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PUBLIC POLICY, STATE BUSINESS CLIMATES, AND ECONOMIC GROWTH

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ABSTRACT

State business climate indexes are a popular means of summarizing the "bundles" of state policies that might affect state economic growth. But the rankings of states' business climates vary wildly, raising questions about what these business climate indexes measure, and hence about which policies they capture are more important determinants of state economic growth. Business climate rankings tend to focus on policies related either to productivity, or to taxes and other costs of doing business. States that rank poorly along one of these dimensions often rank quite highly on the other. Business climate indexes that focus on productivity-related variables have essentially no predictive power for economic growth. In contrast, business climate indexes focusing on taxes and costs predict growth of employment, wages, and Gross State Product. Looking at sub-indexes that disaggregate the policies captured by the taxes-and-cost related indexes, two types of policies are associated with faster economic growth: less spending on welfare and transfer payments; and a more uniform and simpler corporate tax structure. But factors beyond the control of policy, like a state's industry mix, population density, and weather, have a stronger relationship with economic growth than even the tax-and-cost-focused business climate indexes.

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I. Introduction

A fundamental goal of government policy is to encourage economic growth. States use a variety of strategies to encourage economic growth, such as job training, education, and infrastructure development, as well as low taxes and light regulation. At the same time, policies intended to protect workers, promote equity, improve the environment, and achieve other goals are sometimes seen as discouraging economic growth if they require taxes or regulation that impose costs on businesses or reduce peoples' incentives to work. These same taxes and regulations, though, might improve quality of life and make places more attractive to businesses and workers – ultimately even contributing to economic growth. The relationship, therefore, between any one policy and economic growth is complex.

The complexity multiplies when we consider all of the policies states might use to encourage economic growth and all of the policies designed to achieve other goals but that nonetheless may also affect economic growth. Considering policies together, however, is necessary, because policies often work in combination rather than in isolation. For instance, taxes that increase the cost of doing business may also finance investments in transportation infrastructure – another policy – that helps businesses. While it is a matter for the political process to determine the right balance between encouraging economic growth and other goals, a crucial research question essential to informing policy debate over balancing economic growth and other goals is how state taxes, regulations, and other policies affect economic growth.

State business climate indexes summarize policies (and other factors) that might affect economic growth, and these indexes – published by many national organizations – are themselves an important part of the debate about economic growth. In this paper, therefore, we examine the relationships between a large set of state business climate indexes and state economic growth. We present detailed information on what the indexes capture, analyze whether they predict economic growth, and assess why particular business climate indexes are or are not predictive of the economic outcomes we study. We also broaden the analysis to consider other factors – such as weather[1] and geography – that may affect economic growth and which, if

[1] "Weather" means time-specific atmospheric conditions, and "climate" means long-term atmospheric tendencies. However, because we use the term "business climate" repeatedly and also include long-term meteorological climate measures as controls, we want to avoid confusion and therefore use the word "weather" rather than "climate" to refer to meteorological climate measures.

ignored, may obscure the true relationship between business climate indexes and economic growth.

The analysis focuses on business climate indexes rather than the individual policy components that constitute them, for two reasons. First, because the indexes play a large role in policy debate, it is useful to understand their predictive power. More important, though, the indexes represent attempts to reduce a large number of policy variables that could affect economic growth down to a single measure. Because the number of important policy components is large relative to the number of data points, some method of data reduction is essential. However, existing research has demonstrated that the estimated effects of individual policies are quite sensitive to the other policy variables included in models of economic growth (or other outcomes), in part because of high correlations among policies. Thus, the results from a model with limited policy variables could reflect either the effects of the included policies or the effects of the omitted policies.[2]

By focusing on business climate indexes, we do not identify the effects of individual policies. But we can focus more narrowly on better-defined subsets of policies by examining the "sub-indexes" of several indexes; each sub-index covers a narrower range of policies like regulatory measures, corporate income tax structure, or welfare and income-transfer policies. This analysis can provide more specific guidance in identifying policy factors that influence economic growth.

An important caveat should be noted at the outset. While we argue that there is merit in looking at bundles of policies via business climate indexes, this comes at a cost. In particular, some of the research strategies used to more rigorously identify the causal effects of a policy in studies focusing on a single policy are precluded. For example, it is difficult to think about how one would even propose an instrumental variable for a measure that aggregates many policies. A difference-in-difference type strategy is also inapplicable, since it is unlikely that there is a readily-identifiable group that is not affected by the set of policies capture in the indexes. Finally, there is little variation over time, within states, in business climate indexes, ruling out state fixed-effects estimation. Nonetheless, we do what we can given the constraints of

[2] There are numerous examples of research focusing on a limited or more extensive set of specific policies. Studies focusing on policies in isolation have focused on taxes (e.g., Bartik, 1991; Buss, 2001; Papke, 1991; Carlton, 1983) and regulation (e.g., Holmes, 1998). Reviews of these literatures are provided in Wasylenko (1997), Buss (2001), and Tannenwald (1997). Studies focusing on a fairly limited set of policies include Wasylenko and McGuire (1985), Bartik (1985), and Helms (1985). In contrast, Crain and Lee (1999) and Reed (2009) employ long lists of candidate variables to explain state economic growth. They find that the results are sensitive to the model specification, although both papers also identify a subset of robust variables.

the data to assess and try to rule out non-causal interpretations of our findings. And we would argue that our evidence is at a minimum complementary to studies focusing on single policies, for which the gain from more rigorous identification must be offset against the likely confounding of effects of multiple policies.[3]

II. State Business Climate Rankings: Policy Debate and Their Contradictory Nature

In policy debate, the question of how government policies affect economic growth is often couched in terms of the "business climate," especially at the state level, and there is a cottage industry of state business climate indexes that fuels this debate.[4] These business climate indexes figure prominently in policy debate, perhaps most commonly in arguments for lowering taxes and regulations in states that do poorly on indexes that emphasize these costs of doing business and taxes more generally.[5] Conversely, states that do well on such indexes – because of low taxes, for example – often tout these indexes or rankings in trying to attract businesses.[6] Not surprisingly, politicians and other organizations use state rankings provided by business climate indexes to support their point of view. They are often able to do this selectively because state business climate rankings can provide strongly divergent views of state policy environments. For example, some states that are ranked poorly in terms of taxes are ranked favorably on other dimensions, such as education and human capital, or quality of life measures including crime rates and health.[7]

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[3] The problem we face has an exact parallel to the research literature on cross-country growth regressions, which try to understand sources of long-term economic growth as functions of a number of institutional, policy, and other factors.[3] We think that their interpretation of the value of cross-country growth regressions applies equally well to our analysis. They note that, despite these (and other) problems, "Cross-country regressions … can be very useful. Along with other analytical methods, demonstrating that certain policy-growth relationships hold well across countries will influence beliefs about policy and economic performance. Similarly, beliefs about policy and growth that are not supported by cross-county evidence will tend to be viewed skeptically" (Levine and Zervos, 1993, p. 427).

[4] For simplicity, we refer to "indexes." To clarify the language we use below, a higher value of an *index* implies a better rating of the business climate – so that the *ranking* is closer to 1.

[5] For recent examples of such arguments, see http://www.cagop.org/index.cfm/capitol-update_785.htm (viewed November 2, 2009), http://cssrc.us/web/19/publications.aspx?id=5547&AspxAutoDetectCookieSupport=1 (viewed November 2, 2009), http://www.mpnnow.com/opinions/guest_essays/x624508858/New-study-affirms-New-Yorks-woeful-tax-climate (viewed November 2, 2009), http://www.platteinstitute.org/publications/tax-foundation-nebraskas-business-tax-climate-improving (viewed November 2, 2009), and http://www.njprofoundation.org/pdf/ffd4.pdf (viewed November 2, 2009).

[6] For recent examples, see http://www.dad69.state.pa.us/revenue/cwp/view.asp?A=104&Q=258387 (viewed November 2, 2009), http://www.sdreadytowork.com/dbisd/ (viewed November 2, 2009), and http://www.whywyoming.org/about.aspx (viewed November 2, 2009).

[7] As an example of selective use of state business climate rankings, in arguing that "Any changes to the tax system should be undertaken primarily with the health of the economy in mind," the California Chamber of Commerce cited the Tax Foundation's *State Business Tax Climate* (SBTC) index, ranking California 48th out of 50 states, the Small Business and Entrepreneurship Council's *Small Business Survival* (SBSI) index, ranking California 48th out of 51, and CFO Magazine's *State Tax Survey*, ranking California the worst in the country (http://www.calchamber.com/headlines/pages/calchambertestimonytotaxcommissioneconomyjobsclimateshouldbeprioritytyinexaminingcaliforniataxstructure.aspx, viewed November 3, 2009). Yet the Chamber's testimony fails to mention the SNEI, on which California ranked 8th in 2008, or the Corporation for Enterprise Development's *Development Report Card for the States-Business Vitality* (DRCS-BV) index, on which the state ranked 4th in 2007.

Such conflicting information from state business climate indexes provides part of the motivation for this study. More generally, though, we study how state policy environments, as captured by state business climate indexes, predict state economic growth, both to inform our understanding of these indexes, and to help identify which policies are more important determinants of state economic growth. To do this, we collected data and detailed information on 11 well-known business climate indexes. We included indexes that have published rankings for multiple years and made their methods transparent, including providing a full list of the components that constitute the index. For several indexes, we also collected data and information on their sub-indexes, which we explain below.

The first column of Table 1 lists the indexes included in our study and the institution that creates the index (as well as the years covered).[8] The next two columns describe the focus of each index, and list the categories of policy variables covered by each index (out of 14 that we have created); a full list of these categories is discussed below.[9] It is clear that the indexes aim to capture different facets of the policy environment. Thus, it would not be surprising if states are ranked differently depending on the business climate index, and if the indexes varied in the extent to which they predict economic growth. In addition, the institutions that create these indexes sometimes have specific agendas that may influence what policies they emphasize, which might or might not be the factors most predictive of economic growth.[10]

Table 2 shows how the 50 states rank on the business climate indexes, averaged across the years for which the index is available. In the two right-hand columns, we report the minimum and maximum for the state across averages of the different indexes. The table reveals that states' positions in the rankings can vary

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[8] The last column of the table notes some differences across years in how the indexes are constructed. We also examined the *American Legislative Exchange Council (ALEC)-Laffer State Economic Competitiveness Index*, the *California Economic Performance Card*, created by the California Foundation for Commerce and Education, and *Best States for Business* created by Forbes Magazine. However, the first is available only for 2008 and 2009, the second only for 2008, and the third from 2006 through 2009, years that are beyond our sample period or hardly overlap. In addition, there is not sufficient detail available for Forbes' *Best States for Business*, making it impossible to evaluate how the index was generated in terms of variables, sources, weights, and aggregation methods.

[9] The second column lists the focus of the index as stated by the creating institution. The third column gives our (more objective) categorization. The notes to the table provide references for the source documents, which provide more detail.

[10] For example, the *Economic Freedom Index* (EFI) is created by the Pacific Research Institute, whose mission is to "champion freedom, opportunity, and personal responsibility for all individuals by advancing free-market policy solutions." (See http://liberty.pacificresearch.org/about/default.asp, viewed November 4, 2009). In contrast, the DRCS-P focuses on quality of life, equity, and employment, earnings, and job quality; this index is created by the Corporation for Enterprise Development, which describes itself as "[d]riven to create a more robust, fair and sustainable economy for all of us, … fueled by the belief that there is a tremendous amount of untapped potential in low-income people and distressed communities." (See http://www.cfed.org/focus.m, viewed November 4, 2009).

wildly from one index to another. Indeed, the *smallest* difference between the minimum and maximum average ranking for states is 21, and for 16 states the range is 40 or higher. In fact, across all 50 states, every state but one ranks in the top 20 in at least one index, and every state ranks in the bottom half in at least one index. Thus, based on these indexes, nearly every state could be praised for having a good business climate, or criticized for having a bad one.

III. Past Research on Business Climate Indexes and Other Determinants of Growth

Assessments of business climate indexes

Erickson (1987) reviews the development of business climate indexes in the United States, ascribing the beginning of modern business climate indexes to the 1975 Fantus Company index, prepared for the Illinois Manufacturers' Association; the Alexander Grant & Company (later, Grant Thornton) index, first prepared for the Conference of State Manufacturers' Associations in 1979; and the Inc. magazine *Report Card on the States*, first published in 1981. Two early academic studies assess the relationship between these early indexes and economic outcomes (Plaut and Pluta, 1983; and Skoro, 1988). A later paper (Holmes, 1998) suggested that the Fantus index does capture an important pro- or anti-business stance of state policy. Including this index accounted for a positive relationship between right-to-work laws and manufacturing employment, also highlighting the problem that conclusions about a given state policy can be misleading without taking account of the many other state policies that can be reflected in a business climate index.

A second and larger wave of business climate indexes – including many of the indexes we consider in this paper – is assessed in more recent work. Fisher (2005) provides a sweeping critique of five business climate indexes. He is particularly critical of the "arbitrary" weighting of components in the construction of most indexes, in contrast to regression models that assign weights based on predictions of economic performance. Fisher also highlights the sensitivity of business climate indexes to specification and variable definition, criticizes the inclusion in indexes of variables that should be viewed as outcomes, and flags the potential for reverse causality with policy responding to growth rather than the other way around.

There are problems with Fisher's assessment of these business climate indexes, which we improve upon in a number of ways. First, he restricts his tests of predictive power to simple correlations or regressions in which the only control other than the index is a lagged level of the dependent variable. But

many factors could be correlated with business climate indexes as well as economic performance, so his tests are prone to omitted variable bias.[11] Second, Fisher assesses indexes on their own terms – such as analyzing how well the tax-focused SBTC corresponds with other tax measures – rather than comparing the predictive power of multiple indexes for the economic performance measures of interest, like growth in output, employment, or income. At the same time, we address some of the problems that he highlighted, including robustness of the evidence, the inclusion of outcomes in the indexes, and reverse causality.

In contrast to Fisher's approach, Bittlingmayer et al. (2005) use a uniform framework that facilitates comparison across indexes and attempts to control for other factors. Rather than including controls for other state-level variables that could affect economic growth, they study pairs of counties that straddle state borders, estimating relationships between the county ratios of business climate indexes and outcome growth rates. Their evidence is mixed, but leans toward finding that some for some indexes a better business climate ranking predicts positive economic outcomes. Foreshadowing our results to some extent, they find that indexes more narrowly focused on tax policies are more likely to have positive relationships with growth than are broader measures, but also that the indexes showing a positive relationship explain little of the variation in economic growth.

This study also has potentially serious limitations. First, it uses a good deal of data on outcomes two to three decades prior to the business climate measures. Second, border areas may sometimes be poorly representative of entire states. Coastal states – where a disproportionate share of U.S. economic activity is located – tend to have their economic and population centers right on the coast since oceans facilitate trade and transportation. In states with smaller coastlines, like New York or Pennsylvania, economic centers might be both on the coast and near state borders; but in states with larger coastlines, like California and Florida, the vast majority of economic activity is far from state borders, and border areas of those states are economically distinct from the rest of the state. Third, economic activity in border areas is probably more sensitive to differences in state tax and regulatory policies since both sides of the border share similar economic conditions and may be in the same labor market. Thus, it is preferable to assess state business

[11] In addition, this approach will only detect very short-term effects of policy, due to the inclusion of the lagged dependent variable.

climate indexes using state-level data.

Finally, Garrett and Rhine (2010) assess the relationship between state employment growth and the EFINA index and its sub-indexes. The EFINA index and the "size of government" sub-index (EFINA-SG) has a positive and statistically significant (10% level) relationship with employment growth in the periods 1980-1990, 1990-2000, and 2000-2005; the relationship for the "labor market freedom" sub-index (EFINA-LMF) is significant for the latter two periods and of larger magnitude than EFINA-SG.[12] Similar to the approach we take, they regress growth rates on the initial values of the index, controlling for density, industry mix, and other factors. However, they consider only the EFINA index, and in their analysis of sub-indexes they report only regressions on each separately, despite high positive correlations among the EFINA sub-indexes (documented later).[13]

Recent work on regional economic differences has estimated the relative productivity of metropolitan areas, rather than states, using weighted averages of residuals from wage and rent equations, following the Roback (1982) model of spatial equilibrium. Gabriel and Rosenthal (2004) and Albouy (2009) produce local productivity rankings for metropolitan areas. This method does not require selecting or identifying factors that might enhance productivity, which offers the advantage of avoiding arbitrary weighting schemes relative to the construction of business climate indexes, although of course it is more reliant on economic theory.[14] Nonetheless, this approach parallels the use of business climate indexes, in that it studies a measure that aggregates across many policies to try to characterize the policy environment and economic conditions facing businesses in different areas. It does not, however, distinguish between policies and other factors that affect productivity.

Factors beyond policy

Factors beyond the immediate or even longer-term control of state and local policymakers likely affect economic growth as well, and if we do not account for these factors, then estimated relationships

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[12] These sub-indexes are discussed in detail later.
[13] They write that they estimated regressions with all three sub-indexes simultaneously but chose not to report the results, noting the high correlation among sub-indexes, loss of precision, and "improbable results" (p. 13).
[14] Albouy (2009) tries to explain the variation in his productivity measure: population size, educational attainment, and good weather all raise local productivity, and the only policy measure he includes – the Wharton housing and land use regulation – has no effect on productivity.

between business climate indexes and economic outcomes can be misleading. For example, the local and regional growth literature emphasizes persistent – and sometimes quite immutable – characteristics like the local industry mix (Glaeser et al., 1992; Henderson et al., 1995).[15] In the short- or medium-term, policymakers probably can do little to change the industry composition of their region, even if investments in education or infrastructure might, over the long-term, help shift a local economy from one set of industries to another. This literature has also emphasized that mild weather and other amenities can contribute to local quality of life (Glaeser et al., 2001), leading workers to accept lower wages to live and work in more appealing places, so businesses not tied to specific locations for other reasons can lower their labor costs by locating in places with positive amenities. Geographic features like coastal proximity can also matter (Rappaport and Sachs, 2003); historically, proximity to waterways facilitated trade of manufactured goods, though as the U.S. economy has become more service-based this advantage of coastal locations (or location next to natural resources) has diminished. Population density can affect growth in either direction – enhancing growth through the beneficial effects of the proximity of other businesses, workers, and knowledge ("agglomeration economies"), or slowing growth owing to congestion and higher land costs.

Factors affecting economic growth might vary or be set at the local, regional, or state level. For example, within a state, metropolitan areas can have different patterns of economic growth, industrial composition, and workforce characteristics, as well as different local policies. Despite the economic variation within states – especially large states – we focus on business climate indexes and policy at the state level. Although state boundaries do not necessarily reflect labor or product markets or have any other inherent economic meaning, states set important economic policies, and the tendency of business climate indexes to rank states rather than metropolitan areas or other regions reflects the expected importance of taxes, regulations, investments, and other policy actions taken by states. Also, even though metropolitan areas within states can have different industrial compositions and different economic growth patterns, economic growth rates for states overall clearly differ, with some states growing faster than others, often persistently.

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[15] For example, California's recent economic slumps – in the early 1990's, the early 2000's, and the current recession – were timed to downturns in specific industries that were disproportionately concentrated in California. Elsewhere, too, local economic fortunes depend on locally-dominant industries, like automobiles in Michigan, finance in New York, and oil and gas in the Gulf Coast region.

There is, therefore, plenty of variation in economic growth rates *between* states to explain, and many of the most likely policy factors that affect these economic growth rates *are* determined at the state level.

IV. Data

Economic outcomes

We focus on growth in employment, total wages, and state Gross Domestic or State Product (GSP). Job growth is at the center of policy debate,[16] but policymakers also care about earnings,[17] perhaps in part because higher wages generate higher tax revenue and lower other government expenditures. GSP and wages are related, but GSP is broader: it is measured as the sum of wages (equivalently, labor income), capital income (returns to business owners, corporations, and other owners of capital), and business taxes.[18] Finally, we measure job growth at new businesses. Studying this dimension of job growth responds to a general and long-standing policy focus on the importance of small businesses (which new businesses always are) in job creation,[19] as well as more recent research indicating that *new* small businesses are principally responsible for rapid job growth in the small business sector (Haltiwanger et al., 2009).

We use the National Establishment Time-Series (NETS) to measure overall employment growth and employment growth at new businesses.[20] We currently have NETS data through 2006. We also use the Quarterly Census of Employment and Wages (QCEW) to get an alternative measure of employment through 2008.[21] The longer period covered by the QCEW is an advantage, whereas the NETS allows us to measure

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[16] For a few examples, see http://abcnews.go.com/Business/wireStory?id=8967119 (viewed November 11, 2009), http://www.businessweek.com/investing/content/sep2009/pi20090924_606185.htm (viewed November 11, 2009), http://www.cbsnews.com/stories/2009/10/29/national/main5446350.shtml (viewed November 11, 2009), and http://www.calchamber.com/governmentrelations/pages/jobkillers2009.aspx (viewed November 11, 2009).

[17] See, for example, http://www.riedc.com/about/mission-and-strategy/strategy-1 (viewed November 11, 2009), http://www.google.com/webhp?tab=mw#hl=en&source=hp&q=high+wage+jobs&aq=f&aqi=g1&oq=&fp=8bd4816e1661ba1a (viewed November 11, 2009), and http://www.treoaz.org/About-TREO-Economic-Blueprint-Jobs.aspx (viewed November 11, 2009). Of course, there are different ways that total wages can grow, and a state's policies might be judged as more successful if they create high-wage jobs rather than low-wage jobs. If evidence pointed to growth in employment but not in total wages, this could reflect substitution of low-wage for high-wage jobs – not a positive outcome. Typically, though, the evidence points to the same types of policies increasing employment growth and wage growth (when they have an effect), suggesting that employment gains are coming in jobs paying wages that are roughly the same, on average, as the existing stock of jobs.

[18] See http://www.bea.gov/regional/gsp/help/ (viewed November 11, 2009), for an explanation of how the Bureau of Economic Analysis (BEA) estimates GSP.

[19] See, e.g., Neumark et al. (forthcoming), and the references therein.

[20] The NETS is based on Dun & Bradstreet data, and includes exact addresses, employment counts, detailed industry, year of birth, and headquarters information for nearly every business establishment in the United States since 1992. For more information on the NETS, see http://youreconomy.org/nets/NETS%20Database%20Description2009.pdf (viewed November 11, 2009), and for a detailed assessment see Neumark et al. (2007) and Kolko and Neumark (2007).

[21] The employment definitions in the two data sources are different, as discussed in Neumark et al. (2007), but for the purposes of this paper these differences are not likely to be substantive. For the NETS, D&B continuously collects

employment at new establishments. On the other hand, the NETS has no information on earnings, whereas the QCEW gives a measure of total compensation paid during a calendar quarter to covered workers, which can be aggregated to annual measures.[22] Finally, the GSP data (in current dollars) come from the Bureau of Economic Analysis. GSP is derived as the sum of the GDP originating in all the industries in a state. Given that there is a discontinuity in the GSP time series in 1997, when the data change from SIC to NAICS industry definitions, we use GSP growth for the period 1997-2008.[23]

Business climate indexes

We collected data on 11 business climate indexes for all available years from 1992 through 2008.[24] For each of the 11 indexes we use the index values rather than the ranking, which allows us to capture information on the magnitudes of the gap between states, which tend to be larger for states nearer to the tails of the distributions of the indexes. Because index definitions can change from year to year, we standardize each index for each year, subtracting off its mean and dividing by its standard deviation. The indexes are signed such that positive values correspond to what is intended to reflect a "better" business climate, based on the intention of the creators of each index (e.g., low taxes). In some cases we used the underlying data to construct modified forms of the indexes, described below.

Business climate sub-indexes

Several of the business climate indexes also define and report scores for sub-indexes; these sub-indexes aggregate up to the "parent" index, so when we substitute the full set of sub-indexes for the corresponding index, we do not omit other policies included in the index (although the weighting of specific

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employment information throughout the year. The interviewer/online questionnaire asks: "How many persons are employed at your establishment?" No particular date is specified in the question and it does not distinguish between full-time and part-time employees. D&B's employment number also includes the owner of the business. The annual NETS database is constructed using January snapshots of the D&B data – that is, the data as of January of each year. In the QCEW, employment is the number of covered workers who worked during, or received pay for, the pay period including the 12th of the month. Excluded are members of the armed forces, the self-employed, proprietors, domestic workers, unpaid family workers, and railroad workers covered by the railroad unemployment insurance system.

[22] QCEW data on Employment and Total Wages from 1992 to 2008 were downloaded from ftp://ftp.bls.gov/pub/special.requests/cew/ (viewed July 30, 2009). The wage measure includes total compensation paid during the calendar quarter, regardless of when services were performed, and includes pay for vacation and other paid leave, bonuses, stock options, tips, the cash value of meals and lodging, and in some states, contributions to deferred compensation plans (such as 401(k) plans).

[23] BEA data on GSP by state from 1997 to 2008 were downloaded from http://www.bea.gov/regional/gsp/ (viewed July 15, 2009).

[24] Our sample period ends in 2008 but the dependent variables for the last year are measured from 2007 or an earlier year to 2008, so in our regressions we use indexes through 2007. However, some of the tables showing descriptive information on the indexes refer to the latest year for which an index was available.

policies is fixed). Based on results reported later, we emphasize sub-indexes for the SBTC, EFINA, and EFI indexes; these sub-indexes are described in Table 3. We discuss the content of these sub-indexes later.

Control variables

We also gathered data on amenities and other geographic or economic factors that could influence economic growth. First, we use weather variables from Mendelsohn et al. (1994), capturing both temperature and precipitation. These were originally calculated at the county level; we use county-population-weighted state averages based on 2006 Census population estimates. We define "Mild" as the negative of the absolute value of the difference between monthly average temperature and 20 degrees Celsius, summed over January, April, July, and October, and "Dry" as the negative of the average monthly precipitation for those four months, in centimeters. Second, we use "Proximity," defined as the negative of the average distance from the state's county centroids, weighted by county population, to the nearest coast, Great Lake, or major river (Rappaport and Sachs, 2003). With the multiplication by −1, higher values of these measures reflect milder weather, drier weather, and closer proximity to navigable water. Third, we define population density as the tract-weighted population density across the state (and use this in logs), based on 1990 Census data (Glaeser and Kahn, 2004).

Finally, we construct a measure of the state-specific "industry composition effect" attributable to the baseline industry mix of the state and national growth by industry, to account for variation in state economic growth due to the mix of industries in each state. For example, California's strong economic growth during the high-tech boom of the late 1990's could have occurred because high-tech expanded more in California than it did in other states. Alternatively, California could have exhibited strong economic growth during the high-tech boom simply because high-tech grew strongly everywhere, and high-tech was originally over-represented in California. The industry composition effect variable removes the second type of influence, which seems less likely to have anything to do with state policy. We start with the industry composition of employment in each state in 1992 (the beginning of the NETS data), and calculate how employment would have grown had employment in each industry in the state grown at the average rate of growth of the industry's employment in the other 49 states. Letting EIS denote the industry composition effect, E denote employment, the subscripts i and j denote states, and the subscript k denote industry, this variable is defined

as:

$$(1)\ EIS_i = \frac{\left\{\sum_k E_{ik,1992}\cdot\left[\frac{\sum_{j\neq i} E_{jk,2006}-\sum_{j\neq i} E_{jk,1992}}{\sum_{j\neq i} E_{jk,1992}}+1\right]\right\}-E_{i,1992}}{E_{i,1992}}\cdot 100.$$

Descriptive information on state economic growth and controls

Descriptive statistics on the growth and control variables are reported in Table 4. Mean one-year employment growth in the QCEW is higher than in the NETS, reflected also in a lower minimum in the NETS, although both are between 1.1 and 1.7 percent. Despite this difference, the correlation between the two datasets' estimates of annual state employment growth is quite high, 0.54. We are interested primarily in the robustness of the conclusions across the two different measures of employment growth.[25] The rates of growth of GSP and total wages are high because these are measured in current dollars (nominal growth is removed in the regressions by including year dummy variables). The rate of employment growth due to births is much higher, because this measure does not capture employment reductions due to deaths (or employment changes due to expansions, contractions, or relocation into or out of states).

V. What Do the Business Climate Indexes Capture?

The eleven indexes arrive at such contradictory rankings of business climates across states because different indexes include or emphasize different factors. Table 5 shows this by grouping our 14 policy categories into three broad classes: taxes and costs; productivity (and quality of life); and other. We then show the weights that each index puts on the 14 categories as well as the broad class. This table highlights sharp differences in the policies that indexes emphasize. For example, the SBTC index, and some others (SBSI, CDBI, EFI, EFINA, and FPRCNG) focus heavily on taxes, costs, and regulation and litigation, the DRCS-P index emphasizes quality of life and equity measures, and the SNEI emphasizes human capital, new businesses, and technology. The table reveals differences within these groups – such as the sole emphasis of the SBTC index on taxes, the emphasis of the EFI and SBSI indexes on regulation and litigation, and the inclusion of welfare and transfer payments in the EFI and EFINA indexes.[26]

[25] We also look at growth measured over intervals longer than one year, for which the NETS should be more accurate (Neumark et al., 2007).

[26] We also constructed a much more detailed list of the variables within each of our 14 categories that go into each index (available from the authors upon request). This, too, is informative for interpreting the indexes. For example, the

Table 6 shows the correlations of the indexes, averaged over time, across states. Among the first five indexes (SNEI, DRCS-P, DRCS-DC, DRCS-BV, and SCI) the correlations are positive and generally large. On the other hand, the correlations of these five indexes with the next set of five (SBTC, SBSI, CDBI, EFI, and EFINA) are mostly negative, and in many cases (especially when they are not negative) quite small. Conversely, the correlations among the latter fives indexes are uniformly positive, and again quite large. The correlations of the FPRCNG index with the other ten indexes, shown in the last row, are generally small and vary in sign. To more systematically assess the impressions given by these correlations, we performed a variety of cluster analyses on the average index values, generally finding that there were two distinct clusters, one that generally included the first five indexes listed above, and one that generally included the second set of five indexes. The last index (FPRCNG) was more or less randomly assigned to one cluster or the other.

The correlations and cluster analysis suggest that there are two distinct clusters of indexes. The first includes the SNEI, DRCS-P, DRCS-DC, DRCS-BV, and SCI indexes. Tables 1 and 5 showed that these indexes reflect productivity of the workforce and other quality of life measures; we hence categorize these indexes as belonging to the "productivity" cluster. The second distinct cluster includes the SBTC, SBSI, CDBI, EFI, and EFINA indexes, and based on what these indexes cover, we categorize this as the "taxes-and-costs cluster."[27] We did not assign FPRCNG to either cluster.[28] This analysis of the content of the indexes, and the identification of two main clusters that underlie most of them, helps explain the contradictory state rankings across the various indexes. Given the broad similarities of how states rank *within* the taxes-and-costs and productivity clusters, but the lack of relationship between how states rank *across* these two clusters, we focus on comparing these two clusters in analyzing the relationship between business climate indexes and economic growth.

SBTC index weighs a broad range of tax rates, while others (the SCI and CDBI indexes) try to summarize all of this information in a single tax burden, and yet others (such as the FPRCNG) emphasize a small set of taxes. Similarly, the list reveals the kinds of variables used to capture quality of life (such as crime rates and infant mortality) and equity (such as the poverty rate, and inequality in the income distribution).

[27] Note that we group "welfare and transfer payments" with taxes and costs even though we treat equity *outcomes* as contributing to quality of life. *Net* of the income distribution, higher welfare and transfer payments implies more redistribution via taxes. The latter implies more deadweight loss from taxation, and more importantly more work disincentives, which can clearly lower the level of economic activity. Likely reflecting this argument, Table 5 shows that the indexes emphasizing taxes and costs are the ones that put any weight on welfare and transfer payments.

[28] FPRCNG also puts weight on taxes, but with lots of weight on a measure of size of government that makes this index quite independent of the other five indexes in the "taxes and costs" cluster.

VI. Empirical Analysis of Business Climate Indexes and State Economic Growth: Methods

We estimate state-level regressions, over time, for growth in five measures: NETS employment; QCEW employment; QCEW wages; GSP; and NETS employment due to births. The regressions include the business climate indexes or sub-indexes. Given that the indexes are typically available only for a subset of years (see Table 1), and that there is often not much overlap between the years available for different indexes, for the most part we study one index at a time for the years for which that index is available. Because inter-temporal correlations of the indexes are generally very high, exceeding 0.7 or 0.8 even for observations eight or nine years apart,[29] we would be unlikely to get very different answers if we had the index values for other years.

Our baseline specifications define the index or sub-index at time *t*, and growth from *t* to *t*+1. We also explore the sensitivity of the results to varying the length of the interval over which growth is measured, and shifting this interval relative to measurement of the business climate index. All specifications include year fixed effects to capture the aggregate business cycle, so that we identify the effects of the policies captured by state business climate rankings on how state growth differs from the aggregate.[30]

It is natural to think about estimating these regression models with state-specific fixed effects, to try to identify the effects of changes in a state's business climate index while avoiding the confounding influence of time-invariant state characteristics that affect economic growth. However, the high inter-temporal correlations within nearly all of the indexes imply that there is little to be learned from regression models with fixed state effects.[31] Consequently, our regression models primarily identify the effects of variation in business climate indexes and sub-indexes from cross-state variation, and rather than including

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[29] One mild exception is for the DRCS-BV index, for which these correlations dip to near 0.5. More notable is the FPRCNG index, for which the correlations are frequently near zero or negative, and the implied autocorrelation function does not indicate a positive (but lower) correlation between nearby observations that tails off, but is rather quite erratic. This difference in patterns for the FPRCNG index likely stems from the inclusion of and relatively heavy weight placed on policy variables that fluctuate more, in particular the changes in per capita proposed and actual general fund spending.

[30] However, since we use indexes that are standardized within year, the inclusion of year effects has little impact on the estimated coefficients and standard errors.

[31] Moreover, within-state variation in the indexes over time may reflect a good deal of measurement error, given the numerous subjective and somewhat ad hoc decisions that go into constructing the indexes, as well as actual errors in measurement. With this type of measurement error, controlling for fixed state effects can bias the estimated effects of the indexes toward zero, resulting in more biased estimates than cross-sectional regressions without fixed effects, especially when the regression model includes a comprehensive list of relevant control variables, which increases the noise-to-signal ratio in the mismeasured variables.

fixed state effects, we incorporate the extensive set of controls for state characteristics likely to affect economic growth that was described earlier.

Letting ΔY_{it} denote the growth measures for state i in year t, BC_{it} denote the index, X_i denote the control variables, and D_t denote the year fixed effects, we estimate regression models of the form:

(2) $\Delta Y_{it} = \alpha + \beta BC_{it} + X_i\delta + \sum_t \theta D_t + \varepsilon_{it}$.

As usual, there are questions of the endogeneity of policy, because policies may be affected by economic activity, especially when looking at outcomes and policies at the same jurisdictional level. We do not believe there are compelling instrumental variables to solve this problem, though others have tried to predict changes in specific policies using political-cycle events like term-end behavior (Besley and Case, 1995) and redistricting. The problem is particularly difficult because *BC* captures a number (and often a very large number) of policies. One could think about using economic development policies in neighboring states, but given the possibility of inter-jurisdictional competition (e.g., Brueckner, 2003), the exogeneity of neighboring states' policies is questionable. Thus, we are limited to addressing this issue by carefully controlling for underlying trends at the state level, through the industry composition effect variable, and through some other analyses specific to particular variables or hypotheses of interest that are discussed later. We also suspect that any endogeneity problems are less severe when we study the aggregate business climate indexes, in contrast to the narrower sub-indexes; in the former case, the large number and types of policies captured in the indexes makes it less likely that state economic growth drives the measured policy variation.

An ideal analysis of the empirical content of business climate indexes might estimate relationships between business climate indexes and economic growth over a long sample period in the past, and then test the ability of business climate indexes to forecast economic growth out of sample. However, given the relatively short sample period available to us, this is infeasible.

VII. Empirical Analysis of Business Climate Indexes and State Economic Growth: Results

State economic growth and business climate indexes

Tables 7-11 report the estimates of equation (2) for the different economic growth measures. Each table covers one of the growth measures, and reports a set of regressions for each business climate index in each column. We first estimate the model with nothing but the business climate index and year fixed effects

as independent variables, defining the dependent variable as the one-year percentage change. We then augment this model with the controls for the industry composition effect, population density, weather, and proximity to navigable water. We then repeat this last, augmented specification for two- and three-year percent changes (always annualized), also varying the interval relative to the business climate index over which these changes are measured, to estimate a variety of reasonable specifications and see whether we identify robust relationships between the indexes and economic growth.

Tables 7 and 8 report results for employment growth as measured by the NETS and the QCEW; we only discuss the results in Table 7 because the findings for the two employment measures are very similar. In Table 7, for many of the indexes (SNEI, DRCS-P, DRCS-BV, SCI, and FPRCNG) the estimated relationship between the index and NETS employment growth is almost never statistically significant, and the estimates are typically small and vary in sign, with a central tendency of about zero. The CDBI index also has essentially no predictive power for employment growth as measured by the NETS, as there is a significant relationship only for the first specification with no controls, and the estimated effect is very small once controls are added. And for the DRCS-DC index, there is an anomalous negative estimated effect that is significant in some cases. The indexes are standardized, so the coefficients reflect the estimated effect of a one-standard deviation increase in the index. We also report, in square brackets, the change in the growth rate of employment associated with a move in the rankings from the 40th to the 10th state – a substantial "jump up" in the rankings – based on the average values of the index for the included years.

Intermediate cases are the SBTC, SBSI, and EFI indexes, for which the estimated coefficient of the index is significant and positive for at least one specification with the full set of controls included, and for which the estimates are often larger in magnitude. The strongest and most robust evidence, however, is for the EFINA index: we find positive, more sizable estimates for every specification, and the estimates are statistically significant in every case.[32] The magnitudes with controls are centered on 0.16 to 0.18. Taking the last estimate of 0.180 for the EFINA index implies that moving a state from the 40th to the 10th place in the rankings would increase the rate of growth of employment by 0.317 percentage point – a substantial increase

[32] This may be partly because, relative to most of the other indexes in the taxes-and-costs cluster, the EFINA index is available for more years (see Table 1), leading to smaller standard errors.

compared with the mean employment growth rate of 1.15 percent reported in Table 4.

The table divides the results for the different "clusters" of indexes discussed earlier; to reiterate, the first five constitute the productivity cluster, and the next five the taxes-and-costs cluster. All four indexes for which there is evidence of a positive relationship between the index and employment growth are in the taxes-and-costs cluster. Conversely, none of the indexes in the productivity cluster has a positive relationship with employment growth. Thus, the principal result that emerges is that states ranked better on the tax-and-cost-focused indexes – meaning lower taxes, lower regulatory costs, etc. – have faster employment growth.

The results for the control variables are similar for the different specifications, and hence are shown only for one "baseline" specification. The estimated coefficients of the industry composition effect variable are more or less centered on one. Population density is almost always negatively associated with employment growth, and the estimate is generally statistically significant. This presumably reflects the higher growth rate associated with a lower base, more room to expand, lower land costs, and so on, offsetting any agglomeration effects. The "dry" variable, meaning less precipitation, is always estimated to be positively associated with employment growth, although the estimate is never statistically significant. In contrast, there is a strong positive association between mild weather and employment growth, and the implied effect is large; moving from the 40^{th} to the 10^{th} position in the rankings is associated with a rate of growth of employment that is higher by about 0.55 to 1.05 percentage points. Somewhat surprisingly, perhaps, the estimated effect of proximity to navigable water is negative, and sometimes statistically significant. This is not the usual predicted effect from models of economic geography, but may reflect shifts in recent decades towards services and low weight-to-value products that have made proximity to water less important.

Tables 9 and 10 report estimates for wage and GSP growth. The findings are similar to those for employment growth, though somewhat less strong. None of the productivity indexes has a positive, statistically significant relationship with either outcome when we include controls. In contrast, with controls included the EFINA index has a persistent positive and significant estimated effect on these outcomes, and there are some significant positive estimates for the SBTC and CDBI indexes. As in the employment growth regressions, mild weather, the industry composition effect, and lower population density are positively associated with wage and GSP growth.

Finally, Table 11 reports results for employment change due to establishment births. In contrast to the previous results, the productivity indexes predict employment change due to births at least as strongly as the taxes-and-costs indexes, when controls are included. Four of five of the productivity indexes (SNEI, DRCS-P, DRCS-DC, and DRCS-BC) have a positive, statistically significant relationship (at the 10% level) with employment change due to births in the models with changes defined over one, two, and three years; several of the cost-based indexes do as well, and the EFI coefficients are larger than those of the productivity indexes or the other taxes-and-costs indexes. Nonetheless, we emphasize our results on overall growth in employment, wages, and GSP. It is unclear whether greater employment growth due to births in the absence of greater net employment growth is advantageous; a larger role for births could lead to higher long-term economic growth if new firms take advantage of newer technologies and processes that allow them to generate longer-term growth.[33] However, dividing our years into two time periods and regressing later growth on both earlier and later values of the indexes revealed no evidence that productivity indexes are associated with future growth. But given that the index rankings are generally quite stable over time, it is hard to separate contemporaneous from lagged effects of the indexes, and the absence of a long time-series makes it difficult to test propositions about longer-term growth.

Table 12 summarizes the regression results from Tables 7-11. For both measures of employment growth the taxes-and-costs business climate indexes have a positive and statistically significant estimated effect in nearly half of the specifications we test (11 out of 25).[34] However, among the indexes in this cluster, the strength of the estimated relationships varies. The EFINA index has a statistically significant relationship with both employment growth measures in every specification we test (five out of five), as does the SBTC index for QCEW employment growth; in contrast, the CDBI index never has a significant relationship with employment growth in any specification, and for NETS employment the estimate is always negative. For wages, the EFINA index has a significant positive coefficient in all five specifications, and the SBTC index

[33] Employment change due to births is, of course, a component of overall net employment growth; for the productivity indexes to be associated with employment change due to births but not with overall employment change, these indexes must also be (positively) associated with one or more component of gross job destruction – deaths, contractions, or moves-out – or negatively associated with the other components of gross job creation – expansions and moves in. We confirmed that most of the productivity indexes are positively associated with components of gross job creation *and* gross job destruction. These results could imply that the productivity indexes are associated with the process of "creative destruction" emphasized by Schumpeter (1942).

[34] The notes to the table provide additional details on this calculation.

does in three out of five, though the other three taxes-and-costs indexes are never significant for wages. For GSP growth, the EFINA index is significant in three out of five specifications, the CDBI index in one, and the others in none. For indexes and growth measures that are significant over most or all five specifications, the coefficient estimates tend to cluster in a tight range, such as 0.160-0.183 for EFINA in the NETS employment growth regressions. Among the productivity indexes, the average magnitude is either negative or insignificant (NETS employment, wages, and GSP), or slightly positive or insignificant in the positive direction (QCEW employment).

We carried out several sensitivity tests.[35] First, because indexes in the productivity cluster include components that we consider to be outcomes rather than policy factors that affect outcomes, we recalculated these indexes and generate modified indexes stripped of outcome components.[36] Our regression results changed little with these modified indexes.[37] Second, we repeated the regressions for the taxes-and-costs cluster adding a control for the DRCS-BV index, the only index from the productivity cluster that generally has a statistically significant (albeit negative) relationship with growth in the regression models with the control variables included. Although we know from Table 6 that indexes in different clusters have no statistically significant positive correlations, some pairs – like CDBI and DRCS-BV – exhibit significant and large negative correlations, raising the possibility that we are misattributing the effects of an index to those in another cluster when we include each index singly in Tables 7-11. The taxes-and-costs cluster index coefficients changed very little when the DRCS-BV index is included as a control.

We explored two possibilities for heterogeneous effects. First, we added an interaction between the

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[35] These results are available from the authors upon request, as are all results discussed in the text but not reported in the tables. In addition to the analyses described next, we also re-ran our baseline models including state fixed effects. As expected from the high correlation of business climate indexes for states over time, standard errors increased considerably, and almost no coefficients of the indexes were statistically significant. More specifically, for the taxes-and-costs indexes, the coefficient estimates were often little changed, but the standard errors were so much larger that these estimated coefficients were no longer statistically significant. We therefore interpret these fixed-effects results as providing no additional insight while at the same time not contradicting our baseline results.

[36] Examples are: the employment growth measures, unemployment rate, involuntary part-time employment, and pay measures in the DRCS-P index; and initial public offerings and "gazelle" jobs in the SNEI. Admittedly, the identification of potentially problematic "outcome" components is ambiguous, as cost factors such as rents, higher tax revenues and government spending, and lower tax rates could reflect the impact of economic activity rather than prior policy choices. However, we focus on those that are clear outcomes that do not directly reflect policy choices. We were able to generate the SNEI and the three DRCS indexes omitting the outcome components.

[37] We would have expected any positive relationships between our economic outcomes and indexes containing outcomes to diminish after stripping out the outcome components, but the indexes that incorporate outcome components were in the productivity cluster and generally showed no positive relationship with growth in net employment, wages, or GSP in the first place.

business climate index and the national value for the dependent variable to our baseline regressions with controls in Tables 7-11. We also split our sample based on years when national GDP growth was above or below median annual national growth for the sample period and repeated our baseline regressions for each sub-period. The relationship between business climate indexes and economic growth did not vary with national economic growth. Second, we explored whether the relationship between the business climate indexes and economic growth is similar in states with a good deal of economic activity near a state border, like New Hampshire or Maryland, and in states with most economic activity far from state borders, like California or Texas. To do this, we included an interaction between the share of workers that commute daily across state lines in either direction (based on 1990 Census data) and the business climate index (as well as the main effect of this cross-commuting measure) in our baseline regressions with controls in Tables 7-11. There was no evidence that state economic growth is more sensitive to the business climate in states where many businesses are near another state's border.

Our last extension was to look at whether economic growth in more "footloose" industries – based on industry differences in rates of gross job creation and destruction due to relocation (Kolko and Neumark, 2007) – is more sensitive to differences in state business climates. Industries that serve a national or international market should be more geographically mobile than those tied to local markets (such as services delivered in-person, like haircuts, or retailers) or dependent on local natural resources or features (like mining, forestry, or shipping). The most footloose sectors are manufacturing (NAICS 31-33), information (51), finance and insurance (52), and professional and technical services (54). We re-estimate the regression models for manufacturing only and for information, finance and insurance, and professional and technical services together. We look separately at manufacturing because, unlike the other three sectors, it has long had a declining share of employment, has traditionally provided reasonably high-paying jobs for middle-class workers, and is often the target of specific tax credits and economic development efforts. We look at private sector employment and wages in these industries, from the QCEW.

The results are reported in Table 13. For both employment and wages, the relationship between business climate indexes in the taxes-and-costs cluster and growth is stronger for manufacturing than for overall employment. The top panel of Table 13 shows that the estimated coefficients on three indexes –

SBTC, SBSI, and CDBI – are at least twice as large for manufacturing (second row) as overall private-sector employment (first row), and the SBSI and CDBI coefficients become statistically significant for manufacturing. Comparing overall private-sector employment with the three footloose non-manufacturing sectors (third row), no clear pattern emerges: coefficient magnitudes are similar, and two of the five indexes are statistically significant for footloose employment and overall private sector employment, compared with four for manufacturing employment. The results for wage growth in the bottom panel of Table 13 are broadly similar. Finally, looking at the estimated effect of the productivity indexes on these same sectors, there is still no consistent relationship with economic growth, with the exception of SNEI. The stronger predictive power that SNEI has for QCEW employment and, even more so, for wages may be due to the overlap between SNEI's heavy emphasis on indicators relevant for technology and related industries and our definition of "footloose industries," which includes the information sector and other technology industries. These SNEI results highlight that business climate measures geared toward specific industries may predict growth in those industries better than they predict growth for the economy overall.[38]

The business climate versus other factors

The previous results showed that the business climate indexes in the taxes-and-costs cluster often have a statistically significant, positive relationship with economic growth, though factors beyond policy – like industry composition and mild weather – also contribute strongly to economic growth. In this section we compare the estimated contributions to state economic growth of the taxes-and-costs business climate indexes and the non-policy factors, treating the preceding estimated effects as causal.

For each index we calculate the estimated contribution of the business climate index to QCEW employment growth, $\hat{\beta}\left(BC_i - \overline{BC}\right)$, and the estimated total contribution of the five non-policy factors to employment growth, $\left(X_i - \overline{X}\right)\hat{\delta}$, where $\hat{\beta}$ and $\hat{\delta}$ are the estimates from Table 8; i indexes states. We average these estimates over the models for the three indexes with consistent relationships with economic growth – SBTC, EFI, and EFINA – yielding two measures for each state: the estimated contribution of the business climate to employment growth, and the estimated contribution of the five non-policy factors.

[38] These positive results for SNEI persisted using the modified version of the index that excluded outcome components.

Figure 1 plots the estimates. The figure shows that there is less variation in employment growth associated with the business climate indexes than with the other factors, implying that the business climate (as captured by the indexes) helps determine economic growth, but it is not as important as the combined effect of the other factors. It is, though, the determinant that is most amenable to policy change.

The figure also highlights differences across groups of states regarding the business climate and non-policy factors. Mountain states like New Mexico, Nevada, and Arizona have the most favorable set of non-policy factors; this region tends to have milder, drier weather, and lower population density. Rhode Island, Connecticut, and Indiana have the least favorable set of non-policy factors. The business climate makes the most negative estimated contribution to employment growth in New York, California, and Rhode Island. In contrast, the business climate makes the most positive contribution in Nevada, Wyoming, and South Dakota, and in two of these three states the other factors are also advantageous.

Many states have both a favorable business climate and favorable non-policy factors, such as Nevada, Colorado, Arizona, Wyoming, and Texas, while other states are unfavorable on both dimensions, like New York, Rhode Island, and New Jersey. For both sets of states, ignoring non-policy factors could lead to giving the business climate undue credit (or blame) for high (or low) employment growth since the non-policy factors contribute to employment growth in the same direction as the business climate does. In a few states, the business climate and non-policy factors have offsetting estimated effects on employment growth. Although harder to see in the figure, Indiana, Tennessee, and several other mostly Southern states have favorable business climates yet unfavorable non-policy factors. A more striking outlier is California, which has the second-least-favorable business climate but is the ninth best state for non-policy factors, in part due to California's very mild weather; California's predicted employment growth is much higher than its business climate would suggest, due to the positive contribution of non-policy factors.

VIII. Business Climate Sub-Indexes: Which Taxes and Costs Matter?

To dig beneath the indexes without getting back to the insurmountable problem of using individual policy variables, we use sub-indexes that exist for three of the indexes in the taxes-and-costs cluster – SBTC,

EFINA, and EFI; the respective sub-indexes aggregate to these indexes.[39] Fortunately, this list includes the two indexes with the strongest positive relationship with economic growth (SBTC and EFINA). As Table 3 showed, each of SBTC's five sub-indexes focuses on a particular type of taxation, while EFINA's three sub-indexes and EFI's five sub-indexes cover not only taxes but also the level and composition of government spending, regulatory and judicial factors, and other costs of doing business. Because the sub-indexes capture narrower and more clearly-defined sets of policies than the overall indexes, the relationship with economic growth may be stronger for some individual sub-indexes than for the parent indexes.

The EFINA and EFI sub-indexes require some deciphering with respect to measuring size of government versus welfare and transfer payments. Only one of the three variables in EFINA's "size of government" sub-index (EFINA-SG) – "general consumption expenditures by government as percentage of GDP" – falls under what we classify as size of government. The other two variables in EFINA-SG – transfers and subsidies as a percent of GDP and social security payments as a percent of GDP – fall into our "welfare and transfer payments" category. Thus, the EFINA "size of government" sub-index, despite its name, consists mostly of measures reflecting the extent of spending on welfare, social security,[40] and transfer payments, and hence is most similar to EFI's "welfare-spending" sub-index: both consist primarily of components in the "welfare and transfer payments" category.

The SBTC corporate tax sub-index also requires clarification. It is comprised of two groups of variables. The first group includes measures of the corporate tax rate structure, which includes the top marginal tax rate but also the number of tax brackets and their threshold levels: a lower top rate and a flatter rate structure contribute to a better sub-index score. The second group includes measures of the corporate tax

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[39] We focus only on the taxes-and-costs cluster in our analysis of sub-indexes based, on the previous evidence that only the indexes in this cluster predict economic growth. We were also able to examine evidence for sub-indexes that were available on a consistent basis over time for four of the productivity indexes (SNEI and the three DRCS indexes). Paralleling the results for the "parent" indexes, none of the sub-indexes within the productivity cluster had a consistent, significant positive relationship with economic growth.

[40] This is not the usual meaning of "social security," but instead refers more generally to unemployment insurance, disability insurance, workers compensation, and public pensions, defined at the state level. We believe the specific data item to which this refers is the state government "Insurance Trust Expenditure" category in the Census Bureau's government finance statistics (http://www.census.gov/govs/www/06classificationmanual/chapter05.html#p2c534, viewed July 19, 2010).

base: more generous net-operating-loss deductions and *fewer* corporate tax credits are two of the measures that contribute to a better sub-index score.[41]

Estimates of the same regressions as before, but substituting the set of sub-indexes that make up the index for the index itself, are reported in Table 15. We present results for the baseline specification, and then summarize results from all the specifications in the following table. Among the five sub-indexes of SBTC, the corporate income tax sub-index has a positive and statistically significant relationship at the 5% level with both wage growth and GSP growth.[42] We explored whether this apparent effect of corporate taxes stems from variation in marginal rates or other aspects of the tax code, by replacing the corporate tax sub-index with the top marginal rate. The latter variable had no statistically significant relationship with any of our economic growth measures. Moreover, when we included both the top marginal corporate tax rate and the corporate tax sub-index in the model, the tax rate had no relationship with any growth outcome, and the estimated coefficient of the corporate tax sub-index remained of similar magnitude and significance. Thus, the positive relationship we observe between the sub-index and growth does not appear to be driven by the top marginal tax rate, but rather by other factors such as the simplicity of corporate taxation and its uniformity with federal taxation.

Among the EFINA sub-indexes, the "size of government" sub-index stands out as having a positive and significant relationship at the 1% level with employment and wage growth. And among the EFI sub-indexes, again one sub-index – "welfare spending" – stands out; this sub-index has a statistically significant relationship at the 10% level or less with all growth measures except wage growth, and the largest coefficient estimate among the EFI sub-indexes for all growth measures.[43] Note that the EFI and EFINA sub-indexes

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[41] Net-operating-loss deductions, in effect, tax firms on their average profitability over time, which the SBTC index considers desirable; tax credits complicate the tax system and narrow the tax base, which the SBTC index considers undesirable.

[42] We subjected the SBTC sub-indexes to an additional robustness test. Because SBTC only includes components for tax rates and tax burdens, the SBTC sub-index model tells us about tax base composition, which could be correlated with expenditure composition and therefore subject to omitted variable bias since the EFINA and EFI results (discussed later) suggest that expenditure composition matter for economic growth. We re-ran the model with all SBTC sub-indexes (Table 15) and added the EFINA-SG sub-index (which is available for many of the same years); this resulted in little or no change in the coefficient estimates or significance on the SBTC corporation income tax sub-index.

[43] As a sensitivity check for the taxes-and-costs sub-index results, we re-estimated these specifications including (separately) each of the five productivity indexes, for years for which the productivity index was also available. This analysis allows for the possibility that the productivity index is an omitted variable, correlated with taxes-and-costs sub-indexes and an economic growth measure. For only one combination of a sub-index (EFI-WS) and a productivity index (SNEI) does the inclusion of the productivity index change the positive relationship between the sub-index and

that stand out comprise similar policy measures: EFINA's "size of government" sub-index and EFI's "welfare-spending" sub-index both consist primarily of variables describing government expenditures on welfare and transfer payments. Because the EFINA and EFI indexes have sub-indexes covering many types of taxes and other costs businesses face – including regulation, taxes, policies affecting labor costs, and more – our finding that the composition of government expenditure matters for economic growth is based on an analysis that controls for a wide range of other taxes and costs.

Table 16 summarizes results for the analysis of sub-indexes from the full set of specifications. The results just described are robust to our alternative specifications using different time periods to measure growth. The SBTC corporate tax sub-index is positive and statistically significant, with a very narrow range of coefficient estimates, in all five specifications for wage growth and GSP growth. The EFINA-SG sub-index is statistically significant in all five specifications for NETS employment, QCEW employment, and wages, again with a relatively narrow range of coefficient estimates, and the EFI-WS sub-index is significant for three of five specifications for QCEW employment, three for wages, and four for GSP.

These sub-index results are, in general, stronger and more robust than the results for the business climate indexes overall, as a comparison of the summary of the index results in Table 12 and the sub-index results in Table 16 shows. For each of the three taxes-and-costs indexes for which we could examine sub-indexes, one sub-index appears to account for most or all of the relationship between the index and economic growth, and in some cases a sub-index has a strong association with economic growth even though the index it belongs to does not. For instance, the EFI index has a positive, significant relationship with economic growth (excluding births) in only three out of 20 specifications (Table 12), though EFI's welfare-spending sub-index has a positive, significant relationship with the economic growth measures in 11 out of 20 cases (Table 16) and larger coefficient estimates than for the overall index.[44] The EFI index is broad, covering many types of taxes and cost measures, and three of its five sub-indexes (fiscal, regulatory, and judicial) never have a positive and significant relationship with any economic growth outcome.

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outcomes, and furthermore this combination is for a single year of data since EFI and SNEI were simultaneously available only in 1999.

[44] We continue to focus on the two employment growth measures (NETS and QCEW), wage growth, and GSP growth as our four main economic growth outcomes. A given index or sub-index has five specifications for each of these four outcomes, yielding 20 specifications to compare.

The sub-index analysis yields two main conclusions. First, among taxes, the corporate income tax structure and base matter for wage and GSP growth, though not necessarily for employment growth. The SBTC is the only index whose sub-indexes distinguish different tax streams, so this finding comes entirely from that one index. Second, greater government expenditure on welfare and transfer payments is associated with slower economic growth. The strength of this second conclusion is reinforced by its consistency across two different business climate indexes, covering different years and different sub-indexes that serve as controls in our model. Admittedly, the EFINA-SG sub-index contains more than conventional welfare and transfer spending. But the EFI-WS sub-index focuses only on the latter, and the results for the EFI-WS sub-index are qualitatively similar (and in some ways stronger, and in particular predictive of GSP growth) than the results for the EFINA-SG sub-index.[45]

At the same time, there are some reasons for caution regarding the findings for welfare and transfer payments. One is that there may be reverse causality, with welfare and transfer payments rising when economic growth is slower (as more people become eligible for payments or for higher payments). Because the EFINA-SG sub-index defines these payments as a share of GSP (rather than relative to population, as in the EFI-WS sub-index), the possibility of this type of bias is even stronger, as slow GSP growth can also feed directly into a higher share of payments relative to GSP. This suggests that if there is reverse causality, we should find a stronger positive relationship with the welfare and transfer payment sub-index (a high value of the sub-index implies low payments) and economic growth for the EFINA-SG sub-index, and in particular for the GSP growth results for that sub-index. It turns out that we can rule out this "mechanical" type of endogeneity bias stemming from the inclusion of GSP in the denominator of the EFINA-SG sub-index. First, we also find significant estimated effects in this direction for the EFI-WS sub-index. Most important, perhaps, we find a significant relationship between GSP growth and the EFI-WS sub-index but *not* the EFINA-SG sub-index, the opposite prediction from what we would expect if reverse causality from defining payments as a share of GSP were driving the results.

[45] The results for the sub-indexes, unlike the taxes-and-cost indexes overall, did not differ markedly for manufacturing and footloose industries from the private-sector economy.

Another reason to be less concerned about reverse causality is that we use across-state rather than within-state variation to identify the effects of business climate indexes. Endogeneity bias is likely reduced by avoiding reliance on short-term changes in state economic conditions that could affect some of the policy variables. Indeed when we simply ran regressions paralleling those in Table 15 using the state averages (i.e., the between regression), the results were similar, although sometimes a little weaker.[46]

Second, the EFINA-SG sub-index includes a broader set of expenditures, including state retirement pensions. It could therefore be high when a state has a large retirement population (for example, Florida) rather than because these payments change behavior and lead to lower economic growth. However, this concern is assuaged by the fact that the results are similar for the EFI-WS sub-index, which includes only state expenditures focused much more sharply on the "welfare" population (Table 3). In addition, the large retiree population in a state like Florida consists of many migrants from other states, so the retirees would not likely be a source of high state retirement pension expenditures.

Overall, these considerations make us more confident – but not definitive – in interpreting the combined evidence as identifying the effects of welfare and transfer spending on economic growth. At a minimum, however, the evidence from the tax-and-cost-related business climate indexes implies that concerns that high taxes and costs of doing business slow state economic growth need to be taken seriously. And this applies particularly to corporate taxation and welfare and transfer payments, identified by the analysis of the taxes-and-costs sub-indexes as the potentially most important policies related to taxes and costs of doing business.

IX. Conclusions and Discussion

Business climate indexes that emphasize taxes and costs predict economic growth, especially for the manufacturing sector. Indexes that focus on productivity measures do not predict growth in employment, wages, or GSP – only in births. Although factors beyond the control of state policy, such as the industry mix and weather, generally have a stronger relationship with economic growth than do the tax-and-cost policies

[46] The results could be slightly weaker either because the averaging removed an endogenous shorter-term response of welfare and transfer payments to economic growth, or because the averaging obscured a short-term response of economic growth to exogenous policy change. Nonetheless, the robustness of the conclusions to using longer-term variation is reassuring.

captured by business climate indexes, tax-and-cost-related policies are more amenable to change.

The taxes-and-costs indexes span many policy areas. Looking at the sub-indexes of three business climate indexes focused on taxes and costs identified a subset of individual sub-indexes that predict many economic growth measures better than their parent indexes do. Among the SBTC sub-indexes, which only cover different types of taxes, only the corporate income tax sub-index predicts higher growth. Corporate tax features other than the top marginal rate are responsible for this sub-index's positive relationship with economic growth. This evidence is plausible from an economic perspective, as factors that contribute to a worse ranking on the SBTC's corporate tax sub-index – like a plethora of corporate tax credits, and greater complexity of the tax structure more generally – increase costs of compliance and create economic distortions that could impede growth.

The sub-indexes of the EFINA and EFI indexes span more areas of taxes and costs. Sub-indexes of these indexes that focus on taxation had no significant relationship with economic growth. However, two sub-indexes focused on welfare and transfer payments exhibit a robust relationship indicating that lower welfare and transfer payments are associated with faster economic growth. Why might lower welfare and transfer payments contribute to higher economic growth? Any program whose benefits or eligibility depends on low income or non-employment status provides some disincentive to work or to work less if employed. Welfare reforms attempted to encourage work in a number of ways, including job search requirements, a limited number of years of eligibility, and less steep reductions in welfare payments with increases in earnings.[47] Despite these changes, welfare-type programs and transfer payments – by their nature – still tend to create work disincentives (just not as strong as they were in the past).

It is important to emphasize that our analysis focuses on economic growth. Other policies that could adversely affect economic growth – including welfare and transfer payments – might contribute to other goals like equity. Nonetheless, over the longer run strong economic growth is a prerequisite for generating the economic resources needed to pursue goals other than growth. In that sense, our findings confirm and emphasize the equity-efficiency tradeoff with respect to state-level public policy and economic growth.

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[47] For a review of past programs and the subsequent reforms, see Blank (2002).

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Table 1: Business Climate Indexes

Index, institution, and years	Stated focus of index	Policy categories	Comparability by year
State New Economy Index (**SNEI**), Progressive Policy Institute (1999, 2002) Information, Technology and Innovation Foundation and Kauffman Foundation (2007, 2008)	Compatibility of state's economy with "New Economy"	Business incubation; human capital; technology, knowledge jobs, and digital economy	Indicators and methods of constructing index not identical across years
Development Report Card for the States—Performance (**DRCS-P**), Corporation for Enterprise Development (2000-2007)	Opportunities for employment, income, and improving quality of life	Quality of life; equity; employment, earnings, and job quality	Measures included in sub-index in each year can change, which can lead to changes in weights if number of variables in a sub-index (which are equally weighted) changes
Development Report Card for the States—Development Capacity (**DRCS-DC**), Corporation for Enterprise Development (2000-2007)	Capacity for future development	Cost of doing business (excl. taxes); quality of life; business incubation; human capital; infrastructure; technology, knowledge jobs, and digital economy	Same as above
Development Report Card for the States—Business Vitality (**DRCS-BV**), Corporation for Enterprise Development (2000-2007)	Dynamism of the state's large and small businesses	Business incubation; technology, knowledge jobs, and digital economy	Same as above
State Competitiveness Index (**SCI**), Beacon Hill Institute (2001-2008)	Long-term competitiveness for attracting and incubating new businesses and growth of existing firms	Cost of doing business; size of government; tax rates and burden; quality of life; welfare and transfer payments; employment, earnings, and job quality; business incubation; human capital; infrastructure; technology, knowledge jobs, and digital economy	Consistent across years
State Business Tax Climate Index (**SBTC**), Tax Foundation (2003-2009)	Tax rates	Tax rates and tax burden	Methods change each year, but old indexes reconstructed to be consistent across years
Small Business Survival Index (**SBSI**), Small Business and Entrepreneurship Council (1996-2008)	Government-imposed or government-related costs affecting investment, entrepreneurship, and business	Cost of doing business (excl. taxes); size of government; tax rates and tax burden; regulation and litigation; quality of life; infrastructure	Number of variables has increased over time
Cost of Doing Business Index (**CDBI**), Milken Institute (2002-2007)	Fundamental business costs, including labor, taxes, real estate, and electricity	Cost of doing business (excl. taxes); tax rates and tax burden	Methods change over time
Economic Freedom Index (**EFI**), Pacific Research Institute (1999, 2004, 2008)	Government favors free enterprise and consumer choice; individual rights to pursue interests through voluntary exchange of private property under rule of law	Cost of doing business (excl. taxes); size of government; tax rates and tax burden; regulation and litigation; welfare and transfer payments	Different indicators and weights used in 1999 and 2004
Economic Freedom Index of North America (**EFINA**), The Fraser Institute / National Center for Policy Analysis (1992-2005)	Restrictions on economic freedom imposed by governments: takings and discriminatory taxation; size of government; and labor market freedom	Cost of doing business (excl. taxes); size of government; tax rates and tax burden; welfare and transfer payments	Consistent across years
Fiscal Policy Report Card on the Nation's Governors (**FPRCNG**), Cato Institute (1992-2008, biennial)	Fiscal performance of governors in terms of restraining the growth of taxes and spending	Cost of doing business (excl. taxes); size of government; tax rates and tax burden	2008 report card uses a somewhat different methodology than other years

NOTES: The category labels in the third column were assigned by us, although they are often the same as those used by the institutions that create the indexes. For the SNEI index, the author of all four reports is the same (Robert Atkinson). The DRCS indexes go back earlier, but only the information beginning in 2000 was available on-line.

Sources (for latest version of each index):
SNEI: http://www.kauffman.org/uploadedfiles/2008_state_new_economy_index_120908.pdf (viewed November, 2008); DRCS-P, DRCS-DC, DRCS-BV: http://www.cfed.org/focus.m?parentid=2&siteid=2346&id=2346 (viewed November, 2008); SCI: http://www.beaconhill.org/Compete08/BHIState08-FINAL.pdf (viewed November, 2008); SBTC: http://www.taxfoundation.org/files/bp58.pdf (viewed November, 2008); SBSI: http://www.sbecouncil.org/uploads/sbsi%202008%5B1%5D1.pdf (viewed December, 2008); CDBI: http://www.milkeninstitute.org/pdf/2007CostofDoingBusiness.pdf (viewed November, 2008); EFI: http://special.pacificresearch.org/pub/sab/entrep/2008/Economic_Freedom/map.html (viewed November, 2008); EFINA: http://www.freetheworld.com/efna2008/EFNA_Complete_Publication.pdf (viewed November, 2008); FPRCNG: http://www.cato.org/pubs/pas/pa-624.pdf (viewed November, 2008).

Table 2: Average State Ranks by Index, 1992-2009

State	SNEI	DRCS-P	DRCS-DC	DRCS-BV	SCI	SBTC	SBSI	CDBI	EFI	EFINA	FPRCNG	Min	Max
Alabama	45	40	45	16	45	18	9	14	17	12	32	9	45
Alaska	27	40	42	42	21	3	15	41	39	46		3	46
Arizona	17	33	37	33	30	27	23	27	19	7	27	7	37
Arkansas	48	43	45	28	46	36	27	11	17	25	27	11	48
California	4	31	17	4	20	45	46	47	47	43	31	4	47
Colorado	6	14	6	1	5	12	12	26	6	12	14	1	26
Connecticut	6	5	8	10	16	38	35	47	44	28	21	5	47
Delaware	7	9	7	15	14	9	26	42	12	2	35	2	42
Florida	21	31	33	28	32	5	8	28	27	6	16	5	33
Georgia	20	30	25	20	32	24	21	25	14	11	17	11	32
Hawaii	35	27	45	45	44	23	48	49	33	43	25	23	49
Idaho	23	21	32	26	10	30	30	7	2	34	26	2	34
Illinois	18	35	17	10	36	23	19	37	37	22	30	10	37
Indiana	34	33	27	30	36	11	14	18	20	12	17	11	36
Iowa	41	13	23	39	15	44	40	5	21	27	30	5	44
Kansas	31	27	18	26	16	31	35	15	7	23	27	7	35
Kentucky	43	43	40	24	38	34	26	15	36	28	19	15	43
Louisiana	44	50	48	37	48	35	27	21	34	14	34	14	50
Maine	29	14	37	30	30	39	46	28	36	47	25	14	47
Maryland	5	8	9	21	20	29	25	38	32	21	30	5	38
Massachusetts	1	9	7	4	2	32	33	48	40	23	11	1	48
Michigan	23	26	23	25	30	26	12	40	35	35	16	12	40
Minnesota	13	2	1	10	7	42	46	41	38	37	19	1	46
Mississippi	50	49	49	41	50	19	10	11	19	24	17	10	50
Missouri	34	26	30	32	24	17	18	16	13	16	27	13	34
Montana	42	33	28	40	25	9	38	4	20	43	29	4	43
Nebraska	32	14	24	36	12	44	32	10	23	18	20	10	44
Nevada	26	27	42	32	35	4	2	32	13	16	20	2	42
New	11	1	18	22	8	8	11	33	7	7	18	1	33
New Jersey	5	17	12	8	36	48	43	45	46	34	28	5	48
New Mexico	27	46	37	37	37	27	39	32	35	39	13	13	46
New York	12	23	18	21	35	49	45	49	50	48	12	12	50
North Carolina	26	40	29	24	29	42	38	24	26	13	31	13	42
North Dakota	42	32	19	44	12	34	24	2	17	32	25	2	44
Ohio	30	32	18	25	41	47	38	25	40	41	33	18	47
Oklahoma	39	41	42	26	40	19	28	8	10	30	20	8	42
Oregon	15	23	10	28	14	9	40	20	33	37	39	9	40
Pennsylvania	22	22	10	10	33	26	18	33	45	30	23	10	45
Rhode Island	20	13	31	29	27	49	48	35	48	48	26	13	49
South Carolina	36	34	40	23	39	26	14	8	15	13	13	8	40
South Dakota	45	13	32	46	14	2	1	1	7	7	11	1	46
Tennessee	35	39	35	21	36	17	10	12	25	1	23	1	39
Texas	15	47	32	6	25	7	7	26	19	5	13	5	47
Utah	12	16	6	18	5	14	26	14	4	19	21	4	26
Vermont	21	3	27	30	10	43	41	38	37	39	22	3	43
Virginia	9	9	9	9	13	15	14	30	5	6	26	5	30
Washington	4	20	3	26	6	12	5	37	36	40	21	3	40
West Virginia	49	48	46	49	48	36	35	14	34	49	29	14	49
Wisconsin	33	8	17	24	19	38	27	30	31	37	21	8	38
Wyoming	43	18	24	46	9	1	3	22	6	24	26	1	46

NOTES: We average across years, so in any one column all 50 values of the rank do not necessarily appear, and some values can appear more than once.

Table 3: Business Climate Sub-Indexes, 1992-2007

Sub-index name	Description / variables included	Sub-index weight
Corporate tax index **(SBTC-CTI)**	Tax rate sub-index: corporate income tax top rate; bracket structure; gross receipts rate Tax base sub-index: availability of certain credits, deductions and exemptions; ability of taxpayers to deduct net operating losses; smaller tax base issues (under gross receipts tax, the three tax base criteria are replaced by availability of deductions from gross receipts for employee compensation costs and cost of goods sold)	19.4
Individual income tax index **(SBTC-IITI)**	Tax rate sub-index: top marginal tax rate and graduated rate structure (takes into account starting points of top brackets, number of brackets, and average width of brackets) Tax base sub-index: marriage penalty; capital gains taxation; double taxation of capital income; minor base issues	29.2
Sales tax index **(SBTC-STI)**	Tax rate sub-index: state-level rate and combined state-local rate Tax base sub-index: whether base includes variety of business-to-business transactions such as agricultural products, services, machinery, computer software, and leased or rented items; whether base includes goods and services typically purchased by consumers; excise tax rate on products such as gasoline, diesel fuel, tobacco, spirits, and beer	21.5
Property tax index **(SBTC-PTI)**	Tax rate sub-index: property tax collection, measured both per capita and as percentage of personal income; capital stock tax rates and maximum payments Tax base sub-index: whether levies wealth taxes such as inheritance, estate, gift, inventory, and intangible property	15.7
Unemployment insurance tax index **(SBTC-UITI)**	Tax rate sub-index: rates levied in the most recent year; statutory rate schedules that could be implemented depending on the state of the economy and the UI fund Tax base sub-index: experience rating formulas; charging methods; and smaller factors	14.2
Variable weighting	Each sub-index includes a tax rate and tax base component, equally weighted. Scalar variables are on scale of zero (worst) to 10 (best), and are weighted equally. If component includes scalar and dummy variables then weights are 80 percent for scalar variables and 20 percent for dummy variables.	
Size of government **(EFINA-SG)**	General consumption expenditures by government as a percent of GDP; transfers and subsidies as percent of GDP; social security payments (includes unemployment insurance, disability, public pensions) as percent of GDP	33.3
Labor market freedom **(EFINA-LMF)**	Minimum wage legislation; government employment as a percent of total state employment; union density	33.3
Takings and discriminatory taxation **(EFINA-TDT)**	Total tax revenue as percent of GDP; top marginal income tax rate and income threshold at which applies; indirect tax revenue as a percent of GDP; sales taxes collected as a percent of GDP	33.3
Variable weighting	Each variable is weighted equally in the sub-index.	
Fiscal **(EFI-F)**	Average days required for work to cover taxes; per capita state tax revenue; per capita state and local property tax revenue; tax burden on high income families; per capita state government death and gift tax revenue; per capita state government severance tax revenue; personal income taxes; sales taxes; excise taxes; license taxes; corporate taxes; state debt; tax exemptions	34.9
Regulatory **(EFI-R)**	Licensing requirements for non-health professions; licensing requirements for health professions; continuing education requirements for selected professions; percent land owned by federal government; purchasing regulations; public school regulation; labor legislation; full-time-equivalent employees of state public utilities commissions; corporate constituency statutes; property rights legislation; strictness of state gun laws; state seat belt laws; state provisions for minimum age for driver's licenses; full-time-equivalent employees of insurance regulation organization; state legislation regarding environmental health	34.2
Welfare spending **(EFI-WS)**	Per capita state and local welfare spending; percent of population receiving public aid; Medicare benefit payments per enrollee; per capita Medicaid spending; average monthly Food Stamp benefit per recipient; monthly TANF benefit for family of three; average monthly benefit per participant for Women, Infants, and Children Special Nutrition Program; commodity costs of National School Lunch Program per participant	37.3
Government size **(EFI-GS)**	State and local total expenditures as a percent of GSP; size of government workforce; citizen representation (avg. of total number of government units, and legislators per million people)	6.3
Judicial **(EFI-J)**	Number of resident active attorneys; Attorney General salary; judges' compensation; judges' terms; judges' selection method; state has Illinois Brick Repealer statutes (which restrict anti-trust suits); tort reform; medical-liability reform	-12.6
Variable weighting	Sub-indexes are averages of state ranks on each variable	

NOTES: SBTC sub-index weights described are for 2006 and 2007; sub-index weighting was different for 2003 and 2004. For EFI, sub-index weights described are for 2004; sub-index weighting was different in 1999. Note that variables in some sub-indexes are described relative to state GSP, and others relative to GDP; these are interchangeable terms. As the last column shows, the three EFINA sub-indexes are weighted equally. SBTC sub-indexes are weighted in direct proportion with how much each sub-index varies across states. The EFI sub-indexes are weighted according to a principal components analysis, and the negative weight on the judicial sub-index presumably reflects a weak or negative correlation with other EFI sub-indexes.

Table 4: Descriptive Statistics for Growth Measures and Control Variables

Variable	Source	N	Mean	Std. dev.	Min.	Max.	California mean	National mean
Growth rates								
Employment	NETS	672	1.15	2.72	-9.55	9.09	0.83	0.88
Employment	BLS-QCEW	768	1.61	1.71	-3.51	10.17	1.37	1.21
Total wages	BLS-QCEW	768	5.26	2.56	-2.63	15.67	5.13	5.13
Gross State Product (GSP)	BEA	528	5.07	2.40	-3.21	14.10	5.58	5.05
Employment change due to births	NETS	672	5.14	1.78	2.24	13.36	5.62	5.12
Controls								
Industry composition	NETS	768	0.98	0.17	0.61	1.41	1.13	
Population density (logs)	Census of Population	768	7.74	0.74	6.62	10.22	8.98	
Dry	Mendelsohn et al. (1994)	768	-7.54	2.90	-12.09	-1.70	-3.82	
Mild	Mendelsohn et al. (1994)	768	-40.05	11.25	-62.68	-17.12	-20.51	
Proximity	Rappaport and Sachs (2003)	768	-189.96	238.36	-959.02	-10.14	-57.31	

NOTES: The two employment measures, wages, and GSP are one-year percent changes, multiplied by 100. Employment due to births is the percentage growth in *total* employment attributable to *births*, and equals the change in employment due to births relative to start-year total employment (multiplied by 100). The births measure exceeds the overall percent change in employment because it is a gross job flow. The descriptive statistics in this table cover 1992-2006 for NETS employment and employment change due to births; 1992-2008 for QCEW employment and wages; and 1997-2008 for GSP.The control variables are defined as the negatives of measures of precipitation, temperature extremes, and distance to water; therefore more positive values imply drier, milder, and closer to water. In the regressions in tables that follow, subsets of the observations are used, depending on the years in which an index is available. Alaska and Hawaii are excluded from the descriptive statistics as well as the regressions that follow because some of the control variables are unavailable; however, they are included in the industry composition effect calculation. "Mean" refers to the unweighted average of state values for each variable. "National mean" refers to economic growth rates for the U.S. overall, which is equivalent to the average of state values weighted by the size of the state's economy (employment, wages, or GSP).

Table 5: Distribution of Weights of Components of Business Climate Indexes (%)

	SNEI	DRCS-P	DRCS-DC	DRCS-BV	SCI	SBTC	SBSI	CDBI	EFI	EFINA	FPRCNG
Taxes and costs category	*0.0*	*0.0*	*4.0*	*0.0*	*20.9*	*100.0*	*94.1*	*100.0*	*100.0*	*100.0*	*100.0*
Cost of doing business (excluding taxes)			4.0		9.3		8.8	80.0	1.3	22.2	
Size of government					7.0		8.8		14.7	22.2	66.7
Tax rates and tax burden					2.3	100.0	47.1	20.0	19.2	33.3	33.3
Regulation and litigation							29.4		40.5		
Welfare and transfer payments					2.3				24.3	22.2	
Productivity category	*90.4*	*80.0*	*92.0*	*75.0*	*65.1*	*0.0*	*5.9*	*0.0*	*0.0*	*0.0*	*0.0*
Quality of life		20.0	12.0		23.3		2.9				
Equity		20.0									
Employment, earnings and job quality		40.0			4.7						
Business incubation	25.1		20.0	52.5	9.3						
Human capital	3.4		20.0		7.0						
Infrastructure			20.0		2.3		2.9				
Technology, knowledge jobs, and digital economy	61.8		20.0	22.5	18.6						
"Other" category	*9.6*	*20.0*	*4.0*	*25.0*	*14.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Resource efficiency / environment		20.0	4.0		7.0						
External sector	9.6			25.0	7.0						

NOTES: See notes to Table 1 for more details on the indexes; the categories listed here correspond to the third column of that table. To get the percentages shown, we began with the list of variables in each index and assigned to each variable a weight according to each index's methods. SBSI weights each variable equally in the index, and CDBI and SNEI each assigns different weights to each variable in the index. The other indexes create sub-indexes: variables are weighted equally in each sub-index, and then the sub-indexes are either weighted equally (DRCS-P, DRCS-DC, DRCS-BV, SCI, EFINA, and FPRCNG) or are assigned different weights (EFI) in the final index. Even within an index with equally-weighted sub-indexes containing equally-weighted variables, each variable's weight in the final index depends on the number of variables in its sub-index. All of the SBTC variables fall under the "tax rates and tax burden" category, making it unnecessary to replicate the index's weighting scheme for this table.

Table 6: Correlations of Average Indexes across States, 1992-2009

	SNEI	DRCS-P	DRCS-DC	DRCS-BV	SCI	SBTC	SBSI	CDBI	EFI	EFINA
SNEI	1									
DRCS-P	0.56*	1								
DRCS-DC	0.76*	0.72*	1							
DRCS-BV	0.72*	0.30*	0.58*	1						
SCI	0.61*	0.75*	0.77*	0.31*	1					
SBTC	-0.12	-0.05	-0.12	-0.24	0.18	1				
SBSI	-0.17	-0.11	-0.13	-0.09	0.04	0.79*	1			
CDBI	-0.65*	-0.29*	-0.30*	-0.37*	-0.12	0.25	0.39*	1		
EFI	-0.30*	-0.01	-0.15	-0.17	0.19	0.55*	0.54*	0.66*	1	
EFINA	0.04	-0.01	0.03	0.26	0.10	0.41*	0.61*	0.33*	0.60*	1
FPRCNG	0.14	0.11	0.02	0.16	0.16	0.22	0.35*	-0.11	0.07	0.17

NOTES: Table reports correlations of the average across years for each index. * indicates statistically significantly different from zero at the 5% level. All 50 states are included.

Table 7: Regressions for NETS Employment Growth, 1992-2006

	Specification	SNEI	DRCS-P	DRCS-DC	DRCS-BV	SCI	SBTC	SBSI	CDBI	EFI	EFINA	FPRCNG
Business climate index	1-year changes, year effects only	-0.032 (0.103) *[-0.061]*	-0.126 (0.093) *[-0.241]*	-0.298 (0.113)** *[-0.578]*	-0.193 (0.123) *[-0.351]*	-0.190 (0.129) *[-0.327]*	0.395 (0.120)*** *[0.564]*	0.262 (0.102)** *[0.471]*	0.195 (0.080)** *[0.245]*	0.335 (0.132)** *[0.577]*	0.311 (0.103)*** *[0.547]*	0.039 (0.108) *[0.082]*
R^2		0.87	0.45	0.47	0.46	0.52	0.46	0.76	0.50	0.71	0.73	0.62
N		96	192	192	192	240	96	480	192	96	672	264
Business climate index	1-year changes, All controls	-0.031 (0.106) *[-0.059]*	0.144 (0.124) *[0.276]*	-0.194 (0.117) *[-0.376]*	-0.105 (0.133) *[-0.191]*	-0.136 (0.155) *[-0.234]*	0.232 (0.128)* *[0.331]*	0.130 (0.078) *[0.234]*	-0.077 (0.124) *[-0.097]*	0.354 (0.194)* *[0.610]*	0.160 (0.083)* *[0.281]*	0.012 (0.094) *[0.025]*
Industry composition		2.066 (0.591)*** *[0.575]*	0.880 (1.039) *[0.245]*	0.954 (1.001) *[0.266]*	0.894 (1.032) *[0.249]*	1.305 (0.921) *[0.363]*	0.704 (1.174) *[0.196]*	1.700 (0.676)** *[0.473]*	1.321 (0.938) *[0.368]*	2.007 (0.979)** *[0.559]*	1.405 (0.694)** *[0.391]*	1.811 (0.779)** *[0.504]*
Population density		-0.342 (0.161)** *[-0.524]*	-0.343 (0.187)* *[-0.525]*	-0.166 (0.184) *[-0.254]*	-0.233 (0.196) *[-0.357]*	-0.331 (0.159)** *[-0.507]*	-0.226 (0.297) *[-0.346]*	-0.421 (0.100)*** *[-0.645]*	-0.446 (0.209)** *[-0.683]*	0.080 (0.205) *[0.122]*	-0.425 (0.102)*** *[-0.651]*	-0.484 (0.132)*** *[-0.741]*
Dry		0.039 (0.048) *[0.230]*	0.050 (0.047) *[0.294]*	0.039 (0.046) *[0.230]*	0.045 (0.048) *[0.265]*	0.031 (0.043) *[0.182]*	0.085 (0.066) *[0.500]*	0.039 (0.038) *[0.230]*	0.033 (0.047) *[0.194]*	0.025 (0.060) *[0.147]*	0.034 (0.047) *[0.200]*	0.008 (0.052) *[0.047]*
Mild		0.026 (0.007)*** *[0.647]*	0.036 (0.011)*** *[0.895]*	0.020 (0.010)** *[0.497]*	0.028 (0.008)*** *[0.696]*	0.022 (0.011)* *[0.547]*	0.043 (0.012)*** *[1.069]*	0.025 (0.006)*** *[0.622]*	0.037 (0.008)*** *[0.920]*	0.031 (0.011)*** *[0.771]*	0.028 (0.008)*** *[0.696]*	0.036 (0.009)*** *[0.895]*
Proximity		-0.0014 (0.0004)*** *[-0.375]*	-0.0009 (0.0007) *[-0.236]*	-0.0009 (0.0005) *[-0.222]*	-0.0008 (0.0005) *[-0.211]*	-0.0009 (0.0005)* *[-0.247]*	0.0001 (0.0007) *[0.023]*	-0.0007 (0.0006) *[-0.191]*	-0.0011 (0.0005)** *[-0.298]*	-0.0002 (0.0007) *[-0.063]*	-0.0011 (0.0006)* *[-0.297]*	-0.0017 (0.0008)** *[-0.439]*
R^2		*0.90*	*0.51*	*0.51*	*0.51*	*0.58*	*0.53*	*0.79*	*0.59*	*0.76*	*0.77*	*0.69*
N		96	192	192	192	240	96	480	192	96	672	264
Business climate index	2-year changes, all controls	-0.104 (0.105) *[-0.197]*	0.074 (0.106) *[0.142]*	-0.178 (0.107) *[-0.345]*	-0.089 (0.106) *[-0.162]*	-0.100 (0.136) *[-0.172]*	0.128 (0.132) *[0.183]*	0.143 (0.081)* *[0.257]*	-0.102 (0.138) *[-0.128]*	0.009 (0.160) *[0.016]*	0.177 (0.086)** *[0.311]*	-0.006 (0.069) *[-0.013]*
N		96	192	192	192	192	96	432	144	96	624	264
Business climate index	2-year changes (shifted back one year), all controls	0.030 (0.094) *[0.057]*	0.091 (0.118) *[0.174]*	-0.211 (0.122)* *[-0.409]*	-0.110 (0.131) *[-0.200]*	-0.150 (0.180) *[-0.259]*	0.208 (0.128) *[0.297]*	0.131 (0.078) *[0.236]*	-0.022 (0.127) *[-0.028]*	0.260 (0.105)** *[0.448]*	0.183 (0.086)** *[0.322]*	-0.006 (0.079) *[-0.013]*
N		96	192	192	192	240	96	480	192	96	624	264
Business climate index	3-year changes, all controls	-0.018 (0.100) *[-0.034]*	0.056 (0.107) *[0.107]*	-0.161 (0.111) *[-0.312]*	-0.094 (0.090) *[-0.171]*	-0.088 (0.141) *[-0.152]*	0.159 (0.121) *[0.227]*	0.141 (0.077)* *[0.254]*	-0.105 (0.142) *[-0.132]*	-0.148 (0.301) *[-0.255]*	0.177 (0.085)** *[0.311]*	0.026 (0.072) *[0.054]*
N		96	144	144	144	144	48	384	96	48	576	223
Business climate index	3-year changes (shifted back one year), all controls	-0.039 (0.096) *[-0.074]*	0.061 (0.100) *[0.117]*	-0.196 (0.109)* *[-0380]*	-0.099 (0.110) *[-0.180]*	-0.155 (0.163) *[-0.267]*	0.147 (0.112) *[0.210]*	0.147 (0.079)* *[0.264]*	-0.030 (0.125) *[-0.038]*	0.062 (0.121) *[0.107]*	0.180 (0.086)** *[0.317]*	-0.012 (0.067) *[-0.025]*
N		96	192	192	192	192	96	432	144	96	576	264

NOTES: Business climate indexes are standardized by year. Unit of observation is the state and year. All models include year fixed effects. Standard errors clustered by state are used for statistical inference, and ***,**, and * indicate significance at the 1%, 5% or 10% level. The square brackets show the estimated coefficients multiplied by the difference between the 10th and 40th state rankings for each variable. Hawaii and Alaska are excluded. The specifications using as dependent variables changes over longer periods, as indicated in the second column, also include industry composition, population density, dry, mild, and proximity as controls. Population density is entered in logs. Note that sample sizes vary based on the years for which the index are available (see Table 1), and the years required to define the dependent variables over different intervals.

Table 8: Regressions for QCEW Employment Growth, 1992-2008

	Specification	SNEI	DRCS-P	DRCS-DC	DRCS-BV	SCI	SBTC	SBSI	CDBI	EFI	EFINA	FPRCNG
Business climate index	1-year changes, year effects only	0.078 (0.077) *[0.149]*	-0.095 (0.067) *[-0.179]*	-0.091 (0.089) *[-0.170]*	-0.280 (0.100)*** *[-0.504]*	0.148 (0.116) *[0.258]*	0.470 (0.098)*** *[0.695]*	0.226 (0.107)** *[0.399]*	0.316 (0.075)*** *[0.392]*	0.285 (0.121)** *[0.491]*	0.289 (0.096)*** *[0.508]*	0.046 (0.054) *[0.096]*
R^2		0.49	0.45	0.45	0.48	0.45	0.39	0.54	0.37	0.07	0.54	0.50
N		144	288	288	288	336	192	576	288	96	672	309
Business climate index	1-year changes, All controls	0.065 (0.076) *[0.124]*	-0.014 (0.090) *[-0.026]*	0.015 (0.086) *[0.028]*	-0.195 (0.096)** *[-0.351]*	0.122 (0.101) *[0.213]*	0.249 (0.092)*** *[0.368]*	0.117 (0.076) *[0.206]*	0.176 (0.121) *[0.219]*	0.178 (0.153) *[0.307]*	0.204 (0.068)*** *[0.359]*	0.025 (0.050) *[0.052]*
Industry composition		1.872 (0.405)*** *[0.521]*	1.727 (0.490)*** *[0.481]*	1.711 (0.498)*** *[0.477]*	1.418 (0.465)*** *[0.395]*	1.460 (0.586)** *[0.407]*	0.566 (0.671) *[0.158]*	1.842 (0.523)*** *[0.513]*	1.567 (0.682)** *[0.436]*	2.038 (0.988)** *[0.568]*	2.111 (0.803)** *[0.588]*	2.130 (0.695)*** *[0.593]*
Population density		-0.251 (0.097)** *[-0.384]*	-0.342 (0.102)*** *[-0.524]*	-0.354 (0.110)*** *[-0.542]*	-0.183 (0.098)* *[-0.280]*	-0.350 (0.115)*** *[-0.536]*	-0.102 (0.139) *[-0.156]*	-0.201 (0.097)** *[-0.308]*	-0.158 (0.145) *[-0.242]*	0.043 (0.166) *[0.066]*	-0.322 (0.116)*** *[-0.493]*	-0.261 (0.128)** *[-0.400]*
Dry		0.000 (0.037) *[0.002]*	0.021 (0.043) *[0.124]*	0.022 (0.040) *[0.130]*	0.017 (0.041) *[0.100]*	0.040 (0.049) *[0.235]*	0.021 (0.050) *[0.124]*	0.062 (0.042) *[0.365]*	0.028 (0.059) *[0.165]*	0.132 (0.078)* *[0.777]*	0.106 (0.062)* *[0.624]*	0.074 (0.056) *[0.436]*
Mild		-0.003 (0.006) *[-0.075]*	0.013 (0.007)* *[0.323]*	0.015 (0.006)** *[0.373]*	0.015 (0.005)*** *[0.373]*	0.023 (0.006)*** *[0.572]*	0.012 (0.006)* *[0.298]*	0.017 (0.005)*** *[0.423]*	0.018 (0.006)*** *[0.448]*	0.030 (0.011)*** *[0.746]*	0.023 (0.008)*** *[0.572]*	0.030 (0.007)*** *[0.746]*
Proximity		-0.0010 (0.000)** *[-0.271]*	-0.0015 (0.001)** *[-0.398]*	-0.0015 (0.001)** *[-0.399]*	-0.0016 (0.001)*** *[-0.420]*	-0.0017 (0.001)** *[-0.435]*	-0.0018 (0.001)** *[-0.467]*	-0.0010 (0.001)* *[-0.268]*	-0.0019 (0.001)** *[-0.486]*	-0.0006 (0.001) *[-0.145]*	-0.0008 (0.001) *[-0.206]*	-0.0009 (0.001) *[-0.246]*
R^2		0.57	0.59	0.59	0.60	0.61	0.49	0.65	0.54	0.39	0.68	0.65
N		144	288	288	288	336	192	576	288	96	672	309
Business climate index	2-year changes, all controls	0.057 (0.101) *[0.109]*	0.061 (0.097) *[0.115]*	0.078 (0.101) *[0.145]*	-0.121 (0.110) *[-0.218]*	0.128 (0.113) *[0.223]*	0.283 (0.110)** *[0.419]*	0.117 (0.078) *[0.206]*	0.195 (0.135) *[0.242]*	0.089 (0.129) *[0.153]*	0.172 (0.066)** *[0.302]*	0.045 (0.048) *[0.094]*
N		96	240	240	240	288	144	528	240	96	672	309
Business climate index	2-year changes (shifted back one year), all controls	0.054 (0.060) *[0.103]*	0.044 (0.083) *[0.083]*	0.016 (0.085) *[0.030]*	-0.174 (0.096)* *[-0.313]*	0.151 (0.094) *[0.263]*	0.237 (0.086)*** *[0.350]*	0.127 (0.082) *[0.224]*	0.153 (0.113) *[0.190]*	0.223 (0.125)* *[0.384]*	0.208 (0.066)*** *[0.366]*	0.045 (0.043) *[0.094]*
N		144	288	288	288	336	192	576	288	96	624	309
Business climate index	3-year changes, all controls	0.026 (0.111) *[0.050]*	0.145 (0.120) *[0.272]*	0.099 (0.140) *[0.184]*	-0.068 (0.127) *[-0.122]*	0.138 (0.116) *[0.241]*	0.317 (0.138)** *[0.469]*	0.118 (0.078) *[0.208]*	0.198 (0.145) *[0.246]*	0.045 (0.102) *[0.078]*	0.146 (0.061)** *[0.257]*	0.050 (0.044) *[0.104]*
N		96	192	192	192	240	96	480	192	96	672	264
Business climate index	3-year changes (shifted back one year), all controls	0.058 (0.089) *[0.111]*	0.083 (0.092) *[0.156]*	0.052 (0.101) *[0.097]*	-0.142 (0.105) *[-0.256]*	0.138 (0.104) *[0.241]*	0.266 (0.105)** *[0.393]*	0.125 (0.082) *[0.220]*	0.172 (0.125) *[0.214]*	0.148 (0.117) *[0.255]*	0.180 (0.064)*** *[0.317]*	0.052 (0.041) *[0.108]*
N		96	240	240	240	288	144	528	240	96	624	309

NOTES: See notes to Table 7.

Table 9: Regressions for QCEW Wage Growth, 1992-2008

	Specification	SNEI	DRCS-P	DRCS-DC	DRCS-BV	SCI	SBTC	SBSI	CDBI	EFI	EFINA	FPRCNG
Business climate index	1-year changes, year effects only	0.256 (0.141)* *[0.489]*	-0.165 (0.097)* *[-0.310]*	-0.253 (0.116)** *[-0.471]*	-0.573 (0.155)*** *[-1.032]*	0.091 (0.160) *[0.159]*	0.648 (0.221)*** *[0.958]*	0.290 (0.141)** *[0.511]*	0.344 (0.132)** *[0.427]*	0.237 (0.238) *[0.408]*	0.420 (0.109)*** *[0.739]*	0.094 (0.090) *[0.196]*
R^2		0.53	0.48	0.48	0.53	0.49	0.37	0.55	0.39	0.18	0.53	0.48
N		144	288	288	288	336	192	576	288	96	672	309
Business climate index	1-year changes, All controls	0.262 (0.162) *[0.501]*	-0.148 (0.165) *[-0.278]*	-0.214 (0.135) *[-0.399]*	-0.470 (0.143)*** *[-0.846]*	-0.024 (0.137) *[-0.042]*	0.280 (0.181) *[0.414]*	0.162 (0.112) *[0.286]*	0.119 (0.243) *[0.148]*	0.192 (0.241) *[0.331]*	0.360 (0.078)*** *[0.633]*	0.060 (0.093) *[0.125]*
Industry composition		2.882 (0.804)*** *[0.803]*	3.278 (0.690)*** *[0.913]*	3.066 (0.677)*** *[0.854]*	2.394 (0.641)*** *[0.667]*	3.004 (0.703)*** *[0.837]*	2.155 (1.077)* *[0.600]*	2.817 (0.682)*** *[0.785]*	3.017 (0.782)*** *[0.840]*	4.446 (1.486)*** *[1.238]*	2.663 (0.829)*** *[0.742]*	2.744 (0.897)*** *[0.764]*
Population density		-0.459 (0.201)** *[-0.703]*	-0.618 (0.162)*** *[-0.946]*	-0.487 (0.168)*** *[-0.746]*	-0.250 (0.136)* *[-0.383]*	-0.575 (0.181)*** *[-0.880]*	-0.224 (0.249) *[-0.343]*	-0.175 (0.127) *[-0.268]*	-0.337 (0.299) *[-0.516]*	0.306 (0.245) *[0.469]*	-0.206 (0.116)* *[-0.315]*	-0.165 (0.146) *[-0.253]*
Dry		0.035 (0.073) *[0.206]*	-0.008 (0.056) *[-0.047]*	-0.023 (0.051) *[-0.135]*	-0.018 (0.049) *[-0.106]*	-0.012 (0.058) *[-0.071]*	-0.032 (0.067) *[-0.188]*	0.010 (0.051) *[0.059]*	-0.023 (0.062) *[-0.135]*	0.126 (0.109) *[0.742]*	0.083 (0.061) *[0.489]*	0.007 (0.069) *[0.041]*
Mild		-0.002 (0.012) *[-0.050]*	0.004 (0.013) *[0.099]*	0.003 (0.010) *[0.075]*	0.015 (0.008)* *[0.373]*	0.018 (0.011)* *[0.448]*	0.013 (0.011) *[0.323]*	0.018 (0.008)** *[0.448]*	0.022 (0.009)** *[0.547]*	0.057 (0.017)*** *[1.418]*	0.021 (0.008)*** *[0.522]*	0.029 (0.009)*** *[0.721]*
Proximity		-0.0011 (0.001) *[-0.278]*	-0.0020 (0.001)* *[-0.517]*	-0.0023 (0.001)** *[-0.589]*	-0.0023 (0.001)*** *[-0.595]*	-0.0028 (0.001)** *[-0.739]*	-0.0030 (0.001)*** *[-0.793]*	-0.0019 (0.001)** *[-0.485]*	-0.0032 (0.001)** *[-0.846]*	-0.0016 (0.001) *[-0.420]*	-0.0012 (0.001)* *[-0.302]*	-0.0016 (0.001)* *[-0.408]*
R^2		0.58	0.58	0.58	0.61	0.61	0.47	0.62	0.54	0.48	0.61	0.56
N		144	288	288	288	336	192	576	288	96	672	309
Business climate index	2-year changes, all controls	0.185 (0.165) *[0.354]*	-0.007 (0.170) *[-0.013]*	-0.077 (0.131) *[-0.143]*	-0.355 (0.161)** *[-0.639]*	0.030 (0.145) *[0.052]*	0.353 (0.200)* *[0.522]*	0.158 (0.113) *[0.279]*	0.114 (0.247) *[0.142]*	0.069 (0.184) *[0.119]*	0.305 (0.080)*** *[0.536]*	0.080 (0.087) *[0.167]*
N		96	240	240	240	288	144	528	240	96	672	309
Business climate index	2-year changes (shifted back one year), all controls	0.210 (0.113)* *[0.401]*	-0.096 (0.158) *[-0.180]*	-0.247 (0.133)* *[-0.460]*	-0.450 (0.149)*** *[-0.810]*	0.030 (0.130) *[0.052]*	0.271 (0.172) *[0.401]*	0.170 (0.112) *[0.300]*	0.141 (0.225) *[0.175]*	0.202 (0.218) *[0.348]*	0.397 (0.076)*** *[0.698]*	0.066 (0.081) *[0.138]*
N		144	288	288	288	336	192	576	288	96	624	309
Business climate index	3-year changes, all controls	-0.035 (0.146) *[-0.067]*	0.103 (0.187) *[0.194]*	-0.063 (0.160) *[-0.117]*	-0.289 (0.179) *[-0.520]*	0.062 (0.141) *[0.108]*	0.401 (0.231)* *[0.593]*	0.162 (0.110) *[0.286]*	0.168 (0.239) *[0.209]*	-0.026 (0.147) *[-0.045]*	0.249 (0.080)*** *[0.438]*	0.088 (0.076) *[0.183]*
N		96	192	192	192	240	96	480	192	96	672	264
Business climate index	3-year changes (shifted back one year), all controls	0.219 (0.132) *[0.419]*	-0.016 (0.161) *[-0.030]*	-0.157 (0.132) *[-0.293]*	-0.392 (0.157)** *[-0.706]*	0.032 (0.132) *[0.056]*	0.320 (0.183)* *[0.473]*	0.165 (0.110) *[0.291]*	0.155 (0.222) *[0.192]*	0.116 (0.184) *[0.200]*	0.336 (0.079)*** *[0.591]*	0.077 (0.076) *[0.160]*
N		96	240	240	240	288	144	528	240	96	624	309

NOTES: See notes to Table 7.

Table 10: Regressions for GSP Growth, 1997-2008

	Specification	SNEI	DRCS-P	DRCS-DC	DRCS-BV	SCI	SBTC	SBSI	CDBI	EFI	EFINA	FPRCNG
Business climate index	1-year changes, year effects only	-0.063 (0.209) *[-0.120]*	-0.266 (0.146)* *[-0.500]*	-0.362 (0.162)** *[-0.675]*	-0.694 (0.186)*** *[-1.250]*	0.075 (0.192) *[0.131]*	0.780 (0.195)*** *[1.154]*	0.335 (0.159)** *[0.591]*	0.468 (0.163)*** *[0.581]*	0.362 (0.268) *[0.624]*	0.339 (0.130)** *[0.596]*	0.166 (0.161) *[0.346]*
R^2		0.11	0.23	0.23	0.29	0.19	0.29	0.19	0.19	0.04	0.19	0.13
N		144	288	288	288	336	192	528	288	96	432	218
Business climate index **Industry composition** **Population density** **Dry** **Mild** **Proximity**	1-year changes, All controls	-0.227 (0.244) *[-0.434]* 3.720 (1.391)** *[1.036]* -0.192 (0.273) *[-0.294]* -0.037 (0.124) *[-0.218]* -0.003 (0.020) *[-0.075]* -0.0028 (0.002)* *[-0.725]*	-0.272 (0.204) *[-0.511]* 4.164 (0.939)*** *[1.160]* -0.824 (0.202)*** *[-1.262]* 0.049 (0.081) *[0.288]* 0.006 (0.018) *[0.149]* -0.0016 (0.001) *[-0.414]*	-0.279 (0.163)* *[-0.520]* 3.789 (0.913)*** *[1.055]* -0.662 (0.207)*** *[-1.014]* 0.030 (0.085) *[0.177]* 0.009 (0.016) *[0.224]* -0.0020 (0.001)* *[-0.528]*	-0.548 (0.154)*** *[-0.987]* 3.010 (0.785)*** *[0.838]* -0.407 (0.160)** *[-0.623]* 0.038 (0.080) *[0.224]* 0.025 (0.015) *[0.622]* -0.0020 (0.001)** *[-0.529]*	0.006 (0.161) *[0.010]* 3.327 (0.973)*** *[0.927]* -0.647 (0.210)*** *[-0.991]* 0.022 (0.081) *[0.130]* 0.029 (0.014)** *[0.721]* -0.0025 (0.001)* *[-0.648]*	0.265 (0.208) *[0.392]* 3.793 (1.618)** *[1.056]* -0.636 (0.313)** *[-0.974]* 0.015 (0.113) *[0.088]* 0.027 (0.019) *[0.671]* -0.0027 (0.001)** *[-0.694]*	0.176 (0.143) *[0.310]* 2.855 (0.761)*** *[0.795]* -0.262 (0.142)* *[-0.401]* 0.016 (0.057) *[0.094]* 0.025 (0.009)** *[0.622]* -0.0018 (0.001) *[-0.457]*	0.333 (0.251) *[0.414]* 4.004 (1.180)*** *[1.115]* -0.314 (0.288) *[-0.481]* -0.040 (0.096) *[-0.235]* 0.035 (0.014)** *[0.870]* -0.0033 (0.001)** *[-0.864]*	0.184 (0.334) *[0.317]* 5.884 (1.678)*** *[1.639]* 0.060 (0.348) *[0.092]* 0.045 (0.098) *[0.265]* 0.057 (0.018)*** *[1.418]* -0.0029 (0.002) *[-0.770]*	0.193 (0.112)* *[0.339]* 3.327 (0.808)*** *[0.927]* -0.250 (0.136)* *[-0.383]* 0.021 (0.056) *[0.124]* 0.036 (0.009)*** *[0.895]* -0.0015 (0.001) *[-0.401]*	0.130 (0.162) *[0.271]* 3.574 (1.097)*** *[0.995]* -0.470 (0.195)** *[-0.720]* 0.040 (0.079) *[0.235]* 0.041 (0.010)*** *[1.020]* -0.0018 (0.001)* *[-0.472]*
R^2		0.26	0.37	0.37	0.40	0.34	0.40	0.27	0.36	0.36	0.29	0.28
N		144	288	288	288	336	192	528	288	96	432	218
Business climate index	2-year changes, all controls	-0.163 (0.164) *[-0.312]*	-0.266 (0.202) *[-0.500]*	-0.203 (0.167) *[-0.378]*	-0.484 (0.169)*** *[-0.872]*	0.048 (0.167) *[0.084]*	0.285 (0.241) *[0.421]*	0.179 (0.142) *[0.316]*	0.359 (0.243) *[0.446]*	0.119 (0.288) *[0.205]*	0.148 (0.115) *[0.260]*	0.041 (0.120) *[0.085]*
N		96	240	240	240	288	144	480	240	96	432	218
Business climate index	2-year changes (shifted back one year), all controls	-0.023 (0.133) *[-0.044]*	-0.148 (0.174) *[-0.278]*	-0.249 (0.137)* *[-0.464]*	-0.523 (0.131)*** *[-0.942]*	0.050 (0.158) *[0.087]*	0.241 (0.183) *[0.356]*	0.155 (0.151) *[0.273]*	0.413 (0.234)* *[0.513]*	0.037 (0.246) *[0.064]*	0.256 (0.118)** *[0.450]*	-0.051 (0.108) *[-0.106]*
N		144	288	288	288	336	192	480	288	96	384	218
Business climate index	3-year changes, all controls	-0.221 (0.139) *[-0.422]*	-0.201 (0.205) *[-0.378]*	-0.222 (0.187) *[-0.414]*	-0.365 (0.190)* *[-0.657]*	0.044 (0.166) *[0.077]*	0.304 (0.266) *[0.450]*	0.173 (0.149) *[0.305]*	0.377 (0.245) *[0.468]*	0.131 (0.213) *[0.226]*	0.122 (0.113) *[0.215]*	0.011 (0.124) *[0.023]*
N		96	192	192	192	240	96	432	192	96	432	173
Business climate index	3-year changes (shifted back one year), all controls	0.018 (0.117) *[0.034]*	-0.156 (0.177) *[-0.293]*	-0.237 (0.149) *[-0.442]*	-0.480 (0.153)*** *[-0.864]*	0.043 (0.161) *[0.075]*	0.243 (0.233) *[0.359]*	0.152 (0.154) *[0.268]*	0.362 (0.239) *[0.450]*	0.043 (0.229) *[0.074]*	0.208 (0.118)* *[0.366]*	-0.050 (0.103) *[-0.104]*
N		96	240	240	240	288	144	432	240	96	384	218

NOTES: See notes to Table 7.

Table 11: Regressions for Employment Growth Due to Births, 1992-2006

	Specification	SNEI	DRCS-P	DRCS-DC	DRCS-BV	SCI	SBTC	SBSI	CDBI	EFI	EFINA	FPRCNG
Business climate index	1-year changes, year effects only	0.152 (0.103) *[0.289]*	-0.093 (0.080) *[-0.178]*	-0.041 (0.087) *[-0.080]*	0.076 (0.092) *[0.138]*	-0.024 (0.087) *[-0.041]*	0.326 (0.120)*** *[0.466]*	0.262 (0.124)** *[0.471]*	0.047 (0.069) *[0.059]*	0.365 (0.110)*** *[0.629]*	0.330 (0.094)*** *[0.580]*	0.023 (0.087) *[0.048]*
R^2		0.79	0.22	0.21	0.21	0.29	0.32	0.69	0.33	0.62	0.69	0.60
N		96	192	192	192	240	96	480	192	96	672	264
Business climate index	1-year changes, All controls	0.201 (0.087)** *[0.382]*	0.282 (0.083)*** *[0.540]*	0.173 (0.077)** *[0.336]*	0.125 (0.070)* *[0.227]*	0.128 (0.079) *[0.221]*	0.163 (0.095)* *[0.233]*	0.134 (0.085) *[0.241]*	-0.060 (0.083) *[-0.075]*	0.373 (0.136)*** *[0.643]*	0.144 (0.072)* *[0.253]*	-0.006 (0.067) *[-0.013]*
Industry composition		1.622 (0.580)*** *[0.452]*	1.296 (0.668)* *[0.361]*	1.563 (0.725)** *[0.435]*	1.648 (0.706)** *[0.459]*	1.354 (0.657)** *[0.377]*	1.249 (0.608)** *[0.348]*	1.534 (0.634)** *[0.427]*	1.407 (0.558)** *[0.392]*	1.903 (0.676)*** *[0.530]*	1.577 (0.624)** *[0.439]*	1.624 (0.807)** *[0.452]*
Population density		-0.352 (0.138)** *[-0.539]*	-0.142 (0.129) *[-0.217]*	-0.230 (0.149) *[-0.352]*	-0.195 (0.143) *[-0.299]*	-0.115 (0.122) *[-0.176]*	-0.056 (0.149) *[-0.086]*	-0.105 (0.140) *[-0.161]*	-0.194 (0.127) *[-0.297]*	0.129 (0.170) *[0.198]*	-0.070 (0.139) *[-0.107]*	-0.165 (0.169) *[-0.253]*
Dry		-0.033 (0.039) *[-0.194]*	0.005 (0.041) *[0.029]*	0.018 (0.042) *[0.106]*	0.015 (0.043) *[0.088]*	0.0004 (0.039) *[0.002]*	0.024 (0.041) *[0.141]*	-0.037 (0.044) *[-0.218]*	-0.002 (0.034) *[0.012]*	-0.067 (0.057) *[-0.394]*	-0.052 (0.044) *[-0.306]*	-0.053 (0.052) *[-0.312]*
Mild		0.043 (0.007)*** *[1.069]*	0.054 (0.007)*** *[1.343]*	0.044 (0.007)*** *[1.094]*	0.038 (0.007)*** *[0.945]*	0.042 (0.007)*** *[1.044]*	0.037 (0.007)*** *[0.920]*	0.039 (0.006)*** *[0.970]*	0.035 (0.006)*** *[0.870]*	0.041 (0.009)*** *[1.020]*	0.041 (0.007)*** *[1.020]*	0.045 (0.008)*** *[1.119]*
Proximity		-0.0014 (0.0006)** *[-0.362]*	-0.0016 (0.0006)** *[-0.406]*	-0.0012 (0.0007)* *[-0.303]*	-0.0012 (0.0007)* *[-0.309]*	-0.0012 (0.0006)** *[-0.323]*	-0.0008 (0.0006) *[-0.200]*	-0.0015 (0.0009)* *[-0.404]*	-0.0012 (0.0005)** *[-0.313]*	-0.0013 (0.0009) *[-0.327]*	-0.0016 (0.0008)** *[-0.448]*	-0.0018 (0.0010)* *[-0.467]*
R^2		0.88	0.57	0.54	0.53	0.59	0.58	0.79	0.66	0.77	0.78	0.74
N		96	192	192	192	240	96	480	192	96	672	264
Business climate index	2-year changes, all controls	0.197 (0.105)* *[0.374]*	0.229 (0.066)*** *[0.439]*	0.160 (0.072)** *[0.310]*	0.105 (0.057)* *[0.191]*	0.121 (0.076) *[0.209]*	0.154 (0.104) *[0.220]*	0.141 (0.087) *[0.254]*	-0.035 (0.104) *[-0.044]*	0.259 (0.153)* *[0.446]*	0.152 (0.074)** *[0.267]*	-0.002 (0.053) *[-0.004]*
N		96	192	192	192	192	96	432	144	96	624	264
Business climate index	2-year changes (shifted back one year), all controls	0.215 (0.079)*** *[0.408]*	0.285 (0.099)*** *[0.546]*	0.184 (0.088)** *[0.357]*	0.167 (0.079)** *[0.303]*	0.134 (0.091) *[0.231]*	0.176 (0.075)** *[0.251]*	0.137 (0.086) *[0.247]*	0.001 (0.099) *[0.001]*	0.269 (0.096)*** *[0.463]*	0.155 (0.074)** *[0.273]*	0.025 (0.057) *[0.052]*
N		96	192	192	192	240	96	480	192	96	624	264
Business climate index	3-year changes, all controls	0.232 (0.105)** *[0.441]*	0.224 (0.069)*** *[0.429]*	0.165 (0.074)** *[0.320]*	0.120 (0.060)* *[0.218]*	0.113 (0.083) *[0.195]*	0.167 (0.094)* *[0.239]*	0.141 (0.087) *[0.254]*	-0.021 (0.113) *[-0.026]*	0.414 (0.248) *[0.713]*	0.156 (0.073)** *[0.276]*	-0.001 (0.053) *[-0.002]*
N		96	144	144	144	144	48	384	96	48	576	223
Business climate index	3-year changes (shifted back one year), all controls	0.201 (0.099)** *[0.382]*	0.241 (0.078)*** *[0.462]*	0.159 (0.078)** *[0.308]*	0.134 (0.065)** *[0.243]*	0.108 (0.085) *[0.186]*	0.159 (0.086)* *[0.227]*	0.144 (0.087) *[0.259]*	0.012 (0.104) *[0.015]*	0.220 (0.127)* *[0.379]*	0.157 (0.074)** *[0.276]*	0.013 (0.051) *[0.027]*
N		96	192	192	192	192	96	432	144	96	576	264

NOTES: See notes to Table 7.

Table 12. Summary of Evidence from Regression Analysis of Effects of Business Climate Indexes on Economic Growth, 1992-2008

		NETS-Employment	QCEW-Employment	QCEW Total Wages	GSP	Employment change due to births
SNEI	Mean Range Sign., same sign	-0.032 (-0.104, 0.030) 0	0.052 (0.026, 0.065) 0	0.168 (-0.035, 0.262) 1	-0.123 (-0.227, 0.018) 0	0.209 (0.197, 0.232) 5
DRCS-P	Mean Range Sign., same sign	0.085 (0.056, 0.144) 0	0.064 (-0.014, 0.145) 0	-0.033 (-0.148, 0.103) 0	-0.209 (-0.272, -0.148) 0	0.252 (0.224, 0.285) 5
DRCS-DC	Mean Range Sign., same sign	-0.188 (-0.211, -0.161) 2	0.052 (0.015, 0.099) 0	-0.152 (-0.247, -0.063) 1	-0.238 (-0.279, -0.203) 2	0.168 (0.159, 0.184) 5
DRCS-BV	Mean Range Sign., same sign	-0.099 (-0.110, -0.089) 0	-0.140 (-0.195, -0.068) 2	-0.391 (-0.470, -0.289) 4	-0.480 (-0.548, -0.365) 5	0.130 (0.105, 0.167) 5
SCI	Mean Range Sign., same sign	-0.126 (-0.155, -0.088) 0	0.135 (0.122, 0.151) 0	0.026 (-0.024, 0.062) 0	0.038 (0.006, 0.050) 0	0.121 (0.108, 0.134) 0
Productivity cluster	**Mean Sign., same sign**	**-0.072 2**	**0.033 0**	**-0.076 5**	**-0.202 7**	**0.176 20**
SBTC	Mean Range Sign., same sign	0.175 (0.128, 0.232) 1	0.270 (0.237, 0.317) 5	0.325 (0.271, 0.401) 3	0.268 (0.241, 0.304) 0	0.164 (0.154, 0.176) 4
SBSI	Mean Range Sign., same sign	0.138 (0.130, 0.147) 3	0.121 (0.117, 0.127) 0	0.163 (0.158, 0.170) 0	0.167 (0.152, 0.179) 0	0.139 (0.134, 0.144) 0
CDBI	Mean Range Sign., same sign	-0.067 (-0.105, -0.022) 0	0.179 (0.153, 0.198) 0	0.139 (0.114, 0.168) 0	0.369 (0.333, 0.413) 1	-0.021 (-0.060, 0.012) 0
EFI	Mean Range Sign., same sign	0.107 (-0.148, 0.354) 2	0.137 (0.045, 0.223) 1	0.111 (-0.026, 0.202) 0	0.103 (0.037, 0.184) 0	0.307 (0.220, 414) 4
EFINA	Mean Range Sign., same sign	0.175 (0.160, 0.183) 5	0.182 (0.146, 0.208) 5	0.329 (0.249, 0.397) 5	0.185 (0.122, 0.256) 3	0.153 (0.144, 0.157) 5
Taxes-and-costs cluster	**Mean Sign., same sign**	**0.106 11**	**0.178 11**	**0.214 8**	**0.218 4**	**0.148 13**
FPRCNG	Mean Range Sign., same sign	0.003 (-0.012, 0.026) 0	0.043 (0.025, 0.052) 0	0.074 (0.060, 0.088) 0	0.016 (-0.051, 0.130) 0	0.006 (-0.006, 0.025) 0

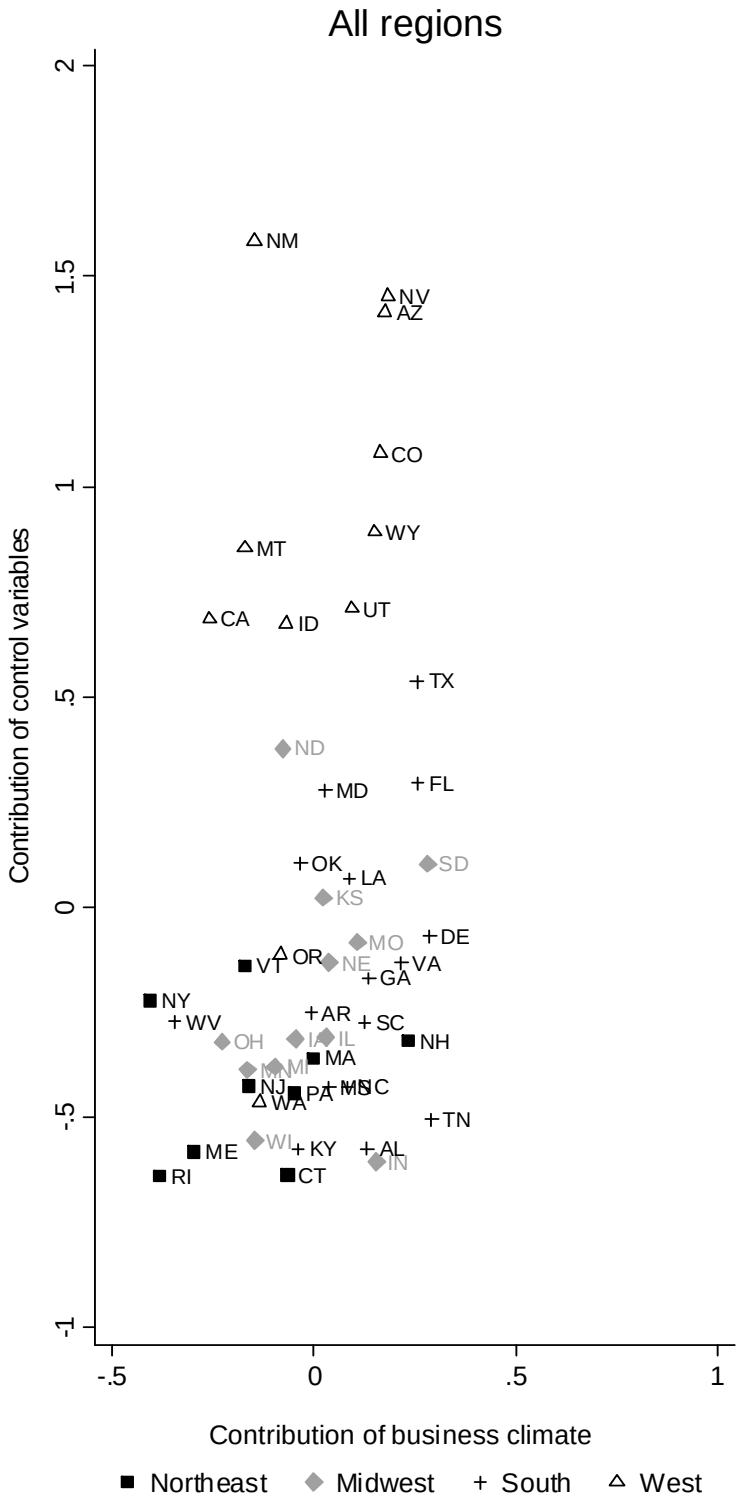
NOTES: "Mean" is the average coefficient estimate for the index/growth-measure pair across the five full specifications in Tables 7-11. "Range" is the minimum and maximum of coefficient estimates. "Sign., same sign" is the number of estimates for the index/growth measure that are statistically significant at the 10% level on the same side of zero as the mean for the index/growth-measure pair or – in shaded rows – for the cluster/growth-measure pair. (As a result, the number of reported significant estimates for the cluster can be smaller than the sum for the indexes in the cluster.)

Table 13: Regressions for QCEW Employment and Wages in Manufacturing and Footloose Industries, 1992-2008

Industry	SNEI	DRCS-P	DRCS-DC	DRCS-BV	SCI	SBTC	SBSI	CDBI	EFI	EFINA	FPRCNG
A. Employment											
Total private	0.055	-0.049	-0.001	-0.254	0.106	0.262	0.129	0.223	0.168	0.215	0.019
	(0.087)	(0.103)	(0.092)	(0.106)**	(0.106)	(0.101)**	(0.081)	(0.137)	(0.172)	(0.076)***	(0.060)
	[0.105]	*[-0.092]*	*[-0.002]*	*[-0.457]*	*[0.185]*	*[0.387]*	*[0.228]*	*[0.277]*	*[0.289]*	*[0.378]*	*[0.04]*
Manufacturing	-0.292	-0.271	-0.099	-0.563	0.053	0.526	0.328	0.858	-0.086	0.278	0.031
	(0.215)	(0.269)	(0.243)	(0.182)***	(0.225)	(0.213)**	(0.145)**	(0.259)***	(0.356)	(0.150)*	(0.114)
	[-0.558]	*[-0.509]*	*[-0.184]*	*[-1.014]*	*[0.092]*	*[0.778]*	*[0.579]*	*[1.066]*	*[-0.148]*	*[0.489]*	*[0.065]*
Footloose industries	0.329	-0.047	0.002	-0.271	0.197	0.235	0.195	0.381	0.047	0.251	0.196
	(0.190)*	(0.196)	(0.152)	(0.161)*	(0.142)	(0.148)	(0.118)	(0.144)**	(0.460)	(0.116)**	(0.152)
	[0.629]	*[-0.088]*	*[0.004]*	*[-0.488]*	*[0.343]*	*[0.348]*	*[0.344]*	*[0.473]*	*[0.081]*	*[0.441]*	*[0.409]*
B. Wages											
Total private	0.326	-0.200	-0.248	-0.555	-0.077	0.301	0.187	0.188	0.210	0.397	0.075
	(0.182)*	(0.187)	(0.148)*	(0.161)***	(0.153)	(0.207)	(0.128)	(0.284)	(0.271)	(0.088)***	(0.108)
	[0.623]	*[-0.376]*	*[-0.462]*	*[-0.999]*	*[-0.134]*	*[0.445]*	*[0.33]*	*[0.233]*	*[0.362]*	*[0.698]*	*[0.156]*
Manufacturing	0.187	-0.217	-0.179	-0.650	0.141	0.688	0.336	0.643	-0.784	0.373	0.231
	(0.399)	(0.356)	(0.267)	(0.218)***	(0.263)	(0.257)**	(0.171)*	(0.353)*	(0.697)	(0.161)**	(0.182)
	[0.357]	*[-0.408]*	*[-0.334]*	*[-1.17]*	*[0.246]*	*[1.017]*	*[0.593]*	*[0.799]*	*[-1.351]*	*[0.656]*	*[0.481]*
Footloose industries	0.805	-0.175	-0.227	-0.388	0.058	0.148	0.190	0.104	0.571	0.474	0.129
	(0.252)***	(0.239)	(0.235)	(0.297)	(0.251)	(0.245)	(0.175)	(0.243)	(0.478)	(0.148)***	(0.174)
	[1.539]	*[-0.329]*	*[-0.423]*	*[-0.699]*	*[0.101]*	*[0.219]*	*[0.335]*	*[0.129]*	*[0.984]*	*[0.834]*	*[0.269]*
N	144	288	288	288	336	192	576	288	96	672	309

NOTES: Employment and wages data cover private ownership sector only. The dependent variable is 1-year changes of the variable in the first column, and all controls are included, so the specifications correspond to the second ones Tables 7-11. Manufacturing employment corresponds to NAICS codes 31-33, and footloose industries are information (51), finance and insurance (52), and professional and technical services (54).

Figure 1: Contributions of Business Climate Index and Control Variables to Employment Growth (QCEW), 1992-2008



NOTES: Presents product of coefficients from Table 8 and states' values for business climate index and control variables relative to mean. Units are percentage points of annual employment growth. Estimates are averaged over values from SBTC, EFI, and EFINA models.

Table 14: Distribution of Weights of Components of Business Climate Sub-Indexes by Categories (%)

	SBTC-CTI	SBTC-IITI	SBTC-STI	SBTC-PTI	SBTC-UITI	EFINA-SG	EFINA-LMF	EFINA-TDT	EFI-F	EFI-R	EFI-WS	EFI-GS	EFI-J
Taxes and costs category percentage													
Cost of doing business (excluding taxes)							66.67			1.33			
Size of government						33.33	33.33		7.69			100.00	
Tax rates and tax burden	100.00	100.00	100.00	100.00	100.00			100.00	92.31				
Regulation and litigation										98.67			100.00
Welfare and transfer payments						66.67					100.00		
Sub-index weight	**19.43**	**29.15**	**21.5**	**15.72**	**14.2**	**33.33**	**33.33**	**33.33**	**34.86**	**34.22**	**37.3**	**6.27**	**-12.6**

NOTES: EFI weights correspond to the values in the 2004 edition (http://special.pacificresearch.org/pub/sab/entrep/2004/econ_freedom/00_summary.html, viewed July 2010); SBTC weights correspond to the values in the 2007 edition (http://www.hopewelltwp.org/bp52.pdf, page 9, viewed July 2010); and EFINA weights to the values in the 2008 edition (http://www.freetheworld.com/efna2008/EFNA_Complete_Publication.pdf, page 95, viewed July 2010).

Table 15: Regressions Including All Sub-Indexes within an Index, 1992-2008

	NETS Employment	QCEW Employment	QCEW Total Wages	GSP	Employment change due to births
SBTC corporate income tax index	0.211 (0.137) *[0.229]*	0.212 (0.131) *[0.220]*	0.467 (0.205)** *[0.485]*	0.513 (0.226)** *[0.533]*	0.074 (0.100) *[0.080]*
SBTC individual income tax index	0.048 (0.165) *[0.062]*	0.081 (0.135) *[0.101]*	-0.028 (0.198) *[-0.035]*	-0.089 (0.253) *[-0.111]*	0.105 (0.099) *[0.136]*
SBTC sales tax index	0.214 (0.108)* *[0.191]*	0.014 (0.082) *[0.012]*	-0.102 (0.099) *[-0.091]*	-0.336 (0.151)** *[-0.299]*	0.088 (0.067) *[0.078]*
SBTC property tax index	-0.209 (0.130) *[-0.364]*	0.133 (0.085) *[0.234]*	0.045 (0.144) *[0.079]*	0.343 (0.188)* *[0.604]*	0.010 (0.078) *[0.017]*
SBTC Unemployment Insurance tax index	-0.029 (0.116) *[-0.050]*	0.053 (0.066) *[0.094]*	0.071 (0.124) *[0.127]*	0.134 (0.146) *[0.239]*	-0.054 (0.084) *[-0.094]*
N	96	192	192	192	96
R^2	0.55	0.50	0.49	0.44	0.59
EFINA size of government index	0.359 (0.128)*** *[0.632]*	0.356 (0.122)*** *[0.627]*	0.473 (0.145)*** *[0.833]*	0.147 (0.151) *[0.259]*	0.218 (0.104)** *[0.384]*
EFINA labor market freedom index	-0.066 (0.119) *[-0.095]*	0.002 (0.116) *[0.003]*	0.117 (0.138) *[0.169]*	0.222 (0.163) *[0.321]*	-0.001 (0.099) *[-0.001]*
EFINA takings and discriminatory taxation index	-0.129 (0.134) *[-0.223]*	-0.128 (0.116) *[-0.221]*	-0.150 (0.142) *[-0.259]*	-0.061 (0.133) *[-0.105]*	-0.059 (0.099) *[-0.102]*
N	672	672	672	432	672
R^2	0.77	0.68	0.61	0.29	0.78
EFI fiscal index	-0.134 (0.132) *[-0.230]*	0.073 (0.172) *[0.125]*	-0.024 (0.249) *[-0.041]*	-0.243 (0.276) *[-0.417]*	-0.077 (0.096) *[-0.132]*
EFI regulatory index	-0.021 (0.170) *[-0.033]*	-0.157 (0.118) *[-0.247]*	-0.148 (0.195) *[-0.233]*	-0.073 (0.288) *[-0.115]*	0.041 (0.096) *[0.064]*
EFI welfare spending index	0.461 (0.168)*** *[0.681]*	0.308 (0.146)** *[0.455]*	0.367 (0.231) *[0.542]*	0.534 (0.275)* *[0.789]*	0.299 (0.138)** *[0.442]*
EFI government size index	0.095 (0.149) *[0.158]*	0.101 (0.102) *[0.168]*	0.326 (0.201) *[0.541]*	0.095 (0.186) *[0.158]*	0.159 (0.084)* *[0.264]*
EFI judicial index	0.078 (0.142) *[0.153]*	-0.105 (0.112) *[-0.206]*	-0.083 (0.225) *[-0.163]*	-0.115 (0.258) *[-0.226]*	0.108 (0.075) *[0.212]*
N	96	96	96	96	96
R^2	0.77	0.43	0.52	0.38	0.78

NOTES: The dependent variable is 1-year changes of the variable in the first column, and all controls are included, so the specifications correspond to the second ones in Tables 7-11. The sub-indexes are scaled so that positive values are intended to reflect a "better" business climate; e.g., higher values of the sub-indexes correspond to lower taxes or lower welfare and transfer payments.

Table 16: Summary of Evidence from Regression Analysis of Effects of Business Climate Sub-Indexes on Economic Growth, 1992-2008

Sub-index		NETS-Employment	QCEW-Employment	QCEW Total Wages	GSP	Employment change due to births
SBTC-CTI	Mean	0.174	0.208	0.460	0.522	0.058
	Range	(0.111, 0.234)	(0.199, 0.222)	(0.443, 0.476)	(0.494, 0.549)	(0.046, 0.074)
	Sign., same sign	1	1	5	5	0
SBTC-IITI	Mean	0.048	0.116	0.027	-0.088	0.121
	Range	(0.031, 0.065)	(0.079, 0.175)	(-0.028, 0.096)	(-0.115, -0.064)	(0.105, 0.135)
	Sign., same sign	0	0	0	0	1
SBTC-STI	Mean	0.091	0.041	-0.053	-0.214	0.077
	Range	(0.020, 0.214)	(0.012, 0.087)	(-0.102, 0.016)	(-0.336, -0.114)	(0.057, 0.104)
	Sign., same sign	1	0	0	2	1
SBTC-PTI	Mean	-0.131	0.124	0.010	0.157	0.032
	Range	(-0.209, -0.095)	(0.104, 0.140)	(-0.013, 0.045)	(0.035, 0.343)	(0.010, 0.068)
	Sign., same sign	0	0	0	1	0
SBTC-UITI	Mean	-0.059	-0.019	-0.014	0.082	-0.051
	Range	(-0.153, -0.007)	(-0.073, 0.053)	(-0.099, 0.071)	(0.020,0.134)	(-0.069, -0.036)
	Sign., same sign	0	0	0	0	0
EFINA-SG	Mean	0.331	0.326	0.449	0.129	0.229
	Range	(0.306, 0.359)	(0.270, 0.379)	(0.371, 0.523)	(0.068, 0.185)	(0.218, 0.235)
	Sign., same sign	5	5	5	0	5
EFINA-LMF	Mean	-0.031	-0.001	0.108	0.207	0.001
	Range	(-0.066, -0.013)	(-0.009, 0.003)	(0.097, 0.117)	(0.198, 0.222)	(-0.005, 0.008)
	Sign., same sign	0	0	0	0	0
EFINA-TDT	Mean	-0.110	-0.120	-0.151	-0.046	-0.062
	Range	(-0.129, -0.088)	(-0.138, -0.104)	(-0.155, -0.143)	(-0.067, -0.023)	(-0.073, -0.056)
	Sign., same sign	0	0	0	0	0
EFI-F	Mean	-0.051	0.031	-0.042	-0.156	-0.047
	Range	(-0.134, 0.088)	(-0.052, 0.102)	(-0.129, 0.035)	(-0.260, 0.014)	(-0.101, 0.008)
	Sign., same sign	0	0	0	0	0
EFI-R	Mean	-0.097	-0.136	-0.165	-0.093	-0.046
	Range	(-0.221, -0.021)	(-0.211, -0.047)	(-0.218, -0.121)	(-0.210, 0.010)	(-0.119, 0.041)
	Sign., same sign	0	1	0	0	0
EFI-WS	Mean	0.156	0.246	0.325	0.419	0.293
	Range	(-0.037, 0.461)	(0.186, 0.308)	(0.263, 0.375)	(0.212, 0.534)	(0.232, 0.403)
	Sign., same sign	1	3	3	4	4
EFI-GS	Mean	0.136	0.098	0.172	0.035	0.156
	Range	(0.095, 0.167)	(0.015, 0.168)	(-0.044, 0.350)	(-0.086, 0.104)	(0.123, 0.242)
	Sign., same sign	1	0	1	0	3
EFI-J	Mean	0.165	-0.112	-0.196	-0.261	0.167
	Range	(0.073, 0.319)	(-0.137, -0.076)	(-0.283, -0.083)	(-0.373, -0.115)	(0.108, 0.250)
	Sign., same sign	0	0	3	2	4

NOTES: "Mean" is the average coefficient estimate for the sub-index/growth-measure pairs across the same five full specifications like those estimated in Tables 7-11, including the estimates in Table 15. "Range" is the minimum and maximum of coefficient estimates. "Sign., same sign" is the number of estimates for the sub-index/growth measure that are statistically significant at the 10% level on the same side of zero as the mean for the sub-index/growth-measure pair.