

The Impact of State Business-Oriented Policies and Economic Growth

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Summary: The impact of the state level business-oriented policies and economic growth is assessed using indices aimed at measuring these policies. Economic output is measured by two indicators – employment and real Gross Domestic Product (GDP). Since both variables are trending, we examine the growth rate, and how the various indices influence the growth rate after controlling for other geographic and demographic variables. We do not find robust evidence of an impact of business conditions, as measured by these indices.

Data

The data are annual in frequency, for the period 1992-2019, although not all data are available for all years.

The employment and wage data are from the Quarterly Census of Employment and Wages (QCEW), via BLS.

The Gross State Product (GDP) data are from BEA; the CPI is from BLS. The business environment indices are as follows: *bhi_n* is the State Competitiveness Index compiled by Beacon Hill Institute, *CDBI_n* is the Cost of Doing Business Index compiled by the Milken Institute, and *fprc_n* is the Fiscal Policy Report Card on the Nation's Governors compiled by the Cato Institute. *rsps* is the ranking from ALEC's *Rich States, Poor States*, authored by Arthur Laffer, Stephen Moore, Jonathan Williams. All variables indices (except *rsps*) are redefined so that an increase represents an improvement in business conditions, and are then standardized by subtracting off the mean (CDBI is already de-measured) and dividing by the standard deviation, on a year by year basis.

Empirical Results

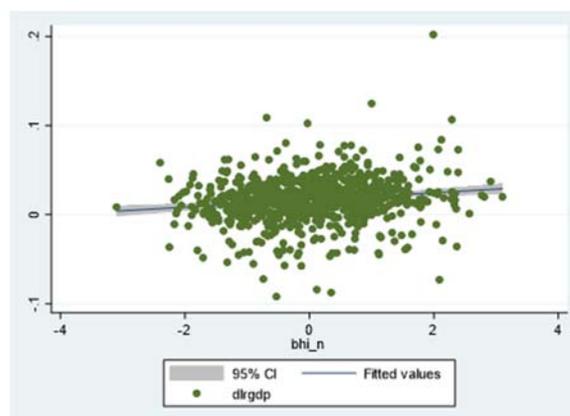
The relationship between the growth rate of real GDP growth and the Beacon Hill index is displayed in the figure.

The positive correlation suggests the following specification:

$$dy_{it} = \beta_0 + \beta_1 index_{it} + \beta_2 ldensity + \beta_3 wet + \beta_4 mild + \beta_5 dist + time\ effects + \alpha_i + e_{it}$$

Where *dy* is either growth rate of employment or real gross

domestic product (at state level), *index* is an index of business conditions. The geography variables include distance to water (higher is closer to water), weather is measured as (lack of) precipitation and mild as (less



temperature variation). Since the business conditions indices are restated to rise as conditions improve, the priors are $\beta_1 > 0$ (except for *rsps*, where the numbers are rankings, with 1 the best); the indices are de-meanded and divided by standard deviation, the coefficient has the interpretation of change in growth rate for a one standard deviation change in the index. Time fixed effects proxy for the national business cycle.

Note that one could have estimated a specification with y (i.e., the log level of employment or output) on the right hand side, but this would have required a time trend, or state-specific time trends. In that case, the coefficient on the index would be interpreted as the deviation from the growth trend.

TABLE 1: Dependent variable first difference of log employment (1993-2019)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	dlemp1	dlemp1	dlemp1	dlemp1	dlemp1	dlemp1	dlemp1	dlemp1	dlemp1
	2001-16	2001-16	2001-16	1996-2016	1996-2016	1996-2016	2008-19	2008-19	2008-19
bhi_n	0.0027***	0.0014	0.0011						
	(0.0008)	(0.0025)	(0.0016)						
fprc_n				-0.0005	-0.0006	-0.0007			
				(0.0007)	(0.0009)	(0.0006)			
rsps							-9.11E-05	0.0002	0.0001
							(0.0001)	(0.0003)	(0.0001)
ldensity	-0.0002			0.0002			0.0020*		
	(0.0008)			(0.0008)			(0.0012)		
wet	0.0004			0.0007			-0.0001		
	(0.0005)			(0.0005)			(0.0006)		
mild	0.0002**			0.0002***			-1.34E-05		
	(0.0001)			(0.0001)			(0.0001)		
dist	-0.0097*			-0.0100*			-0.0061		
	(0.0051)			(0.0051)			(0.0064)		
Constant	0.0153	0.0055***	-0.0003	0.0239**	0.0139***	0.0338***	-0.0108	0.0013	-0.0046
	(0.0099)	(0.0000)	(0.0014)	(0.0093)	(0.0000)	(0.0019)	(0.0129)	(0.0081)	(0.0038)
Observations	768	768	768	579	579	579	528	528	528
R-squared	0.045	0.001	0.701	0.061	0.001	0.584	0.01	0.002	0.751
Number of fips		48	48		48	48		48	48
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Robust standard errors in parentheses									
*** p<0.01, ** p<0.05, * p<0.1									

The results for employment are reported in Table 1, and those for GDP in Table 2. For employment, simple OLS without time or fixed effects yields a statistically significant coefficient (robust standard errors) in

column 1. Given the heterogeneity of the states, it might be important to include state specific (or individual) fixed effects; doing so results in statistically insignificant estimates. Obviously, use of state fixed effects precludes identifying any geographic/weather influences. Since states are influenced by a national business cycle, there would seem to be a common fixed time effect in the data; including time fixed effects does not recover a significant coefficient for using any index. For two indices, a consistent finding is that moderate weather are statistically significant determinants of employment growth.

TABLE 2: Dependent variable first difference of log real Gross State Product (1998-2007)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
VARIABLES	dlogdp	dlogdp	dlogdp	dlogdp	dlogdp	dlogdp	dlogdp	dlogdp	dlogdp
	2001-16	2001-16	2001-16	1996-2016	1996-2016	1996-2016	2008-19	2008-19	2008-19
bhi_n	0.00423***	0.0018	0.0014						
	(0.0010)	(0.0025)	(0.0020)						
fprc_n				-0.0013	-0.0013	-0.0013			
				(0.0011)	(0.0015)	(0.0012)			
rsps							-0.0001	0.0003	0.0003
							(0.0001)	(0.0003)	(0.0002)
ldensity	-0.0011			0.0003			0.0015		
	(0.0011)			(0.0012)			(0.0012)		
wet	0.0007			0.0010			0.0001		
	(0.0006)			(0.0006)			(0.0006)		
mild	0.000187*			0.0001			-0.0001		
	(0.0001)			(0.0001)			(0.0001)		
dist	-0.0057			-0.0058			-0.0056		
	(0.0062)			(0.0082)			(0.0065)		
Constant	0.0367***	0.0166***	0.00874***	0.0344**	0.0279***	0.0542***	-0.0003	0.0050	-0.0042
	(0.0120)	(0.0000)	(0.0026)	(0.0137)	(0.0000)	(0.0034)	(0.0134)	(0.0076)	(0.0056)
Fixed Effects	no	yes	yes	no	yes	yes	no	yes	yes
Time Effects	no	no	yes	no	no	yes	no	no	yes
Observations	768	768	768	579	579	579	576	576	576
R-squared	0.04	0.001	0.341	0.022	0.002	0.321	0.01	0.004	0.346
Number of fips		48	48		48	48		48	48

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Table 2 indicates little significance for any factor, except for the Beacon Hill Index, in the OLS specification. Hence, it seems that there is limited information content in these indices for GDP growth.

Robustness checks

Alternative specifications. Since the indices cover somewhat different aspects of the business environment, one could in principle include all three indices; however, the loss of degrees of freedom and shrinkage of sample would be considerable. Hence, it makes sense to examine the indices one by one.

Alternative measures. Economic output can be proxied in other ways. One is to use real wages; the results are basically the same as for total employment. Similarly, the results are generally similar private manufacturing employment is instead examined (following the conjecture that manufacturing employment is more mobile than services).

Note that it does not make sense to include employment growth and wage growth on the right hand side if real GDP growth is the left hand side variable, as those variables are also affected by business conditions (and possibly real GDP growth).

Productivity vs. output. One could interpret the question as whether productivity responds to business conditions. The implied regression is then the growth rate of real GDP divided by employment. This variable behaves in a fashion similar to real GDP growth.

Endogeneity. The policies measured by the indices might be responding to the pace of economic growth, i.e., more pro-business policies might be implemented when growth is slower. This implies downwardly biased estimates of the impact of pro-business policies on growth. One plausible measure of exogenous with respect to current growth is whether the states were part of the old South. I define a dummy variable called ***south*** that takes on a value of 1 for such states. The Beacon Hill index and Rich States, Poor States ranking are (negatively) correlated with ***south***, and statistically significantly so. When the pooled regressions are estimated using two-stage least squares, the coefficients on business conditions is borderline statistically significant, and in the right direction.