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MEASURES OF LOCAL BUSINESS CLIMATE: ALTERNATIVE APPROACHES

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Introduction

The measurement of local business climate and the determination of the variables relevant to that measure have been of considerable interest not only to academics, but also to economic development authorities. The most well-known ranking of states, that of Grant Thornton, receives considerable attention upon publication, both in the public press and in economic development circles.

The plethora of academic literature [1] on the determinants of state business climate, economic growth, and business location decisions seems to suggest that the prime factors considered by Grant Thornton (namely tax rates, fiscal policies, labor productivity, availability, and costs) are important considerations.

The Grant Thornton rankings have been severely criticized, however, on a number of grounds.[2] Location decisions are made for the long term, and decision makers must evaluate each input factor carefully for its relevance to the individual firm. Factors selected as inputs must be interpretable.[3] Furthermore, the use of state data may be misleading, as more commonalities may be found between two urban areas in different states than for an urban and a rural area within the same state. Similarly, because many metropolitan areas cross state boundaries, the choice between two MSAs may be more critical than the

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[1]See, for example, reviews by Stevens [16], Wheat [19], and Plaut and Pluta [13].

[2]For an especially enthusiastic criticism, see *Taken for Granted,* [2].

[3]For example, the effect of high real wages on a business location decision is ambiguous. If the higher wages reflect higher productivity and/or regional industrial development, then high wages may attract certain types of businesses. The Grant Thornton argument, however, is that higher wages reflect higher costs, which is not the only interpretation.

choice between two states. Finally, the volatility of the rankings seems to defy the essential stability of the underlying factors and the observed growth in manufacturing output. More specifically, factors such as labor, employment and energy costs, productivity, and population density are not noticeably volatile on a year-to-year basis and should not produce the 20 point changes from one year to the next in rankings evident in the Grant Thornton publications.

A more detailed analysis of the Grant Thornton methodology is warranted. Their choice of variables used in constructing their ranking of states is not at issue. The variables included are relatively standard in most business climate studies. What is at issue is the method of identifying and weighting each category's impact on the business climate. That is, if a subjective weighting scheme is used to derive an index of relative business climate, the comparison results are suspect unless they are verified using more objective criteria.[4]

This paper shows that the Grant Thornton approach gives unreliable results in terms of a widely used method of verifying the impact of a state's business climate on economic activity. Nevertheless, by building on their approach and using a regression analysis method of analyzing the relative importance of the subcategories of the business climate variable, this paper shows that there is some merit to using the Grant Thornton subcategories as a guide for public policy.

Although the link to any one variable may be weak, this methodology is useful in identifying the more important public policy variables. The relationship between business climate variables themselves and growth in output can be useful for public policy makers in small regions (counties and MSAs) who wish to develop a public policy package to enhance the attractiveness of their areas to firms wishing to relocate. In this case, the relationship between the subcategories of the business climate analysis at the state level and state growth rates can be used to develop a reasonable predictor of a subregion's relative attractiveness by analyzing the region's own subcategories of business climate. A subregion that performs poorly could use the specific information of those subregions that performed well as a guide to improve itself.

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[4]Steinnes [15] makes a similar observation when studying the impact tax differentials have on firm location decisions.

In this paper, the volatility of the Grant Thornton rankings and the relationship between states' rankings and a newly available measure of activity, gross state product, is analyzed. Cluster analysis is used to determine the underlying similarity of states and to determine whether the factors used by Grant Thornton can provide insight into the best and worst performing states. Finally, regression analysis is used on a series of possible growth criteria to demonstrate a methodology for generating subregional indices.

Rating Performance

Because the Grant Thornton ratings are aimed at measuring the manufacturing business climates of the contiguous states, one clear measure of performance is the growth of output in each state subsequent to the rating. It should be noted that such a measure may tend to be biased in Grant Thornton's favor, as there is a self-fulfilling component to their rating system. Highly rated states are more likely to attract the favorable attention of relocators.

Gross state product data available from the Bureau of Economic Analysis that were matched by state with the Grant Thornton rankings for the years 1980-1985 were used in this analysis.

Four different output measures were used, namely gross state product of manufacturing industries (GSPMN), percent change in gross state product of manufacturing industries (PGSPMN), percent change in gross state product (PGSP), and gross state product (GSP). Each of these was regressed on rank (RANK), and the results are reported in Table 1.[5]

As is evident from the results, there is almost no explanatory power to the regressions. None is able to explain as much as 4 percent of the variation of the rate or level of growth in a state. It may be argued that the differences in business climate rankings will not have a significant impact until at least one or two years later. Thus, regressions were performed with RANK lagged one and two years as an independent variable. Similarly poor results were achieved, however, that also are reported in Table 1.

This result confirms the Courant and Fulton study:

[5]Although OLS results are reported, the results were similar using time-series cross-section methods.

> Overall, the Alexander Grant index of manufacturing business climate is not a reliable predictor of any of a large set of variables that are appropriate measures of manufacturing performance, general business performance, or general economic welfare (see *Taken for Granted* [2, p. 15]).

This suggests that location decisions are much more heavily dependent upon other variables not included in the Grant Thornton study. It also suggests that the business climate ranking is most likely much too broad a decision variable and that location decisions are determined more by region, industry, or firm specific data.[6]

The negative coefficients on the rank variables in the percentage change in output equations (PGSPMN and PGSP) are as expected.[7] The lower the rank (implying a better business climate), the faster, in general, would be the state's relative growth. The positive coefficients in the output levels equations (GSPMN and GSP), however, are not understood so easily. It implies that the larger the state, the higher the rank (where lower implies better). There is no reason to expect *a priori* why a larger state should have a worse rating.

It should be noted, however, that the larger states (in terms of GSP) also have large manufacturing sectors. As the industrial composition of the U.S. economy moved from a manufacturing base in the early 1980s, these larger states would have been less desirable. This would account for the less desirable rankings. These results may be biased due to the probable misspecification of the equations implied by the low explanatory power of the regressions.

It is necessary, therefore, to take a closer look within each subcategory at the ability of the variables to more adequately represent an accurate picture of the state's business climate.

Manufacturing Climate and State Groupings

A further question of interest is whether states naturally fit into categories of high growth or low growth based on the factors used by Grant Thornton and whether the categories coincide with the assigned

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[6]See Harding for similar discussion.

[7]Both the low explanatory power of the business climate rankings and the negative coefficient on ranking in the growth equations (PGSPMN and PGSP) are consistent with Plaut and Pluta [13].

rankings. To determine whether they coincide, cluster analysis is applied to those factors,[8] and the results are reported in Table 2.

Table 2a reports the results of the clustering for key variables of interest, namely RANK80 (a state's rank in 1980), RANKEAR (a state's average rank in the early 1980s), PGSP80 (percent change in GSP in 1980), and PGSPMN80 (percent change in manufacturing output in 1980). Similarly, results for 1985 are reported in Table 2b. The means and standard deviations for each key variable are reported in Table 2c.

A cursory look at the clusters shows that there appears to be little relationship between the factors underlying the rankings and the Grant Thornton rankings. The standard deviations for each cluster are rather large and suggest that the characteristics do not have the power to discriminate among states. The picture is a little clearer when manufacturing growth rates are examined (PGSPMN80 and PGSPMN85).[9] Cluster 2 in 1980 is a group of low performing states such as Illinois, Michigan, New Jersey, and Ohio. The states in cluster 4, which includes California and Texas, performed relatively well, as did those in cluster 7, which may be categorized as medium growth states.

In contrast to an analysis of factors in a recession year, a further evaluation of the importance of the underlying factors was performed using 1985 data. Here clusters 5 and 6 are the top performers, including states such as Georgia, Massachusetts, Virginia, and North Carolina. The poorest group, cluster 2, includes such states as Arkansas, Alabama, Louisiana, Colorado, and Oklahoma.

It should be noted that the clusters remained relatively stable between 1980 and 1985. The two largest clusters (5 and 7 in Table 2a) retain a large percentage of their initial grouping of states (clusters 2 and 7, Table 2b); New York, Texas, and California remain relatively isolated in both years; and clusters 1 and 2 in Table 2a correspond closely with clusters 3 and 5 in Table 2b, suggesting at least some underlying stability in the clusterings by characteristics.

The underlying factors help categorize states into relatively high and low growth groups, but do not appear to be particularly good at replicating the Grant Thornton rankings. This suggests that the

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[8]Listed in the appendix.

[9]This, again, reinforces earlier criticism that the Grant Thornton approach is essentially a manufacturing, not a general business climate measure.

subjective weights used by Grant Thornton may be difficult to duplicate and may be inappropriate. A more appropriate method of weighting the subcategories would be through a regression analysis (see Steinnes [15]).

Rankings for Substate Regions

The analysis above begs the following question: Why rank states according to manufacturing business climate based on subjective weights from a survey of manufacturing firms? Surely the best evidence of a healthy business climate is the growth of manufacturing output in a state.[10] The question then becomes not one of estimating local area rankings, but one of estimating regional growth rates and the contribution of each underlying factor to that growth.[11]

Each of the above growth and rank measures as well as an additional variable, SCORE (the average Grant Thornton index score for each state averaged for the early 1980s), was regressed as a dependent variable against selected economic and demographic variables that are described in the appendix.

Due to multicollinearity in the Grant Thornton variables, factor analysis was applied to the independent variables listed in the appendix. The factors resulting from category A are named A1 and A2, from B, B1, et cetera.

The results are reported in Table 3a for 1980 and in Table 3b for 1985. These results are used to generate an estimate of substate growth rates in the following manner. Because the parameter estimates provide information about the impact of each of the factors on the respective dependent variable and the identical factors are available at the substate level, each substate factor is multiplied by the appropriate parameter estimate to yield an estimated value of the dependent variable. Those results are provided in Tables 4 and 5.

An analysis of Table 3 indicates that the main significant factor in determining the various measures of business climate is factor B:

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[10] i.e., the proof of the pudding is in the eating.

[11] Estimating substate growth rates readily could be done using Kendrick/Jaycox shift-share techniques. The approach outlined above attempts to replicate the focus of the rankings, namely, to indicate to government what factors are the main motivators of business relocation.

employment costs. This factor is strongly significant for each dependent variable for both years. Interestingly, however, the direction of this factor is positive in each case. For output variables, this reinforces the criticism levelled in *Taken for Granted*, that higher labor costs may reflect more skilled and productive labor. The positive coefficient of the factor on SCORE further reinforces such an interpretation, contrary to Grant Thornton's hypothesis.

The positive effect of the factor on the two rank variables is consistent with Grant Thornton's hypothesis (because a higher magnitude on rank is associated with a worse business climate). This lack of consistency between the two rank measures and the score and output measures again raises serious questions about the validity of the Grant Thornton approach.

There is less consistency with the other factors. It appears that government factors have an impact in the expected direction in 1985 for both the rank variables and for the score variable. Output, however, appears to be affected only by labor costs and productivity in that year. Similarly, in 1980 output appears to be affected by both government and other issues, but the two rank and the score variables are affected only by employment costs.

It also should be noted that although the R^2 loses its strict interpretation in the absence of the intercept term, it still can be used as a measure of goodness of fit. The estimated regressions perform better predicting output than rank in almost every case.

The lack of significance of many factors, however, confirms the intuition that location decisions are mainly firm specific and that for policy purposes it is important that a region provide a comprehensive package of services and incentives. A simple formula for attracting more growth does not exist. Public policy must be directed toward supplying the basic infrastructure, especially in terms of the skilled labor that is important in conducting business.

It also should be noted that the choice of variables was restricted (to those available in the *County and City Data Book*) and readily could be expanded at the state level if a great deal of local data are available to a particular researcher.

The results of estimating growth figures for certain midwestern and southern cities are reported in Table 4. The results are consistent with *a priori* expectations: growth rates are rather low in 1980 and much stronger in 1985. In almost each case, the growth of the metro areas is

stronger than that of their respective states, which, given the diversity of the urban areas, is as expected.

Louisville, in particular, shows a SCORE rating that was expected. A poor performance in the early 1980s and a strong comeback in the mid 1980s clearly depicted local economic activity.

The results for six Kentucky counties is also consistent with expectations. Pike County is in the Appalachian mountain area of eastern Kentucky and lags the state in economic development of any kind; Fayette is the central county of the Lexington MSA, which has experienced extremely strong growth in the past decade. Jefferson County, the central county of the Louisville MSA has lost ground to neighboring Oldham County, as suggested by these estimates.

Summary

The analysis outlined above suggests a number of areas for further research. Apparently, the Grant Thornton rankings bear little or no relationship to actual manufacturing sector health, as measured by output data recently available from the Bureau of Economic Analysis. Furthermore, the subjective weights underlying the Grant Thornton rankings appear difficult to validate.

Given this information, it would seem to make more sense to use the actual growth rates of states as a measure of business climate, rather than some artificial construct. Consequently, it was attempted, with some success, to use factors similar to those used by Grant Thornton to explain manufacturing growth rates. Although the results of individual factors were disappointing, the rankings of both cities and counties according to their predicted growth rates were consistent with *a priori* expectations.

This study provides a methodology for generating substate rankings based on readily available data. More detailed, and probably more accurate, estimates could be provided should the researcher wish to get more detailed data.[12]

[12]All the data used in this paper are available from the authors in diskette form upon request, in order to make the task easier.

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Table 1
Rankings Versus Actual Growth

Dependent Variables:	Rank	R^2	Rank-1	R^2	Rank-2	R^2
GSPMN	874.4	.03	622.38	.01	360.57	.00
	(3.14)		(2.28)		(1.20)	
PGSPMN	-.0006	.03	-0.0004	.01	-0.0003	.01
	(-3.5)		(2.06)		(.036)	
PGSP	-.0005	.03	-0.0003	.01	-.0001	.00
	(3.59)		(2.16)		(0.81)	
GSP	913.0	.02	662.53	.01	367.56	.00
	(3.03)		(2.18)		(1.09)	

RANK - Grant Thornton rankings (RANK-I represents lagged I periods)
GSPMN - Gross state product of manufacturing industries
PGSPMN - Percent change in GSPMN
GSP - Gross State Product
PGSP - Percent change in GSP

Table 2a
State Groupings Ranked by Cluster 1980

State	Cluster	State Average Rank	State Rank 1985	% Change GSP	% Change Mfg. GSP
FL	1	1.00	8	4.3	4.6
LA	1	12.33	22	2.2	1.8
MA	1	35.67	38	0.0	0.27
MD	1	27.67	29	-.8	-1.4
MN	1	35.67	37	-.6	-.9
MO	1	20.00	21	-4.3	-5.0
TN	1	13.00	11	-1.8	-3.0
VA	1	15.67	14	1.0	0.3
WA	1	37.33	39	-.6	-1.4
IL	2	43.00	36	-4.7	-4.9
MI	2	47.00	48	-8.7	-9.8
NJ	2	33.67	44	-.8	-1.1
OH	2	41.33	32	-4.7	-5.4
PA	3	43.67	42	-2.8	-3.1
CA	4	27.33	45	1.4	1.5
TX	4	3.33	18	1.6	1.5
AL	5	23.00	19	-9.5	-2.4
AZ	5	6.67	23	2.3	2.1
CL	5	12.00	16	2.3	2.3
CT	5	38.00	47	-.1	0.0
GA	5	9.67	7	.6	0.2
IA	5	33.00	28	-2.3	-2.5
IN	5	26.33	25	-5.8	-6.5
KS	5	8.33	13	-2.5	-3.0
KY	5	31.00	26	-3.5	-3.9
NC	5	10.00	2	0.0	-.5
NK	5	9.00	20	-1.8	-1.3
OK	5	20.33	15	3.2	3.2
OR	5	42.00	35	-1.6	-1.9
WN	5	36.33	31	-2.4	-2.8
NY	6	43.67	46	-1.8	-2.1
AK	7	16.00	5	-1.2	-1.5
DL	7	37.33	40	-1.9	-2.2
ID	7	14.00	6	.7	-.9
ME	7	39.00	24	-.3	-.5
MS	7	7.33	1	-3.1	-3.8
MT	7	24.33	33	1.5	1.9
ND	7	4.00	4	-.4	0.3
NH	7	23.67	9	1.6	1.5
NM	7	22.00	17	3.1	3.1
NV	7	17.33	34	4.9	4.8
RI	7	46.00	43	-2.1	-2.5
SC	7	13.33	3	1.0	0.6
SD	7	9.00	12	-4.0	4.3
UT	7	17.00	10	2.0	1.9
VT	7	31.00	27	1.2	1.3
WV	7	42.33	41	-1.1	-1.4
WY	7	25.33	30	8.7	8.5

Table 2b
State Groupings Ranked by Cluster 1985

State	Cluster	State Average Rank	State Rank 1985	% Change GSP	% Change Mfg. GSP
NY	1	38.00	42	4.0	4.3
TX	1	18.67	18	3.5	3.5
AK	2	14.33	15	2.4	2.4
AL	2	25.33	29	3.8	3.9
AZ	2	7.67	4	8.3	9.1
CL	2	11.33	14	3.0	3.2
CT	2	34.67	33	5.7	5.7
IA	2	25.00	22	1.7	1.9
KS	2	10.00	9	2.7	2.8
KY	2	25.33	30	1.6	1.8
LA	2	41.33	39	-2.1	-2.2
MD	2	27.33	32	5.5	6.7
MN	2	34.33	36	4.4	4.7
MS	2	9.33	10	1.6	1.7
OK	2	24.00	25	-.7	-.9
OR	2	42.33	44	3.0	3.1
SC	2	17.00	11	2.6	2.6
TN	2	13.67	13	4.3	4.6
WA	2	38.33	38	3.5	3.8
WN	2	32.33	35	3.1	3.3
FL	3	7.33	6	6.3	6.7
IL	3	39.33	34	2.8	3.2
OH	3	43.67	43	3.2	3.4
PA	3	39.00	40	2.9	3.2
CA	4	27.00	26	5.6	5.0
GA	5	13.33	8	5.9	6.5
IN	5	28.67	28	3.4	3.6
MA	5	22.00	27	6.6	7.0
MO	5	14.00	16	3.4	3.6
NC	5	8.00	7	3.9	4.1
VA	5	9.00	12	4.8	5.4
MI	6	48.00	48	6.1	6.8
NJ	6	25.33	23	4.2	4.6
DL	7	26.00	31	3.8	4.1
ID	7	17.67	19	4.9	5.4
ME	7	44.67	47	4.3	4.6
MT	7	42.00	46	-4.6	-5.1
ND	7	2.67	5	-1.6	-1.8
NH	7	22.67	24	10.2	10.9
NK	7	3.00	3	5.1	5.8
NM	7	23.00	21	1.9	2.0
NV	7	14.67	17	4.6	5.1
RI	7	40.33	37	4.2	5.1
SD	7	1.67	1	2.7	3.1
UT	7	13.33	2	3.7	3.6
VT	7	22.33	20	7.1	7.6
WV	7	44.33	45	0.0	-.2
WY	7	42.67	41	-.4	-.4

Table 2c

Means and Standard Deviations by 1980 Cluster

Cluster	RANK 80	RANKEAR	PGSP80	PGSPMN80
1	24.3 (12.0)	22.0 (12.7)	-.05 (2.4)	-.4 (2.7)
2	40.0 (7.3)	41.25 (5.6)	-4.7 (3.2)	-5.2 (3.5)
3	42.0 (a)	43.7 (a)	-2.7 (a)	-3.0 (a)
4	31.5 (19.1)	15.3 (17.0)	1.5 (1.6)	1.5 (.03)
5	21.9 (11.6)	21.8 (12.6)	-.9 (2.4)	-1.2 (2.6)
6	46.0 (a)	43.7 (a)	-1.8 (a)	-2.1 (a)
7	19.9 (14.8)	22.9 (12.6)	.7 (3.0)	.6 (3.1)

Means and Standard Deviations by 1985 Cluster

Cluster	RANK 85	RANKLAT	PGSP85	PGSPMN85
1	30.0 (17.0)	28.3 (13.7)	3.8 (.3)	3.9 (.6)
2	24.4 (12.3)	24.1 (11.5)	3.0 (2.3)	3.2 (2.6)
3	30.8 (16.9)	32.3 (16.8)	3.8 (1.7)	4.1 (1.7)
4	26.0 (a)	27.0 (a)	5.6 (a)	5.8 (a)
5	16.3 (9.2)	15.8 (8.0)	4.7 (7.4)	5.0 (1.5)
6	35.5 (17.7)	36.7 (16.0)	5.1 (1.3)	5.7 (1.6)
7	23.9 (16.6)	24.1 (15.6)	3.1 (3.6)	3.3 (4.0)

(a) No standard deviation exists, due to only one observation in this cluster.

Table 3a
1980 Regression Results
Dependent Variables

Factors	PGSP80	RANKEAR	RANK80	SCORE	PGSPMN80
A1	-0.104*	-2.112	-1.79	-9.23	-0.10*
	(-2.62)	(0.323)	(0.23)	(1.05)	(2.51)
A2	0.050	10.95	-5.06	-7.26	0.05
	(1.10)	(1.46)	(0.56)	(0.72)	(1.02)
B1	.0001*	0.0032*	0.0025*	0.006*	0.0001*
	(46.30)	(6.92)	(4.61)	(10.34)	(45.43)
D1	0.599	-5.06	-9.42	0.23	0.06
	(1.69)	(0.87)	(-1.35)	(0.03)	(1.67)
D2	0.040	-8.09	-4.08	8.54	0.04
	(1.11)	(1.35)	(-0.57)	(1.06)	(1.18)
E1	-0.038	0.11	-15.65	-5.96	-0.04
	(0.56)	(0.01)	(-1.17)	(0.40)	(0.58)
E2	-0.248*	-0.24	16.15	-4.97	-0.25*
	(3.03)	(0.02)	(1.51)	(0.28)	(2.97)
	$\bar{R}^2$ = .9942	$\bar{R}^2$ = .7977	$\bar{R}^2$ = .7242	$\bar{R}^2$ = .8978	$\bar{R}^2$ = .9939

* Significant at the one percent level

Table 3b
1985 Regression Results
Dependent Variables

Factors	PGSP85	RANKLAT	RANK85	SCORE	PGSPMN85
A1	-0.0087	11.96*	14.29*	-22.51*	-0.0086
	(0.86)	(2.06)	(2.35)	(3.13)	(0.78)
A2	-.0022	-8.08	-9.14	14.83	-0.0020
	(0.19)	(1.22)	(1.32)	(1.81)	(0.16)
B1	.0000041*	0.0026*	0.003*	0.007*	0.000005*
	(5.92)	(5.69)	(5.54)	(12.25)	(5.81)
D1	-0.023*	8.55	11.01	-10.31	-0.024*
	(2.13)	(1.39)	(1.71)	(1.36)	(2.07)
D2	0.006	1.09	3.37	-13.67	-0.005
	(0.30)	(0.10)	(0.28)	(0.96)	(0.25)
E1	0.024	-17.65	-18.86	16.08	0.026
	(1.05)	(1.36)	(1.39)	(1.00)	(1.04)
E2	-0.0063	11.74	8.46	-24.05	-0.007
	(0.31)	(0.77)	(0.69)	(1.66)	(0.30)
	$\bar{R}^2$ = .7369	$\bar{R}^2$ = .7816	$\bar{R}^2$ = .7630	$\bar{R}^2$ =.9074	$\bar{R}^2$ = .7274

Table 4a
1980 City Rankings

City	PGSP80 % Change	PGSMN80 % Change	Score
Indianapolis	.86	0.85	62.52
Louisville	1.11	1.10	45.76
Cincinnati	1.10	1.09	47.98
Atlanta	0.86	0.85	39.44
St. Louis	0.92	0.91	25.76

Table 4b
1985 City Rankings

City	PGSP85 % Change	PGSMN85 % Change	Score
Indianapolis	7.40	4.89	87.99
Louisville	8.02	4.63	122.33
St. Louis	9.28	3.62	113.56
Atlanta	9.89	4.25	118.25
Cincinnati	8.61	4.62	110.84

Table 5a
1980 County Rankings

County	PGSP80 % Change	PGSPMN80 % Change	Score
Pike	2.31	2.22	47.87
Bullitt	0.84	0.78	48.62
Jefferson	4.02	3.94	52.54
Union	4.05	4.00	73.29
Oldham	1.43	1.40	63.87
Fayette	2.75	1.27	70.01

Table 5b
1985 County Rankings

County	PGSP85 % Change	PGSPMN85 % Change	Score
Pike	-3.36	-3.68	55.05
Union	0.41	0.33	76.05
Bullitt	1.96	0.20	71.36
Jefferson	3.07	3.40	52.86
Oldham	5.44	5.76	88.59
Fayette	6.11	6.57	78.31

Appendix

Variable Description[1]

Category A	State and Local Government Fiscal Policies
PCTAX	per capita tax
DEBT	per capita local government debt
LOC REV	per capita local government revenues
Category B	Employment Costs
PCI	per capita income
PER PAY*	payroll per employee
MFGEAR*	manufacturing earnings
Category C & D	Labor Costs and Productivity
ED12	percent of population with 12 years or more education
LFPR	labor force participating rate
UR	unemployment rate
Factor E	Other Issues
PPOP	total population
POV	percentage of population below poverty
POPSQM	population per square mile
CRIM	crime rate
TRANS	transfer payments per capita

[1]All data in 1982 dollars

*Only used in county indices

Sources: *County and City Data Book*, 1982 and 1988