Weathering the Storm of Business Climate Rankings

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Abstract

Pelted with persistent demands to improve the "business climate" in their region, state and local policy-makers face a difficult challenge. Business climate, despite its widespread use, is a term that defies definition and measurement. With no consensus definition, and no reliable way to measure it, how do policy-makers evaluate the health of their region's business climate, let alone design policies to improve it?

This paper explores current usage of the term business climate. It discusses multiple definitions and measures of what constitutes a region's business climate. It also examines how usage of the term varies over time and geography. Finally, it addresses some issues related to business climate rankings, their role in economic development policy, and whether the multiplicity of published state rankings contribute consensus or confusion to the meaning of the term business climate.

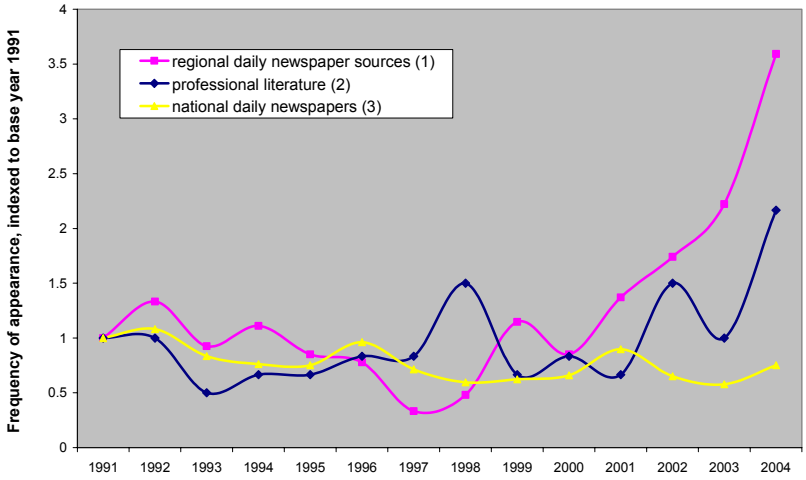
Popularity of the Term Business Climate

The term business climate has enjoyed resurgence in popularity in recent years, perhaps tending towards faddishness in its current usage. Some social scientists reject the term *fad* in favor of *collective surge* to explain how words or concepts undergo shifts in meaning or application, gain popularity, and eventually become institutionalized (Aguirre, 2002). A cursory assessment of usage indicates the term business climate may meet several criteria of a collective surge. Business climate lacks concrete definition, has perhaps more rhetorical than tangible meaning, but is nonetheless being institutionalized into the legislative process of state and local government. In other ways, however, business climate fails to meet conditions of a collective surge. For example, collective surges in emerging or popular concepts usually demonstrate a rapid rise in usage among several different disciplines or groups of users, followed by steep descent. This pattern is absent from usage of business climate. Rather than rise and descend rapidly, interest in the concept of regional business climate seems to ebb and flow over time.

Figure 1 illustrates the number of published items referring to business climate that appeared in professional literature and selected newspapers between 1991 and 2004. The frequency of professional literature citations increased slightly in recent years, but no dramatic rise is apparent. The national news sources show flat to declining usage of the term. The regional news sources demonstrate a rapid rise in popularity since 2000. This suggests the usage of the term business climate is employed more frequently to frame regional than national issues, and may even provide a barometer of the level of

competition among states or, during times of recession, the collective stress that states are realizing as they struggle to maintain their place in the national economy.

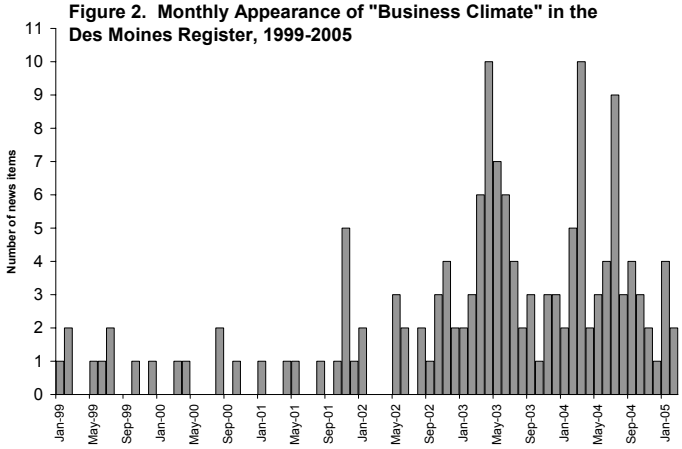
Figure 1 Appearance of "Business Climate" in Print Media, 1991-2004



(1) Citations in Lexis-Nexis™ Academic Service holdings of The Atlanta Journal and Constitution, The Boston Globe, The Houston Chronicle, The San Francisco Chronicle, and the Minneapolis Star Tribune
(2) Articles, abstracts of published items, and meeting abstracts from the Social Science Citation Databases in ISI Web of Science
(3) Citations in The Washington Post, The New York Times, and the Christian Science Monitor, from Lexis-Nexis Academic Service

On a state-by-state basis, usage of the term business climate appears to vary quite a bit. Depending on the year, a particular state might be inundated with negative press about its poor business climate and the steps needed to improve it. Iowa is a good example. Figure 2 illustrates on a month-to-month basis how frequently the term has appeared in the *Des Moines Register* daily newspaper since 1999. From the beginning of 1999, through about mid 2002, a period where the national economy went through a recession, there were comparatively fewer stories on the state's business climate.

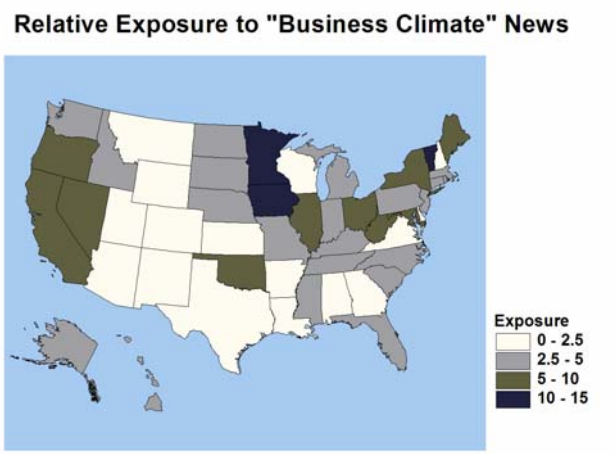
Figure 2. Monthly Appearance of "Business Climate" in the Des Moines Register, 1999-2005



Concomitant with a new initiative by the governor to turbo-charge economic growth in the state using $500 million in state government development enticements, and, surprisingly, immediate evidence that industries were interested in this inducement, we see a large increase in the frequency of stories. On average, the Register's 150,000 daily readers have been subjected to nearly one business-climate-related news story or opinion piece per week during the last two years.

Figure 3 illustrates relative exposure levels to business climate news in other states during the last five years. The indicator is a ratio comparing the total number of news stories referring to business climate compared to the number of stories referring to "weather patterns" in each state. We needed to standardize our reference to account for the increase in the availability of information from centralized collection services (Lexis-Nexus, for example) and to take into account the variation in news sources that exist among the states. Using this measure, Minnesota, Iowa, and Vermont had the highest relative exposure to business climate news in recent years.[1]

Figure 3



Heightened interest in the concept of business climate and its role in the competition for economic development might explain the dizzying array of published state and metropolitan area business climate rankings. Results of the latest ranking study frequently fuel regional debates about policy steps needed to improve competitiveness with other states. Despite being criticized by regional scientists and probably ignored by business executives, these ranking studies not only persist, they proliferate.

Ever heard this one? "If you don't like the ranking, wait a year and it will change." Haughtily dismissed by states in lower tiers, the same ranking study might be trumpeted from state economic development web sites and news media in more fortunately-ranked states. The sheer number of ranking studies only adds to confusion over what constitutes a healthy business climate and how a healthy business climate translates into growth. To sort out this confusion, we need to more precisely investigate our terms.

[1] To control for variations by year and state in the number of online news sources referenced by the Lexis-Nexis Academic database, the number of business climate stories in each state has been indexed to the total number of stories referring to "weather pattern" in a give year. Assuming that interest in weather patterns does not substantially differ from one state to the next or one year to the next, variation in the number of stories relating to the weather should capture the effects of growth in the number of electronic sources.

What does business climate mean?

The term business climate can be defined in many ways, and it is frequently used with no definition at all – as if everyone knew what it meant. In general, usage of the term falls into three major categories: (1) an overall measure of growth or business health in a region; (2) a set of factors believed to contribute to regional economic growth; and (3) an intangible asset in the form of a regional reputation for business friendliness and receptiveness to growth.

Business climate as a measure of growth

The word climate, in the original, meteorological sense, describes the prevailing set of conditions, such as temperature and precipitation, characterizing a particular place, usually over a period of years. Similarly, the term business climate may be used when describing the prevailing set of economic conditions in a region over time. Rather than temperature and precipitation, we might measure employment growth, business expansions, or productivity growth. Business climate, in this sense, describes the set of outcomes we might choose as the dependent variable in a regional growth model. Some older references in the press (1980s) defined business climate in such a way, using the term to describe a region's general economic prospects. For example, a 1985 news story from the Omaha World Herald used the term business climate synonymously with business conditions when describing Omaha's performance in a metropolitan areas ranking study by U.S. News & World Report.[2]

Business climate as a set of causal factors

A return to the weather analogy helps describe the second type of business climate definition. Perhaps we're less interested in *how* hot and rainy our climate is, and more interested in explaining *why* it's so hot and so rainy. We could measure characteristics like elevation, proximity to major bodies of water, or nearness to the equator. In terms of business climate, such factors might include local tax and regulatory policy, labor force characteristics, transportation capacity and other public services, and other variables traditionally found on the right side of the regional growth equation. Current usage of the term business climate, in both popular media and professional literature, often aligns with this definition.

[2] This story was based on a survey of current business conditions in U.S. cities published in the November 11, 1985 edition of U.S. News & World Report. The survey used a weighted average of four employment variables including a one-year non-farm employment growth rate, local employment rate compared to the national rate, change in employment level from one year ago, and change in weekly earnings of factory workers (Omaha World Herald, story by Jeff Gauger, November 6, 1985).

Business climate as an intangible regional asset

A third conceptual definition of business climate is found in the realm of economic development practitioners. Based on their usage of the term, it appears that business climate has jumped out of the regional growth equation entirely and landed on the regional balance sheet. Many state and local officials view their region's business climate as a precious, if intangible, regional asset. It compares to the concept of "goodwill," in business financial accounting, an "unidentifiable intangible" asset, defined as

> … rights or privileges either developed internally or purchased that are not specifically identifiable and often have indefinite benefit periods…. A typical example is the excess of a price paid to acquire a company over the sum of the fair values of all identifiable assets and liabilities. This excess cost is referred to as goodwill…. Goodwill is earning power. Since a given amount of invested capital expects a minimum return adjusted for risk, goodwill is tied to the level of earnings over and above this minimum return. (Bernstein and Wild, 1998).

To illustrate, communities or states occasionally offer financial or other business incentives to "acquire" new firms in amounts exceeding tangible, expected public returns. In defending their actions, they may cite the importance of a creating a positive business climate that sends a pro-growth, pro-business message to the business community in general. These communities are, in essence, booking business climate onto their balance sheets in the hopes it will yield future "earnings" from other businesses attracted to the region.

The notion of business climate as an asset has been recognized, if not embraced, by regional scientists. Using game theory, authors Ellis and Rogers explicitly modeled the importance of a region's reputation for business friendliness in firm bidding behaviors of communities. They maintained that keeping up the appearance of business friendliness has value in itself, even if the firm is otherwise not a good prospect for the community or region (Ellis & Rogers, 2000).

This conceptual definition of business climate is perhaps the most problematical for sound policy development. In the name of improving the region's reputation for business friendliness states and localities may commit significant public resources; however, those policy making effort may defy measurement or evaluation. The intangible nature of business climate as an asset makes it difficult to evaluate the efficacy of some development decisions and hold policy-makers accountable for their actions. How can you fail if you do not define what success would be *a priori*?

How do we quantify a region's business climate?

For the remainder of this paper, we focus on the second conceptual definition of business climate: a set of regional characteristics that collectively help determine a region's economic growth prospects. Upon choosing a working conceptual definition, to the extent that one is desired, the next challenge for researchers and for policy-makers is to identify the set of factors, or ingredients, that shape a region's business climate. An important question is whether or not to include variables not amenable to policy – additional intangibles. Opinions on this matter appear to have evolved over time.

In a review of literature on quality-of-life (QOL) differences and regional outcomes, Luger (1996) defines business climate as the set of variables important to businesses in their location decisions. According to Luger, business climate literature through the early 1970s focused on tax and regulatory policies. Later studies began to include other cost variables for firms, non-tax business incentives, and QOL variables important to households and, ostensibly, to business executives. These QOL variables included natural amenities and recreational opportunities. Luger's review reveals that business climate studies frequently employ variables both within and outside the control of local policy-makers.

Some researchers do limit the set of business climate indicators to policy-amenable variables. Dabson, Rist, and Schweke defined five key components of a positive business climate (1996). These were education, physical infrastructure and public services, regulation, taxation, and modernization and entrepreneurship. These authors proposed guidelines for improving policy in these five areas, and they stressed the importance of not shortchanging them in efforts to appear "pro-business."

Although the final mix of variables depends on the study and the researcher, the issues surrounding selection and measurement are common across most business climate research. After choosing variables, however, business climate research tends to branch off into two directions: regional growth models and ranking analyses.

Regional growth models

Through the years, economists and other social scientists have specified thousands of equations in a never-ending quest to explain regional economic growth. Taxes in particular receive much attention from analysts and policy-makers, who desire to learn just how elastic is the relationship between growth and tax rates (Wasylenko, 1997. See also, Bartik, 1993). Recent attention has also focused on quality of life issues, especially the importance of artistic and cultural amenities popularized by Richard Florida's (2002) work on the "creative economy," although his work is less concerned with causality as it is in investigating the range of social and cultural conditions that appeared to coincide with economic growth across the U.S. during the last decade.

Wasylenko (1997) discusses several conceptual, measurement, and estimation problems encountered when modeling regional growth and state and local policy. Frequent criticisms in these studies included measurement error in dependent and independent variables, mis-specification, omission bias, and simultaneous equation bias. Results of these studies occasionally produced results that contradicted each other. Even absent the problems listed above, most studies relating economic development to sets of local policies demonstrated association rather than causation (Wasylenko, 1997). For these and other reasons, such studies may not be relied upon heavily by local policy-makers, to the extent that they are even aware of them

Business climate rankings

Business climate rankings are country cousins of more sophisticated regional growth models. Perhaps weary of confusing and inconclusive results from regional models, analysts in some institutions and agencies circumvent the process. These analysts distill a set of business and other amenity indicators into one value, often using principal component techniques or by using simple weighting procedures, and use that value to create a ranking of states or cities. They assume, *a priori*, a positive, linear relationship between a state's growth potential and its ranking on the set of business climate indicators. The assumption is facile: move up one notch in a ranking of 50 states, and your competitive position improves by 2 percent.

The appeal of business climate rankings is obvious in that they're simple to interpret and they reduce a large number of factors into one, simple measure. This is also their Achilles heel, as they are frequently criticized for over-simplifying complex relationships. Luger discusses other criticisms including the ad hoc inclusion of components, poorly designed measures for components, subjective interpretation of indicators, inconsistency in ranking criteria, arbitrary weighting schemes, and failure to correct of regional differences in industrial structure (Luger, 1996).

Business climate ranking studies are also criticized for encouraging the notion that growth occurs only in competition with other states or regions. Luger (1996) quotes Erickson (1987), who touched on the possible self-fulfilling nature of business climate rankings. "The implication [was] that places that are *presumed* to have attributes that impart an advantage over other places in attracting new employers or nurturing the growth of existing businesses will have favorable growth trajectories."[3]

Several issues surrounding the use of rankings to explain or predict growth are summarized in a recent exchange about the use of high-tech rankings for metropolitan areas. Cortright and Mayer (2004) argued that one-dimensional or narrowly-constructed rankings generalized across regional variations, thus significantly oversimplifying relationships between growth and the ranked variables. Chapple *et al* (2004) argue that broad rankings are hard to replicate, easily misunderstood, and virtually impossible to translate into the policy realm (Chapple, Markuson, Schrock, Yamamoto, Yu, 2004). Gottlieb defends the use of rankings, provided their purpose, conceptual framework, and methodologies are clearly explained; and he argues that rankings can be perfectly valid when judged on their own terms (Gottlieb, 2004).

How business climate rankings evolved

State business climate rankings are not new, nor are the debates about their value, construction, and misuse. Despite all the criticism, business climate rankings continue to proliferate. To understand why this is so, it is useful to explore how they evolved.

[3] Erickson, Rodney. 1987. Business Climate Studies: A Critical Evaluation. Economic Development Quarterly 1(1):62-71.

Theoretical roots
According to Luger (1996) rankings are a logical outgrowth of early location decision research by Tiebout, who showed that amenity differences across jurisdictions motivate people to "vote with their feet." By highlighting differences across geographies, rankings ostensibly simplify the location decision process.

Public sector roots
There were practical beginnings to ranking processes that coincided with the development of the analytic capacities of universities and governments over the years. Early rankings were, for example, provided by Census Bureau reports on per capita income, characteristics of public finances and expenditures, poverty, and household income. It took just a small step for enterprising public policy centers at universities, for example, to begin compiling these indicators in order to facilitate comparisons.

As an example, in the 1970s the University of Oklahoma Bureau of Government Research compiled a comprehensive compilation of state government rankings for income, education, social characteristics, health care and vital statistics, government finances, and other general characteristics of society.[4] The idea behind that effort was to generate as much information as possible that was both ordinal (ranked) and factual, actual values, in an effort to provide comparative information to state decision makers. These efforts were replicated, however they were also limited and timed to coincide closely with the releases of national decennial information, the main source of comparative data. Also, given the capacity of both word processing and data processing at the time, these types of efforts were rarely repeated annually.

Another notable and highly regarded example of interstate comparisons were the regular publications of the U.S. Advisory Commission on Intergovernmental Relations (ACIR). This commission was a consortium of state, local, and federal government representatives designed to discuss and research issues of interests to all levels of governments. The commission, lost its impetus during the early 1990s, but it enjoyed a 35-year run where it produced a series of state level analysis including assessments of state tax policy, grants-in-aid, federal mandates, and its annual two-volume report entitled "Significant Features of Fiscal Federalism," which, in very high detail, provided a rich mix of comparative fiscal statistics that allowed states to gauge their state and local government revenue and expenditure performance and the different budgeting processes among the states.[5] Many analysts relied on this source to not only check state government comparisons, but as the next installment in time-series compilations so that not only rankings were considered but also patterns of change over time.

During the early to mid-1980s, many state governments began to beef up their economic development efforts. It became highly evident at this time that there was a geographic re-

[4] Morgan, David R. 1974. Handbook of State Policy Indicators. Bureau of Government Research, University of Oklahoma. This compilation was very eclectic including, among its indicators, the race and education levels of draftees.
[5] The ACIR periodic report series ran through 1995. The Iowa State University library contains Significant Features of Fiscal Federalism: Volumes I and II, dating back to 1976.

orientation of businesses in the U.S. Historically strong manufacturing sectors along the Great Lakes saw a powerful erosion in traditional industrial jobs, many of which rotated into the mid-Atlantic states and to the South. Much was made of this regional transformation. The state's losing jobs were called the "Rust Belt." The states gaining the "Sun Belt." While the sources of this rotation are debatable, the general consensus was that the industrial states had expensive governments and expensive workers, while the Sun Belt states had limited, more austere governmental structures and historically lower wage levels. Much of this pattern was anticipated by Robert Goodman (1979) as an emerging battle among the states for jobs, firms, and investment.[6] This was a quite prescient account of a problem that persists to this day.

All states began to acknowledge that the general perception of their state mattered when it came to promoting economic growth. Open-shop states, those not requiring union membership in selected industries, became "right-to-work" states. High value public sector outputs, like a well educated workforce, were touted as also were increasingly lower or more competitively described state or local tax policies. Among state governments' myriad efforts to bolster their development images, came another round of state rankings. This time they were compiled by state economic development departments or by state chamber of commerce groups. These assessments, like those compiled in Iowa, were often highly selective, and, understandably, included indicators that primarily showed the state in a more favorable light.[7] The parochial, and self-promoting nature of these compilations rendered them relatively useless for research purposes.

Over this same period, however, there were incremental expansions in the statistical output of organizations representing different types of governments. The National Council of State Legislators, the Council of State Governments, the National Municipal Finance Officers Association, and a host of other semi-public entities began to systematically compile indicators of state and local fiscal and policy variables. As a consequence, enterprising researchers at least could access, usually via hard-copy, a wide range of compilations of state and local government indicators, rankings, and trends. Between these agencies, the aforementioned Advisory Commission on Intergovernmental Relations, and federal agencies, most notably the Bureaus of the Census and of Economic Analysis, it became increasingly easy for researchers and policy makers to compile relevant social, fiscal, economic, and policy indicators and rankings for states. This is especially true with the advent and advancement of digital data sources.

Private sector roots

Two early business climate ranking studies were published by firms specializing in site location consulting. These firms were Fantus Consulting, negotiators of financial incentives for relocating manufacturers firms, and the Chicago accounting and consulting

[6] Goodman, Robert. 1979. The Last Entrepreneur: America's Regional Wars for Jobs and Dollars. New York. Simon and Schuster.

[7] The last of these in Iowa, *Digest*, was published in 1986 by the state's economic development agency, the Iowa Development Commission. Owing to a government reorganization that year, tight budgets, and public derision of that effort, the selective ranking reports were discontinued.

firm Alexander Grant & Co. (later known as Grant Thornton, Inc.) Beginning in 1979, and continuing through the 1980s, Grant's Annual Study of General Manufacturing Climates of the Forty-eight Contiguous States of America became the standard for business climate ranking studies (Khan, 2002). Grant's survey included 20 or so categories such as state and local financial policies, taxes, state-regulated employment costs, labor costs, and official attitudes toward business.[8] The survey relied heavily on input and criteria from manufacturing trade association representatives.

A spate of Washington Post news stories during the mid-1980s provides early evidence of business climate rankings' ability to irritate. A reporter named Rudolph Pyatt, Jr. followed annual reaction in Maryland to the state's perennially mediocre showing in the Alexander Grant index. In a 1986 story dripping with sarcasm, he wrote, "More recently, South Dakota, which ranks right up there with the District of Columbia as a mythological manufacturing center, topped the Grant Thornton index."[9]

Mr. Pyatt was not alone in his criticism of business climate rankings. There appeared to be a need for multi-dimensional assessments of the states. In 1986, the Corporation for Enterprise Development (CED) provided some relief for maligned states like Maryland by introducing their own development report card for states, along with a companion report that publicly chastised the creators and followers of the Grant Thornton index for their one-dimensional approach to economic development.[10]

Types of ranking studies

The specific factors measured by business climate indexes vary by publisher. Some business climate rankings restrict themselves to a relatively narrow policy focus, such as the tax-focused Small Business Survival Index. Others are comprehensive, broad-based measures like the Corporation for Enterprise Development's Development Report Card for States. A sampling of organizations currently publishing state ranking studies follows.

Business-cost or business-friendliness measures

Small Business Survival Index - Published annually by the Small Business & Entrepreneurship Council (SBEC), the Small Business Survival Index includes 21 business cost measures that are either imposed by or related to government and are believed to impact small businesses and entrepreneurs in various industries. The SBEC works to influence public policy ensuring a favorable environment for small businesses and entrepreneurship.[11]

[8] "Survey Ranks Virginia 18th, Maryland 29th," in The Washington Post, February 2, 1982.
[9] "Grant Thornton's Index Under Fire," by Rudolph A. Pyatt, Jr., The Washington Post, November 18, 1986.
[10] Ibid
[11] http://www.sbsc.org/Resources.asp

Policy measures
The vast Economic Freedom index published by researchers at Clemson University is based on more than 100 individual measures including government spending and regulation, welfare and education policy, taxation, and the judicial system. The authors sought to quantify the "right of individuals to pursue their own interests through voluntary exchange under a rule of law…."[12] The study's authors hypothesize that regions with greater economic freedom experience relatively more in-migration and higher income growth (Byers, McCormick, and Yandle, 1999).

Livability measures
The Morgan Quitno Press publishes a four-pronged series of annual, on-line state rankings emphasizing the importance of quality-of-life issues. These include the Smartest State, Most Livable State, Healthiest State, and Smartest State. Morgan Quitno Press is an independent private research company that publishes a several monthly and annual state and city comparisons.

High-technology measures
The Progressive Policy Institute (PPI) published the 2002 New Economy Index as part of its Technology & New Economy Project. The study uses 21 economic indicators to describe state progress in transitioning to a knowledge-based economy. Measures include technology adoption, innovation, and skilled workforce indicators. PPI's goal for their New Economy Project was to help modernize public policies and institutions to meet the demands of a changing economy, and "…to promote policies that encourage technological advances, economic innovation, and entrepreneurship."[13]

Holistic measures
The Corporation for Enterprise Development takes a more holistic view of the economic development question. In its Development Report Card for the States, the CED assigns letter grades to states, rather than numeric rankings. CFED uses 68 measures organized into a three-index framework: Performance, Business Vitality, and Development Capacity. Performance measures include employment, earnings and job quality, equity, quality of life, and resource efficiency. Business vitality measures include competitiveness of existing businesses and entrepreneurial energy. Development capacity measures include human resources, financial resources, infrastructure resources, amenity resources, and innovation assets.[14]

Business Climate Ranking Analysis

With this dizzying array from which to choose, it's no wonder states and interest groups can usually find a ranking study to meet their marketing or lobbying needs. Are the results of these studies really contradictory, complimentary, confusing, or can they tell us something about relationships between regional amenities and growth? We collected a variety of state rankings for comparative analysis. While very few of these actually bill

[12] http://freedom.clemson.edu/report.color.PDF
[13] http://www.ppionline.org
[14] State of Iowa, Development Report Card for States, CFED, http://drc.cfed.org/grades/iowa.html

themselves as business climate rankings, they all rank variables frequently associated or included as business climate factors. Three different rankings focusing on different aspects of regional competitiveness are mapped in Appendix I. These maps illustrate the difficulty in trying to assimilate information across ranking studies. Our goal in analysis was to detect possible patterns in these seemingly random variations by instrument.

Our analysis employed simple exploratory data analysis procedures, and made no attempts to either test or prove a hypothesis. We used cluster analysis and discriminant analysis functions available in Minitab software. First, we used cluster analysis procedures to compare several rankings from different sources with each other. One would expect rankings with similar construction or an over-riding theme to actually produce similar results. Next, we compared states' performances across the spectrum of climate studies to identify which states seem to perform similarly across the scope of measures. Finally, after assigning states into six groups based on their ranking performance, we assessed differences in growth outcomes across the groups.[15]

Data set construction

The data set contained 50 observations and 29 variables. Each observation was a state, and each variable measured the state's ranking (value of 1 to 50) on an index or sub-index from a published ranking study. The 29 ranking instruments we used are described in Appendix II. Appendix III lists detailed measures used in construction of the various indices.

Comparisons by index

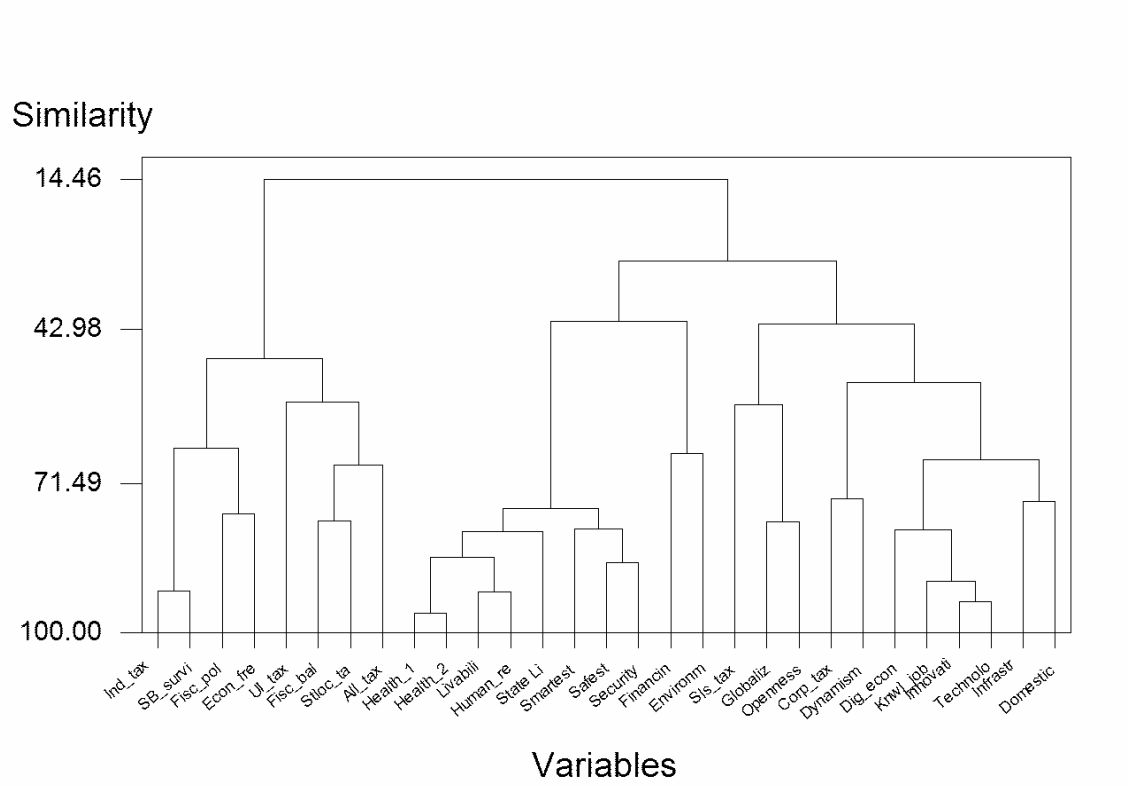
Using a basic "cluster variables" procedure, we compared the business climate index rankings with each other. The most similar indices are joined first, and others are added to the groupings at lower and lower levels of similarity. Figure 4 illustrates the results of clustering procedure. Because the variables names were truncated in the graphic, a key to variable names and sources is also provided. The variables are listed in the same order in the graph and in the key to the variables.

The clustering procedure split the 29 indices into three main groups characterized loosely as (1) business costs and regulatory measures, (2) quality of life measures, and (3) innovation or competitiveness measures. Some blurring of these lines did occur. For example, two indices measuring corporate and sales taxes were grouped with the innovation measures rather than the business cost measures. Indices published by the same organization tended to group together, but not as a rule.

[15] Cluster analysis describes a range of techniques that help analysts identify groups of items with similar characteristics. Cluster analysis can group sets of similar variables or observations. These tools are often used for exploratory data analysis, prior to more rigorous statistical modeling. It is often desirable to identify either sets of observations that behave similarly across the variables of interest, or variables that explain similar responses in the observations. By themselves, the cluster groupings may be also useful for describing or summarizing information. Cluster analysis uses mathematical algorithms to solve for the "distance" between values of interest. Items with the smallest value distance are paired together first. As the cluster algorithms gradually decrease the required level of similarity (or increase the value distance), new items are added to the groupings. The cluster analysis output includes a listing of which observations or variables are grouped together, and at what level of similarity the groupings occur.

The greatest degree of similarity was demonstrated among the quality of life measures. Several of the "new economy" measures also demonstrated a relatively high degree of similarity. The penultimate step in the clustering procedure joined the quality of life group to the innovation group, while the business cost group was joined last.

Figure 4. Clustered variables

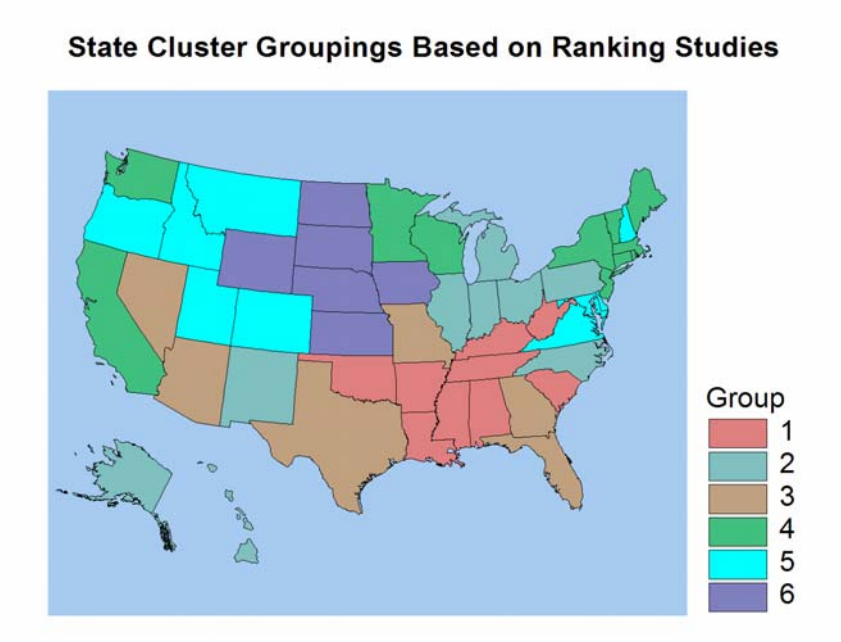


Grouping	Abbreviation	Index name	Source
1	Ind_tax	Individual Taxes	Tax Foundation
	SB_survi	Small Business Survival - overall	Small Business Survival Committee
	Fisc_pol	Government and Fiscal Policy	Beacon Hill Institute
	Econ_fre	Economic Freedom	Clemson University
	Ul_tax	Unemployment Insurance Tax	Tax Foundation
	Fisc_bal	Fiscal Balance	Tax Foundation
	Stloc_ta	State and Local Income Tax Burden	Tax Foundation
	All_tax	State, Local, and Federal Income Tax Burden	Tax Foundation
2	Health_1	Healthiest State	Morgan Quitno Press
	Health_2	State Health Ranking	United Health Foundation
	Livabili	Most Livable State	Morgan Quitno Press
	Human_re	Human Resources	Beacon Hill Institute
	State Li	State Liability Systems	Harris Interactive
	Smartest	Smartest State	Morgan Quitno Press
	Safest	Safest State	Morgan Quitno Press
	Security	Security	Beacon Hill Institute
	Financin	Financing	Beacon Hill Institute
	Environm	Environmental Policy	Beacon Hill Institute
3	Sls_tax	Sales Taxes	Tax Foundation
	Globaliz	Globalization	Progressive Policy Institute
	Openness	Openness	Beacon Hill Institute
	Corp_tax	Corporate Taxes	Tax Foundation
	Dynamism	Economic Dynamism	Progressive Policy Institute
	Dig_econ	Digital Economy	Progressive Policy Institute
	Knwl_job	Knowledge Jobs	Progressive Policy Institute
	Innovati	Innovation Capacity	Progressive Policy Institute
	Technolo	Technology	Beacon Hill Institute
	Infrastructure	Infrastructure	Beacon Hill Institute
	Domestic	Domestic Competition	Beacon Hill Institute

Comparisons by state

We next compared the states performance with each other using a "cluster observations" procedure. For this analysis, we specified a final partition of 6 state groupings. These six groups of states are illustrated in Figure 5 below. Clearly, there are strong geographic tendencies in these groupings, although group members are not always adjacent to each other. Groups 3 and 4 are dispersed geographically while the remainder are relatively cohesive. These results suggest that proximate states tend to perform similarly across the ranking instruments. So, which has the most influence on overall state economic prospects: particular sets of indicators, or particular locations? This elemental re-configuration of the data indicates that there may be both historic, cultural, and geographic determinants of state economic prospects, irrespective of particular state policy attributes.

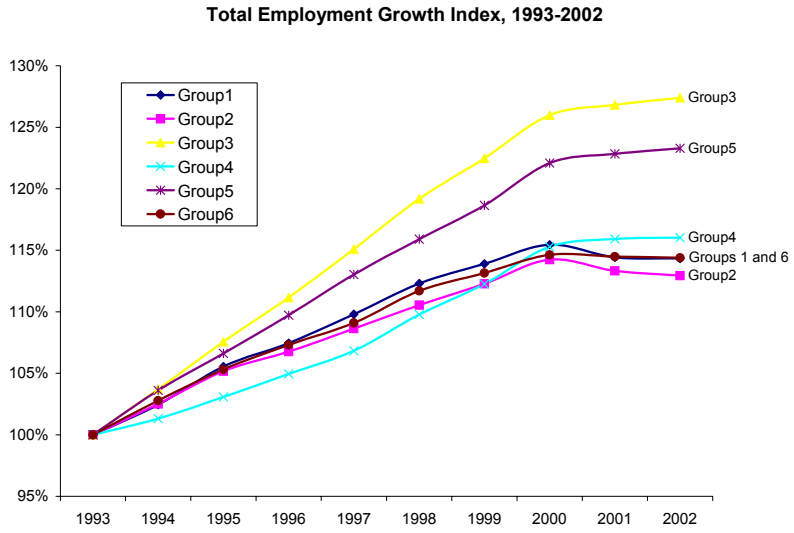
Figure 5



Comparison with recent growth outcomes

A frequent criticism of ranking studies is their failure to relate measured indicators with outcomes. Using the state groupings derived from the state clustering procedure, we applied some exploratory data analysis techniques to detect variations in outcomes by group. Perhaps the simplest method is to plot outcome measure by group over time. Figure 6 illustrates an indexed measure of employment growth for each of the 6 state cluster groupings. Total employment is indexed to base year 1993 values by group. This figure illustrates slightly different growth patterns among the groups. For example, Groups 3 and 5 clearly outperformed the remaining groups in overall employment growth. Groups 1 and 2 both experienced employment declines after 2000. Group 2 states had the worst employment growth performance during the time period measured, although they out-performed Group 1 states until 1999.

Figure 6



The final step of our analysis was a more systematic attempt to compare a set of outcomes across the states and indices. Our outcome variables included actual growth rates in gross state product 1998-2002, population 1998-2002, per capita income 1993-2002, employment 1993-1998, employment 1998-2002, and the 5-year business climate news exposure index described in an earlier section. Using discriminant analysis, we tested if the group assignments derived from the state clustering procedure could be replicated based on the set of regional outcome measures. The procedure assigned 80 percent of the individual state observations to the correct group. The results are summarized below.

Figure 7

Summary of Classification

Put into	....True Group....					
Group	**1**	**2**	**3**	**4**	**5**	**6**
1	9	3	1	1	0	0
2	0	5	0	0	0	1
3	0	0	5	0	1	0
4	0	0	0	9	1	0
5	0	0	0	1	7	0
6	0	1	0	0	0	5
Total N	9	9	6	11	9	6
N Correct	9	5	5	9	7	5
Proportion	1.000	0.556	0.833	0.818	0.778	0.833

N = 50 N Correct = 40 Proportion Correct = 0.800

The lowest proportion correct (0.556) occurred in Group 2, which includes the states of Hawaii, Alaska, New Mexico, North Carolina, and the contiguous block of Illinois, Michigan, Indiana, Ohio, and Pennsylvania. The highest proportion correct (1.000) occurred in Group 1, a relatively contiguous grouping of Southern, Appalachian, and Mississippi delta states plus South Carolina.

Summary of findings

Instead of blending the indices and states into an indistinguishable mass, the clustering procedures produced groupings of indices that reflected the original purpose of the rankings, and groupings of states that demonstrated regional clarity (with a few notable, but not necessarily consequential exceptions). In addition, the set of growth outcome measures suggested there was some association of economic outcomes with the collective rankings.

Conclusions

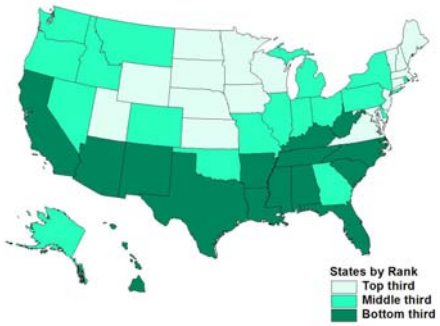
Although a consensus definition of business climate may never be reached, this paper attempts to sort out and highlight differences in current usage of the term. Is business climate a measure or a message? Many social scientists tend to view it as a measure of economic competitiveness. They define it in various ways using multiple, carefully-constructed equations or indices to assess policy and amenity differences across space. Many policy-makers often refer to business climate not as a mix of amenities, but as a regional asset whose primary purpose is to send a welcoming message to prospective businesses. We believe the notion of business climate as a regional asset deserves additional study.

Because so much of economic development is viewed as a competition among states, it is doubtful the demand for business climate rankings will ever cease. Business climate and rankings go together like basketball and tournament seedings. The wide range of ranking studies available creates an illusion of chaos, or at the minimum, arbitrariness, but our analysis suggests the rankings are picking up some regional variations in economic change. The degree to which policy makers can manipulate those factors, however, is not apparent from this analysis. Whether there are policy antecedents that explain these variations will require additional research. And that analysis would rely primarily on actual indicators and the variance of those indicators across groups, not rankings.

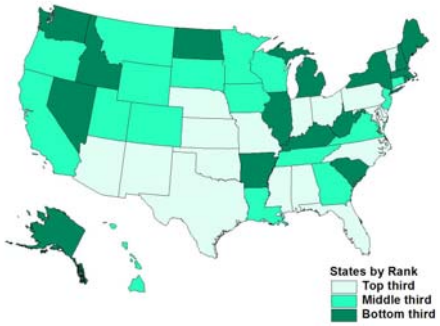
The political and popular appeal of business climate rankings is undeniable. By presenting information about regional policy differences in a digestible format, they can make contributions to early stages of public policy debate. They induce policy makers to correct perceived imbalances, and they can help policy makers to frame the context of the decisions that they must make. However, because they fail to relate rankings to discrete sets of outcomes, they do not provide leaders with actionable information for modifying public policy. That is where over-reliance on rankings dis-serves the policy making process.

Appendix I. Geographic Display of Selected State Ranking Instruments

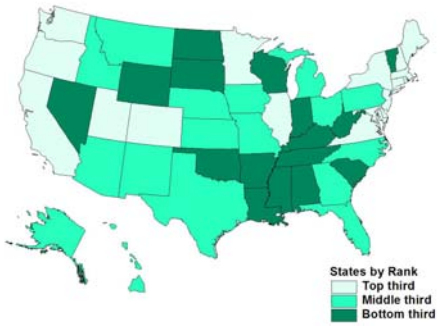
Map A. Most Livable State Index, Morgan Quitno Press, 2003



Map B. Unemployment Tax Index, Tax Foundation, 2004



Map C. Knowledge Jobs Index, Progressive Policy Institute, 2002



Appendix II. Business Climate Indices Used for Comparative Analysis

Organization Name	*Title*	*Index Name*	*Link to Source*
Morgan Quitno Press	Annual On-Line Awards, 2003	Most Livable State	http://www.morganquitno.com/
		Healthiest State	
		Smartest State	
		Safest State	
Tax Foundation	State Business Tax Climate Index, 2004	Corporate	http://www.taxfoundation.org/bp45.pdf
		Individual	
		Sales and Gross Receipts	
		Unemployment Insurance	
		Fiscal balance	
	Tax Burdens and Tax Freedom Day by State, 2003	State & Local Income Tax	http://www.taxfoundation.org/sr129.pdf
		State, Local, & Federal Income Tax	
The Progressive Policy Institute	Technology, Innovation, and New Economy Project, 2002	Knowledge Jobs	http://www.neweconomyindex.org/states/2002/
		Globalization	
		Economic Dynamism	
		The Digital Economy	
		Innovation Capacity	
Small Business Survival Committee	Small Business Survival Index, 2003	Overall Index	http://www.sbsc.org/Media/pdf/SBSI2003.pdf
Beacon Hill Institute	State Competitiveness Index, 2003	Government and Fiscal Policy	http://www.beaconhill.org/BHIStudies/Compete2003%20Data/Compete2003WebONLY.pdf
		Security	
		Infrastructure	
		Human Resources	
		Technology	
		Finance	
		Openness	
		Domestic Competition	
		Environmental Policy	
Harris Interactive	State Liability Systems Ranking, 2004	Overall Index	http://www.legalreformnow.com/pdfs/ILR%20Harris%20Poll.pdf
United Health Foundation	State Health Ranking, 2003	Overall Index	http://www.unitedhealthfoundation.org/shr2003/
Clemson University	Economic Freedom in the 50 States	Overall Index	http://freedom.clemson.edu/

Appendix III. Description of Measures Used to Compile Business Climate Indices

Source	Description
Morgan Quitno Press - Most Livable State	Percent Change in Number of Crimes: 2001 to 2002
Morgan Quitno Press - Most Livable State	Crime Rate
Morgan Quitno Press - Most Livable State	State Prisoner Incarceration Rate
Morgan Quitno Press - Most Livable State	Personal Bankruptcy Rate
Morgan Quitno Press - Most Livable State	Pupil-Teacher Ratio in Public Elementary and Secondary Schools
Morgan Quitno Press - Most Livable State	Rate of Public Libraries and Branches in 2001
Morgan Quitno Press - Most Livable State	Unemployment Rate
Morgan Quitno Press - Most Livable State	Percent of Nonfarm Employees in Government
Morgan Quitno Press - Most Livable State	Electricity Prices
Morgan Quitno Press - Most Livable State	Hazardous Waste Sites on the National Priority List per 10,000 Square Miles
Morgan Quitno Press - Most Livable State	State & Local Taxes as a Percent of Personal Income
Morgan Quitno Press - Most Livable State	Per Capita State and Local Government Debt Outstanding
Morgan Quitno Press - Most Livable State	Population per Square Mile
Morgan Quitno Press - Most Livable State	Poverty Rate
Morgan Quitno Press - Most Livable State	Percent of Female-Headed Families with Children Living in Poverty in 2002
Morgan Quitno Press - Most Livable State	State and Local Government Spending for Welfare Programs as a Percent of All Spending
Morgan Quitno Press - Most Livable State	Percent of Households Receiving Food Stamps
Morgan Quitno Press - Most Livable State	Deficient Bridges as a Percent of Total Bridges
Morgan Quitno Press - Most Livable State	Highway Fatality Rate
Morgan Quitno Press - Most Livable State	Fatalities in Alcohol-Related Crashes as a Percent of All Highway Fatalities
Morgan Quitno Press - Most Livable State	Per Capita Gross State Product
Morgan Quitno Press - Most Livable State	Percent Change in Per Capita Gross State Product: 1997 to 2001(Adjusted to Constant Dollars)
Morgan Quitno Press - Most Livable State	Per Capita Personal Income
Morgan Quitno Press - Most Livable State	Change in Per Capita Personal Income: 2001 to 2002
Morgan Quitno Press - Most Livable State	Median Household Income
Morgan Quitno Press - Most Livable State	Expenditures for Education as a Percent of All State and Local Government Expenditures
Morgan Quitno Press - Most Livable State	Percent of Population With a Bachelor's Degree or More
Morgan Quitno Press - Most Livable State	Books in Public Libraries Per Capita
Morgan Quitno Press - Most Livable State	Per Capita State Art Agencies' Legislative Appropriations
Morgan Quitno Press - Most Livable State	Average Weekly Earnings of Production Workers on Manufacturing Payrolls
Morgan Quitno Press - Most Livable State	Job Growth: 2002 to 2003
Morgan Quitno Press - Most Livable State	Normal Daily Mean Temperature
Morgan Quitno Press - Most Livable State	Percent of Days That Are Sunny
Morgan Quitno Press - Most Livable State	Homeownership Rate
Morgan Quitno Press - Most Livable State	Domestic Migration of Population: 2002 to 2003
Morgan Quitno Press - Most Livable State	Marriage Rate
Morgan Quitno Press - Most Livable State	Percent of Eligible Population Reported Voting
Morgan Quitno Press - Smartest State	Public Elementary and Secondary School Revenue per $1,000 Personal Income
Morgan Quitno Press - Smartest State	Per Pupil Public Elementary and Secondary School Current Expenditures
Morgan Quitno Press - Smartest State	Percent of Public Elementary and Secondary School Current Expenditures used for Instruction
Morgan Quitno Press - Smartest State	Percent of Population Graduated from High School
Morgan Quitno Press - Smartest State	Public High School Graduation Rate
Morgan Quitno Press - Smartest State	Percent of Public School Fourth Graders Proficient or Better in Reading
Morgan Quitno Press - Smartest State	Percent of Public School Eighth Graders Proficient or Better in Reading
Morgan Quitno Press - Smartest State	Percent of Public School Fourth Graders Proficient or Better in Writing
Morgan Quitno Press - Smartest State	Percent of Public School Eighth Graders Proficient or Better in Writing
Morgan Quitno Press - Smartest State	Percent of Public School Fourth Graders Proficient or Better in Mathematics
Morgan Quitno Press - Smartest State	Percent of Public School Eighth Graders Proficient or Better in Mathematics
Morgan Quitno Press - Smartest State	Percent of 4th Graders Whose Parents Have Strict Rules about Getting Homework Done
Morgan Quitno Press - Smartest State	Average Teacher Salary as a Percent of Average Annual Pay of All Workers
Morgan Quitno Press - Smartest State	Percent of School-Age Population in Public Schools
Morgan Quitno Press - Smartest State	High School Drop Out Rate
Morgan Quitno Press - Smartest State	Percent of Public School Teachers Who Reported Being Physically Attacked in the Past 12 Months
Morgan Quitno Press - Smartest State	Special Education Pupil-Teacher Ratio
Morgan Quitno Press - Smartest State	Percent of Public Elementary and Secondary School Staff Who are School District Administrators
Morgan Quitno Press - Smartest State	Estimated Pupil-Teacher Ratio in Public Elementary and Secondary Schools
Morgan Quitno Press - Smartest State	Average Class Size in Public Elementary Schools
Morgan Quitno Press - Smartest State	Average Class Size in Public Secondary Schools
Morgan Quitno Press - Healthiest State	Births of Low Birthweight as a Percent of All Births
Morgan Quitno Press - Healthiest State	Teenage Birth Rate
Morgan Quitno Press - Healthiest State	Percent of Mothers Receiving Late or No Prenatal Care

Source	Description
Morgan Quitno Press - Healthiest State	Age-Adjusted Death Rate
Morgan Quitno Press - Healthiest State	Infant Mortality Rate
Morgan Quitno Press - Healthiest State	Age-Adjusted Death Rate by Malignant Neoplasms
Morgan Quitno Press - Healthiest State	Age-Adjusted Death Rate by Suicide
Morgan Quitno Press - Healthiest State	Percent of Population Not Covered by Health Insurance
Morgan Quitno Press - Healthiest State	Health Care Expenditures as a Percent of Gross State Product
Morgan Quitno Press - Healthiest State	Per Capita Personal Health Expenditures
Morgan Quitno Press - Healthiest State	Estimated Rate of New Cancer Cases
Morgan Quitno Press - Healthiest State	AIDS Rate
Morgan Quitno Press - Healthiest State	Sexually Transmitted Disease Rate
Morgan Quitno Press - Healthiest State	Percent of Population Lacking Access to Primary Care
Morgan Quitno Press - Healthiest State	Percent of Adults Who Are Binge Drinkers
Morgan Quitno Press - Healthiest State	Percent of Adults Who Smoke
Morgan Quitno Press - Healthiest State	Percent of Adults Obese
Morgan Quitno Press - Healthiest State	Number of Days in Past Month When Physical Health was “Not Good”
Morgan Quitno Press - Healthiest State	Beds in Community Hospitals per 100,000 Population
Morgan Quitno Press - Healthiest State	Percent of Children Aged 19-35 Months Immunized
Morgan Quitno Press - Healthiest State	Safety Belt Usage Rate
Morgan Quitno Press - Safest State	Murders per 100,000 population
Morgan Quitno Press - Safest State	Rapes per 100,000 population
Morgan Quitno Press - Safest State	Robberies per 100,000 population
Morgan Quitno Press - Safest State	Aggravated assaults per 100,000 population
Morgan Quitno Press - Safest State	Burglaries per 100,000 population
Morgan Quitno Press - Safest State	Car thefts per 100,000 population
Tax Foundation - Tax Burdens by State	State & Local taxes as a percentage of income (net state product)
Tax Foundation - Tax Burdens by State	State, Local, & Federal taxes as a percentage of income (net state product)
Tax Foundation - Business Tax Climate, Corporate	Rates, top rate
Tax Foundation - Business Tax Climate, Corporate	Rates, level at which top bracket kicks in
Tax Foundation - Business Tax Climate, Corporate	Rates, number of income brackets
Tax Foundation - Business Tax Climate, Corporate	Rates, average width of income brackets
Tax Foundation - Business Tax Climate, Corporate	Base, apportionment formula
Tax Foundation - Business Tax Climate, Corporate	Base, deductability of net operating losses
Tax Foundation - Business Tax Climate, Corporate	Base, presence of tax on capital stock
Tax Foundation - Business Tax Climate, Corporate	Base, differential between top corporate and individual income tax rates
Tax Foundation - Business Tax Climate, Corporate	Base, miscellaneous factors
Tax Foundation - Business Tax Climate, Individual	Rates, top marginal tax rate
Tax Foundation - Business Tax Climate, Individual	Rates, level of taxable income at which the top rate kicks in
Tax Foundation - Business Tax Climate, Individual	Rates, number of income brackets
Tax Foundation - Business Tax Climate, Individual	Rates, average width of brackets
Tax Foundation - Business Tax Climate, Individual	Base, marriage penalty
Tax Foundation - Business Tax Climate, Individual	Base, double taxation of capital income
Tax Foundation - Business Tax Climate, Individual	Base, differential between top individual and corporate tax rates
Tax Foundation - Business Tax Climate, Individual	Base, miscellaneous factors
Tax Foundation - Business Tax Climate, Sales	Rate, combined state and local rates
Tax Foundation - Business Tax Climate, Sales	Base, tally of exemptions for 6 intermediate goods & services
Tax Foundation - Business Tax Climate, Unemployment Insurance	Rates, actual minimum rate, maximum rate, and taxable wage base
Tax Foundation - Business Tax Climate, Unemployment Insurance	Rates, statutory minimum rate, maximum rate, and taxable wage base
Tax Foundation - Business Tax Climate, Unemployment Insurance	Base, experience rating formula
Tax Foundation - Business Tax Climate, Unemployment Insurance	Base, charging methods and excluded benefits
Tax Foundation - Business Tax Climate, Unemployment Insurance	Base, miscellaneous factors
Tax Foundation - Business Tax Climate, Fiscal Balance	State tax collections per capita and as a percentage of income
Tax Foundation - Business Tax Climate, Fiscal Balance	Tax and expenditure limitations
PPI New Economy - Knowledge Jobs	IT occupational employment in non-IT industries as a share of total jobs
PPI New Economy - Knowledge Jobs	Managers, professionals, and technicians as a share of the total workforce
PPI New Economy - Knowledge Jobs	Weighted measure of the educational attainment (advanced degrees, bachelor's degrees, associate's degrees, or some college coursework) of the workforce
PPI New Economy - Knowledge Jobs	Weighted measure of the educational attainment of the manufacturing workforce
PPI New Economy - Globalization	Value of exports per manufacturing worker
PPI New Economy - Globalization	The percentage of each state's workforce employed by foreign companies
PPI New Economy - Economic Dynamism	Jobs in gazelle companies (companies with annual sales revenue that has grown 20 percent or more for four straight years) as a share of total employment
PPI New Economy - Economic Dynamism	The number of new start-ups and business failures, combined, as a share of all establishments in each state
PPI New Economy - Economic Dynamism	A weighted measure of the value and number of initial public stock offerings of companies as a share of gross state product
PPI New Economy - The Digital Economy	The percentage of the population with Internet access in each state
PPI New Economy - The Digital Economy	The number of commercial Internet domain names (".com") per firm
PPI New Economy - The Digital Economy	A weighted measure of factors measuring computer and Internet use in schools, such as students per computer and percentage of schools with Internet access through a T1 or cable modem
PPI New Economy - The Digital Economy	A measure of the utilization of digital technologies in state governments

Source	Description
PPI New Economy - The Digital Economy	A measure of the percentage of farmers with Internet access and who use computers for business
PPI New Economy - The Digital Economy	The percentage of manufacturing establishments with Internet access
PPI New Economy - The Digital Economy	A combined measure of high-speed lines (DSL, cable, and other methods) per household and establishment, and the percent of house-holds in ADSL range
PPI New Economy - Innovation Capacity	Jobs in electronics manufacturing, software and computer-related services, telecommunications, and biomedical as a share of total employment
PPI New Economy - Innovation Capacity	Civilian scientists and engineers as a percentage of the workforce
PPI New Economy - Innovation Capacity	The number of patents issued to companies or individuals per 1,000 workers
PPI New Economy - Innovation Capacity	Estimated measure of industry investment in research and development as a percentage of Gross State Product (GSP)
PPI New Economy - Innovation Capacity	Venture capital invested as a percentage of GSP
SBEC - Small Business Survival Index	Top personal income tax rate
SBEC - Small Business Survival Index	Top capital gains tax rate on individuals
SBEC - Small Business Survival Index	Top corporate income tax rate
SBEC - Small Business Survival Index	Presence of state individual alternative minimum tax
SBEC - Small Business Survival Index	Presence of state corporate alternative minimum tax
SBEC - Small Business Survival Index	State indexing of personal income tax rates for inflation
SBEC - Small Business Survival Index	State and local property taxes property taxes as a share of personal income
SBEC - Small Business Survival Index	State and local sales, gross receipts and excise taxes as a share of personal income
SBEC - Small Business Survival Index	Levying of estate, inheritance and/or gift taxes beyond the federal pick-up tax
SBEC - Small Business Survival Index	Unemployment tax rate - maximum state tax rate applied to state wage base as a share of state average annual pay
SBEC - Small Business Survival Index	Health care cost index (per capita personal health care spending relative to the U.S. average)
SBEC - Small Business Survival Index	Electricity cost index (index of state's average revenue per kilowatthour for electricity utilities)
SBEC - Small Business Survival Index	Workers' compensation costs (benefits per $100 of covered wages)
SBEC - Small Business Survival Index	Crime rate per 100 residents
SBEC - Small Business Survival Index	Right-to-work status
SBEC - Small Business Survival Index	State and local government bureaucrats (full-time equivalent employees per 100 residents)
SBEC - Small Business Survival Index	Tax limitation status (requiring supermajority votes, whether for elected officials or voters in general, in order to increase or impose taxes)
SBEC - Small Business Survival Index	Presence of internet taxes
SBEC - Small Business Survival Index	Motor fuel tax (dollars per gallon)
SBEC - Small Business Survival Index	State minimum wage minus the federal minimum wage
SBEC - Small Business Survival Index	Mean grades based on survey of corporations to assess the fairness and reasonableness of state liability systems
Beacon Hill Institute - Government and Fiscal Policy	State tax revenue/Gross State Product (-)
Beacon Hill Institute - Government and Fiscal Policy	Workers' Compensation Collections/Employment (-)
Beacon Hill Institute - Government and Fiscal Policy	Bond rating (composite of S&P's and Moody's, scale 1-25) (+)
Beacon Hill Institute - Government and Fiscal Policy	Budget deficit as % of Gross State Product (-)
Beacon Hill Institute - Safety	Reported crime per 100,000 inhabitants (-)
Beacon Hill Institute - Safety	% Change in crime index, 1997-2002 (-) (cannot duplicate BHI report table)
Beacon Hill Institute - Safety	Murders per 100,000 inhabitants (-)
Beacon Hill Institute - Infrastructure	% of households with computers (+)
Beacon Hill Institute - Infrastructure	% of households with installed phones (+)
Beacon Hill Institute - Infrastructure	% of households with internet access (+)
Beacon Hill Institute - Infrastructure	Air passengers per capita (+)
Beacon Hill Institute - Infrastructure	Travel time to work (-)
Beacon Hill Institute - Human Resources	% of population without health insurance (-)
Beacon Hill Institute - Human Resources	% of population aged 25 and over that graduated from high school (+)
Beacon Hill Institute - Human Resources	Average benefit per first payment, for unemployed (-)
Beacon Hill Institute - Human Resources	% of labor force represented by unions (-)
Beacon Hill Institute - Human Resources	Unemployment rate (-)
Beacon Hill Institute - Human Resources	% of population enrolled in degree-granting institutions (+)
Beacon Hill Institute - Human Resources	% of adults in the labor force (+)
Beacon Hill Institute - Human Resources	% of population born abroad (+)
Beacon Hill Institute - Human Resources	Infant mortality rate in deaths per 1,000 live births (-)
Beacon Hill Institute - Human Resources	Non-federal physicians per 100,000 inhabitants (+)
Beacon Hill Institute - Technology	NSF funding for R&D per capita (+)
Beacon Hill Institute - Technology	NIH support to institutions in the state, per capita (+)
Beacon Hill Institute - Technology	Patents per 100,000 inhabitants (+)
Beacon Hill Institute - Technology	Science and engineering graduate students per 100,000 inhabitants (+)
Beacon Hill Institute - Technology	Science and engineering degrees awarded per 100,000 inhabitants (+)
Beacon Hill Institute - Technology	Scientists and engineers as % of labor force (+)
Beacon Hill Institute - Technology	High tech companies as % of companies in the state (+)
Beacon Hill Institute - Finance	Deposits in commercial banks and savings institutions, per capita (+)
Beacon Hill Institute - Finance	Rental costs for 2-bedroom apartment (-)
Beacon Hill Institute - Finance	Venture capital available per capita (+)
Beacon Hill Institute - Openness	Exports per capita, $ (+)
Beacon Hill Institute - Openness	Incoming foreign direct investment per capita, $ (+)
Beacon Hill Institute - Domestic Competition	Employer firm births per 100,000 inhabitants (+)
Beacon Hill Institute - Domestic Competition	Employer firm terminations per 100,000 inhabitants (+)

Source	Description
Beacon Hill Institute - Environmental Policy	Electricity prices, $/mbtu (-)
Beacon Hill Institute - Environmental Policy	Toxic release inventory, on- and off-site, lbs per capita (-)
Harris Interactive - Civil justice sytems survey	Perceptions of fairness in overall treatment of tort and contract litigation
Harris Interactive - Civil justice sytems survey	Perceptions of fairness in overall treatment of class action suits
Harris Interactive - Civil justice sytems survey	Perceptions of fairness in punitive damages
Harris Interactive - Civil justice sytems survey	Perceptions of timeliness in summary judgements/dismissals
Harris Interactive - Civil justice sytems survey	Perceptions of fairness in discovery process
Harris Interactive - Civil justice sytems survey	Perceptions of fairness in scientific/technical evidence
Harris Interactive - Civil justice sytems survey	Perceptions of judges' impartiality
Harris Interactive - Civil justice sytems survey	Perceptions of judges' competence
Harris Interactive - Civil justice sytems survey	Perceptions of juries' predictability
Harris Interactive - Civil justice sytems survey	Perceptions of juries' fairness
United Health Foundation - State Health Rankings	Personal behaviors, smoking
United Health Foundation - State Health Rankings	Personal behaviors, obesity
United Health Foundation - State Health Rankings	Personal behaviors, motor vehicle deaths
United Health Foundation - State Health Rankings	Personal behaviors, high school graduation
United Health Foundation - State Health Rankings	Community environment, violent crime
United Health Foundation - State Health Rankings	Community environment, lack of health insurance
United Health Foundation - State Health Rankings	Community environment, infectious disease
United Health Foundation - State Health Rankings	Community environment, children in poverty
United Health Foundation - State Health Rankings	Community environment, occupational fatalities
United Health Foundation - State Health Rankings	Health policies, percent of health dollars for public health
United Health Foundation - State Health Rankings	Health policies, per capita public health spending
United Health Foundation - State Health Rankings	Health policies, adequacy of prenatal care
United Health Foundation - State Health Rankings	Health outcomes, limited activity days
United Health Foundation - State Health Rankings	Health outcomes, cardiovascular deaths
United Health Foundation - State Health Rankings	Health outcomes, cancer deaths
United Health Foundation - State Health Rankings	Health outcomes, total mortality
United Health Foundation - State Health Rankings	Health outcomes, infant mortality
United Health Foundation - State Health Rankings	Health outcomes, premature death
Clemson University – Economic Freedom in the 50 States	See original study

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