison among states of percent change in population per acre developed land, 1982–1997<sup>a</sup>

State	Percent change <sup>b</sup>	Rank	State	Percent change <sup>b</sup>	Rank	State	Percent change <sup>b</sup>	Rank
NV	33.3	1	WI	– 13.0	18	NM	– 22.8	35
AZ	3.5	2	CT	– 13.0	19	OH	– 22.9	36
HI	– 1.2	3	DE	– 13.7	20	GA	– 24.4	37
KS	– 2.7	4	FL	– 14.0	21	AL	– 24.9	38
CA	– 4.3	5	AR	– 14.4	22	NH	– 25.7	39
UT	– 4.4	6	RI	– 15.1	23	NJ	– 25.7	40
CO	– 4.8	7	MD	– 15.1	24	LA	– 25.7	41
NE	– 5.2	8	ND	– 15.5	25	NC	– 27.3	42
WA	– 6.7	9	IN	– 15.5	26	ME	– 28.6	43
ID	– 7.4	10	MT	– 15.8	27	MA	– 29.2	44
OR	– 7.9	11	OK	– 16.4	28	SC	– 29.6	45
SD	– 8.2	12	VT	– 16.4	29	TN	– 30.8	46
IA	– 9.7	13	WY	– 16.7	30	KY	– 32.8	47
TX	– 10.5	14	VA	– 17.7	31	PA	– 34.9	48
MO	– 11.6	15	NY	– 18.8	32	WV	– 43.7	49
IL	– 12.2	16	MI	– 21.5	33			
MN	– 12.8	17	MS	– 22.6	34	US <sup>a</sup>	– 17.0	—

<sup>a</sup>Does not include Alaska.

<sup>b</sup>Computed using methods and sources in Table 1.

The criteria used by the US Bureau of Census to define farms and farmland have as much to do with the characteristics of landowners as with the specific uses of land. It is as conceivable for farmland to exit census accounting through abandonment or less intensive management as through conversion to urban uses. This seems increasingly likely as US farm policy moves away from providing subsidies and other financial assistance to farmers and marginal farms unable to adjust to increasingly competitive markets find themselves squeezed out. Idle farmland not owned by farmers may not be counted by the US Census of Agriculture even though such land may continue to provide many of the benefits sought by farmland protection programs. At a minimum, US Census of Agriculture data may not be the best available with which to compute a farmland preservation indicator.

Nelson's farmland preservation indicators can be re-computed using National Resources Inventory data describing the actual areas of land in farm uses. The Inventories report land areas for several farm use categories including cropland, Conservation Reserve Program land, pastureland, rangeland, and other rural land such as farmsteads, farm structures, and field windbreaks (Natural Resources Conservation Service, 1999, Appendix 3). The data are based on actual uses of land rather than the characteristics of land owners. National Resources Inventory data can even be used to compute losses of specifically prime farmland, but that analysis would not be as directly comparable to Nelson's and so is left for

others. Table 3 re-computes Nelson's farmland preservation indicators for 1982–1992 as the amount of National Resources Inventory-defined farmland lost per new resident. The specific sources Nelson used to obtain 1982 and 1992 population estimates were not provided in his article and so the precise population figures used by Nelson could not be replicated. However, variations between Nelson's population figures and those cited in Table 3 are quite minor.

Farmland preservation indicators based on National Resources Inventory data differ from those computed by Nelson using US Census of Agriculture data (Table 3). Nelson's farmland preservation indicators suggest that the nation as a whole lost 1.79 acres of farmland for each new resident added, Oregon lost 0.33 acres, Florida lost 0.66 acres, and Georgia lost 2.10 acres (Nelson, 1999, p. 124). However, farmland preservation indicators computed using National Resources Inventory data suggest that the nation as a whole lost 0.84 acres of farmland for each new resident, Oregon lost 0.71 acres, Florida lost 0.36 acres, and Georgia lost 0.63 acres (Table 3). Based on the 1982–1992 farmland preservation indicators alone, Georgia appears to have performed no worse than Oregon in terms of farmland preservation. Both states have performed somewhat better than the national average (– 0.84).

As with the urban sprawl indicators, recently available preliminary data from the 1997 Inventory enable us to update the farmland preservation indicators for

Table 3  
Farmland change, 1982–1992 and 1982–1997<sup>a</sup>

Category	Nation <sup>b</sup>	Oregon	Florida	Georgia
1982–1992				
1982 farmland acres	1,022,853,600	16,966,800	14,780,200	10,484,800
1992 farmland acres	1,003,338,500	16,749,300	13,696,300	9,789,200
Farmland change	– 19,515,100	– 220,500	– 1,083,900	– 695,600
Farmland percent change	– 1.9	– 1.3	– 7.3	– 6.6
1982 population	230,580,672	2,664,922	10,471,407	5,649,792
1992 population	253,858,443	2,973,934	13,504,775	6,759,474
Population change	23,277,771	309,012	3,033,368	1,109,682
Population percent change	10.1	11.6	29.0	19.6
Change in farmland acres per new resident	– 0.84	– 0.71	– 0.36	– 0.63
1982–1997				
1982 farmland acres	1,022,853,600	16,966,800	14,780,200	10,484,800
1997 farmland acres	985,693,900	16,482,600	12,892,200	9,109,200
Farmland change	– 37,159,700	– 484,200	– 1,888,000	– 1,375,600
Farmland percent change	– 3.6	– 2.9	– 12.8	– 13.1
1982 population	230,580,672	2,664,922	10,471,407	5,649,792
1997 population	266,646,009	3,243,254	14,683,350	7,486,094
Population change	36,065,337	578,332	4,211,943	1,836,302
Population percent change	15.6	21.7	40.2	32.5
Change in farmland acres per new resident	– 1.03	– 0.84	– 0.45	– 0.75
Nelson's farmland preservation indicator <sup>c</sup>	– 1.79	– 0.33	– 0.66	– 2.10

<sup>a</sup>Source: US Bureau of Census (1993, 1999), Natural Resource Conservation Service (1999).

<sup>b</sup>Does not include Alaska.

<sup>c</sup>Amount of farmland lost per new resident, 1982 to 1992 (Nelson, 1999, p. 124).

1982–1997. The 1982–1997 indicators suggest that the nation as a whole lost 1.03 acres of farmland for each new resident, Oregon lost 0.84 acres, Florida lost 0.45 acres, and Georgia lost 0.75 acres (Table 3). Putting the 1982 to 1997 farmland preservation indicators in a national perspective, Florida ranks 12th, Georgia ranks 20th, and Oregon ranks 21th (Table 4). Based on the farmland preservation indicators alone, 11 states perform better than Florida in preserving farmland, while 20 states, including Georgia, perform better than Oregon.

### A land development indicator

Whether we use National Resources Inventory data as in this analysis, or US Census of Agriculture data as Nelson does, a conceptual weakness in basing a farmland preservation indicator on reductions in the areas of land reported in farm uses is that we fail to account for the possibility that, over time, farmland can be converted to non-farm uses other than urban. For example, farmland can be planted with trees and converted to forest uses. We could compute a separate forestland preservation indicator. However, because forestland can be converted to farmland, a forestland preservation indicator would suffer a similar weakness. If our objective is to evaluate the effectiveness of growth management efforts by comparing land use change relative to population growth in different locations, perhaps a better alternative is to examine rates at which lands in either forest or farm use are converted to developed uses. Rather than comparing areas of farmland or forestland lost per new resident, we

might compare areas of developed land gained per new resident.

Table 5 computes new land development indicators for 1982–1992 and 1982–1997, based on changes in the areas of developed land gained per new resident. From 1982 to 1992, Oregon gained 0.53 acres of developed land per new resident compared to 0.59 acres for the nation as a whole during which time Oregon's population growth rate (11.6%) was just slightly higher than the national average (10.1%). Georgia fared slightly worse than Oregon and the nation as a whole, gaining 0.69 acres of developed land while its population increased by 19.6%. Florida fared better than both Oregon and Georgia, gaining 0.38 acres of developed land for each new resident while its population increased by 29% (Table 5).

Land development indicators computed using data for 1982–1997 suggest that Oregon (0.54) and Florida (0.50) have continued to gain less developed land per new resident than the nation as a whole (0.82), even though population growth has continued to be higher in both states, 21.7% in Oregon and 40.2% in Florida compared to 15.6% nationwide (Table 5). Again, Georgia has been faring worse, with 0.99 acres of new developed land per new resident and a population growth rate of 32.5%. Putting the 1982–1997 land development indicators in a national perspective, Florida ranks 8th, Oregon ranks 11th, and Georgia ranks 18th in terms of new developed land per new resident (Table 6). Based on the land development indicators alone, 31 states perform worse than Georgia even though Georgia's population growth rate has been twice the national average.

Table 4  
Comparison among states of change in farmland acres per new resident, 1982–1997<sup>a</sup>

State	Change in farmland <sup>b</sup>	Rank	State	Change in farmland <sup>b</sup>	Rank	State	Change in farmland <sup>b</sup>	Rank
HI	0.02	1	NC	-0.65	18	AL	-3.04	35
UT	-0.07	2	ID	-0.75	19	OH	-3.18	36
CA	-0.23	3	GA	-0.75	20	MO	-3.31	37
NH	-0.24	4	OR	-0.84	21	NE	-3.69	38
AZ	-0.25	5	TX	-1.10	22	NM	-4.36	39
MT	-0.26	6	IL	-1.18	23	KY	-4.63	40
WA	-0.27	7	IN	-1.27	24	SD	-7.13	41
NV	-0.29	8	SC	-1.28	25	PA	-8.40	42
MD	-0.34	9	TN	-1.44	26	MS	-8.76	43
DE	-0.40	10	WI	-1.52	27	OK	-10.28	44
CO	-0.45	11	MN	-1.71	28	LA	475.62 <sup>c</sup>	45
FL	-0.45	12	KS	-1.88	29	IA	15.31 <sup>c</sup>	46
MA	-0.46	13	ME	-2.29	30	ND	9.54 <sup>c</sup>	47
RI	-0.53	14	MI	-2.51	31	WY	5.21 <sup>c</sup>	48
CT	-0.56	15	VT	-2.88	32	WV	4.28 <sup>c</sup>	49
VA	-0.57	16	NY	-2.89	33			
NJ	-0.60	17	AR	-3.03	34	US <sup>a</sup>	-1.03	—

<sup>a</sup>Does not include Alaska.

<sup>b</sup>Computed using methods and sources in Table 3.

<sup>c</sup>Simultaneously lost population and lost farmland, 1982–1997.

Table 5  
Developed land change, 1982–1992 and 1982–1997<sup>a</sup>

Category	Nation <sup>b</sup>	Oregon	Florida	Georgia
1982–1992				
1982 developed land acres	75,239,600	980,600	3,340,300	2,418,600
1992 developed land acres	88,999,100	1,145,100	4,503,400	3,184,900
Developed land change	13,759,500	164,500	1,163,100	766,300
Developed land percent change	18.3	16.8	34.8	31.7
1982 population	230,580,672	2,664,922	10,471,407	5,649,792
1992 population	253,858,443	2,973,934	13,504,775	6,759,474
Population change	23,277,771	309,012	3,033,368	1,109,682
Population percent change	10.1	11.6	29.0	19.6
Change in developed land acres per new resident	0.59	0.53	0.38	0.69
1982–1997				
1982 developed land acres	75,239,600	980,600	3,340,300	2,418,600
1997 developed land acres	104,812,000	1,295,500	5,448,700	4,238,100
Developed land change	29,572,400	314,900	2,108,400	1,819,500
Developed land percent change	39.3	32.1	63.1	75.2
1982 population	230,580,672	2,664,922	10,471,407	5,649,792
1997 population	266,646,009	3,243,254	14,683,350	7,486,094
Population change	36,065,337	578,332	4,211,943	1,836,302
Population percent change	15.6	21.7	40.2	32.5
Change in developed land acres per new resident	0.82	0.54	0.50	0.99

<sup>a</sup>Source: US Bureau of Census (1993,1999) and Natural Resource Conservation Service (1999).

<sup>b</sup>Does not include Alaska.

Table 6  
Comparison among states of change in developed land acres per new resident, 1982–1997<sup>a</sup>

State	Acres new developed land <sup>b</sup>	Rank	State	Acres new developed land <sup>b</sup>	Rank	State	Acres new developed land <sup>b</sup>	Rank
NV	0.16	1	GA	0.99	18	NE	1.62	35
HI	0.17	2	MO	1.08	19	AL	1.94	36
CA	0.20	3	RI	1.12	20	OH	2.17	37
AZ	0.35	4	WI	1.13	21	ME	2.40	38
UT	0.42	5	NH	1.14	22	MS	2.61	39
MD	0.46	6	CT	1.14	23	MT	2.71	40
WA	0.48	7	NC	1.22	24	KY	3.20	41
FL	0.50	8	IN	1.24	25	SD	3.41	42
CO	0.52	9	NY	1.30	26	OK	3.53	43
DE	0.52	10	VT	1.31	27	PA	9.10	44
OR	0.54	11	NM	1.43	28	LA	– 357.39 <sup>c</sup>	45
TX	0.65	12	TN	1.44	29	ND	– 4.84 <sup>c</sup>	46
VA	0.74	13	KS	1.44	30	IA	– 4.59 <sup>c</sup>	47
ID	0.87	14	AR	1.45	31	WY	– 3.28 <sup>c</sup>	48
IL	0.92	15	MA	1.49	32	WV	– 2.91 <sup>c</sup>	49
NJ	0.93	16	MI	1.51	33			
MN	0.98	17	SC	1.61	34	US <sup>a</sup>	0.82	—

<sup>a</sup>Does not include Alaska.

<sup>b</sup>Computed using methods and sources in Table 5.

<sup>c</sup>Simultaneously lost population and gained developed land, 1982–1997.

### Evaluating the effectiveness of growth management

Urban sprawl indicators computed for Oregon, Florida, and Georgia using land use data provided by the National Resources Inventory are somewhat comparable to those computed by Nelson (1999) using data provided

by the US Census of Population. Based on the urban sprawl indicators alone, Oregon and Florida appear to have experienced less urban sprawl than Georgia. Nelson (1999) attributes his results to the presence of growth management efforts in Oregon and Florida, and the absence of such efforts in Georgia.

Farmland preservation indicators computed for Oregon, Florida, and Georgia using National Resources Inventory data differ from those computed by Nelson (1999) using US Census of Agriculture data. Based on the farmland preservation indicators alone, Nelson's results suggest that Oregon and Florida have lost less farmland per new resident than Georgia. Nelson also attributes this result to the presence of growth management efforts in Oregon and Florida. Results computed in this analysis suggest that Florida has lost less farmland per new resident than Georgia and is consistent with those of Nelson. However, results computed in this analysis contradict those of Nelson regarding Oregon and suggest instead that Oregon has lost more farmland per new resident than Georgia. An alternative land development indicator, defined in this analysis as the area of land developed per new resident, suggests that Oregon and Florida have gained less developed land per new resident than has Georgia from 1982 to 1992 and from 1982 to 1997.

In each case, urban sprawl, farmland preservation, and land development indicators computed for each of the 49 states for 1982–1997 show a fairly broad range of values. In terms of the indicators alone, 10 states perform better than Oregon regarding preventing urban sprawl, 20 states perform better than Florida, and 12 states perform worse than Georgia. Regarding farmland preservation per new resident, 20 states perform better than Oregon, 11 states perform better than Florida, and 29 states perform worse than Georgia. Regarding land development per new resident, 10 states perform better than Oregon, 7 states perform better than Florida, and 31 states perform worse than Georgia. Nelson argues that Oregon, Florida, and Georgia are reasonably comparable, and so has chosen these three states as a basis for evaluating the effectiveness of growth management efforts in Oregon and Florida. Supporting or refuting the reasonableness of this comparison is beyond the scope of this comment. However, land use policy analysts no doubt will want to ponder the similarities and differences among states when observing the relative placement of states on the indicator ranking lists.

There are likely several factors that influence land development patterns. These might include existing population densities, regional economic growth, new industries, changes in personal income, changes in average household sizes, changes in tastes and preferences regarding housing, the availability of land for re-development, regional comparative advantages of land in different uses, and physical land features, such as slope, that constrain certain uses, among others. Existing land use patterns also might influence future land development. For example, large cities can likely absorb greater numbers of new residents than small cities while resulting in relatively less change in developed land area. All factors potentially influencing land development patterns are not necessarily accounted for by relatively coarse statewide indicators such as those computed here. Realizing measurable impacts of growth management policies may be a slow process involving incremental changes in land use patterns over long periods of time. Given all of the factors that potentially can influence land development patterns, dangers may exist in using state-by-state comparisons of statewide indicators to evaluate the potential influence of growth management alone. Land use policy analysts are cautioned not to rely too enthusiastically on such indicators when evaluating the effectiveness of growth management efforts in different states.

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