How Friendly To Entrepreneurs Are "Business Friendly" Policies? Some Preliminary Results

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ABSTRACT

Entrepreneurial activity is a fundamental component of economic growth and development in the United States. States that experience increased entrepreneurial activity also see higher levels of overall economic growth. From a policy perspective, it is necessary to understand what is at the root of entrepreneurship. In this paper we closely examine six national indices that are often used as indicators of how "business friendly" a state is relative to its neighbors. We find that many of these indices are not useful in explaining the variation of entrepreneurial activity among the 50 US states.

INTRODUCTION

Entrepreneurial activity is a fundamental component of economic growth and development in the United States and around the world (Audretsch et al. 2006). States and countries that experience increased entrepreneurial activity also see higher levels of overall economic growth (Ovaska and Sobel, 2005; Berkowitz and DeJong, 2005; Bruce et al., 2009; Samila and Sorenson, 2011). Therefore, it is absolutely necessary for us to understand what is at the root of this activity and what the policymaking community should focus on when attempting to create an incentive structure that fosters entrepreneurial activity.

The importance of public policy in fostering entrepreneurship has been a growing theme in the empirical entrepreneurship literature. It has been argued that, given the dynamic nature of the entrepreneurial process, policies consistent with creating the maximum freedom for entrepreneurs to try out new businesses and ideas are conducive to economic development. Conversely, excessive taxation, regulation, and barriers to entry often impede the actions of nascent entrepreneurs. In addition, areas with excessive government intervention in the economy create an environment that allocates entrepreneurial talent away from creating new ventures and re-directs it towards less productive activities such as lobbying (Hall and Sobel, 2006). Much of this growing literature uses the *Economic Freedom of North America* (Karabegovic and McMahon, 2006) to measure the quality of a state's economic institutions. Research using this index has found a positive relationship between economic freedom and entrepreneurial activity (Hall and Sobel, 2008; Campbell et al., 2007-08; Campbell and Rodgers, 2007).

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To our knowledge, however, the relationship between other more populist "business climate" indices and entrepreneurship has received much less focus in the academic literature. Given the large amount of attention that state "business climate" studies get in the media it might be important to understand the relationship between these measures of a state's policy and entrepreneurship. While the relationship between economic freedom and entrepreneurship is pretty clearly established, economic freedom is a very broad concept and encompasses many factors that might not be directly related to the entrepreneurial environment, such as social security as a percentage of GDP. Perhaps indices more closely related to the business environment might be better indicators of the institutional environment for business. Conversely, it might be the case that a particular index is negatively related to entrepreneurship because it doesn't measure the institutional environment but instead measures the amount of subsidies and tax breaks given to big businesses.

Measuring a state's business climate is certainly not a new idea. Erickson (1987) points out that the original business climate indices essentially evolved from a series of comparative cost analyses that took place in the 1950s and 1960s. These analyses were relatively simplistic and focused mainly on comparing the cost structures of manufacturing industries across the states. The popularization of these early studies in academia and in the general public led to a heightened interest in producing indices that examine state competitiveness and business climate.

The first official business climate indices were produced in the mid to late 1970s, a time when the "economic war" between the states was just beginning to heat up (Fisher, 2005). In 1975, the Fantus Company prepared rankings of state business climates for the Illinois Manufactures' Cooperation (Bittlingmayer et al., 2005). While adhering to the manufacturing focus, the Fantus index included an assessment of 33 indicators that were thought to affect the location decisions of manufacturing firms. It has been argued that the sole purpose of this index was to convince the Illinois General Assembly that it need to pass laws aimed at enchaining Illinois' manufacturing sector (Skoro, 1988).

The production of similar business climate indices began to grow. In 1979, Alexander Grand and Company produced an index titled "A Study of Business Climates of the Forty-Eight Contiguous States of America" and in 1981 the "Report Card on the States" was published in Inc. Magazine (Erickson, 1987). As Bittlingmayer et al. (2005) point out, these early indices were important because they represented the first significant attempts to frame the way we think about business climate, including a focus tax policy, regulatory structure, labor force quality, and quality of life.

The development of business climate indices slowed after the early 1980s but quickly picked up again in the early 2000's. However, an important difference between the original indices and the indices being produced today is the level of academic scrutiny that they are subject to. As Bittlingmayer et al. (2005) argues, the earlier indices of business climate were subject to independent analyses conducted by academics, which has not been the case for the more recent indices of business climate.

In this paper we closely examine six popular state business climate indices that are frequently used in the media as indicators of how good a state's policies are towards business. Our goal is to provide a preliminary look at whether these indices are actually related to entrepreneurship. We do so by examining how well each of these six indices of the quality of a state's business climate explains the number of entrepreneurs per 100,000 people as measured by the Robert Fairlie's (2009) *Kauffman Index of Entrepreneurial Activity* (KIEA). This relatively new measure of entrepreneurial activity has been used in recent studies such as Hall and Sobel (2008) and Meek et al. (2010).

THE INDICES

In this paper we use the *Kauffman Index of Entrepreneurial Activity* (KIEA) in the year 2005 to measure entrepreneurship. The KIEA uses the Current Population Survey (CPS) in order to measure the monthly rate of business creation at the individual owner level. More specifically, the KIEA reports the percent of non-business owning adults who start a business with more than 15 hours worked per week. As Hall and Sobel (2008) point out, there are two clear advantages of using the KIEA over other measures of entrepreneurship. The first advantage is that the KIEA measures the flow into entrepreneurship rather than simply the raw stock of entrepreneurship. The second advantage is that the KIEA measures entrepreneurial activity using the CPS rather than using payroll data or incorporation records. The reason that this is an advantage is that payroll and incorporation data can underestimate the true level of entrepreneurial activity as they do not include businesses that have zero employees (Hall and Sobel 2008). One can understand why this is a substantial problem as many entrepreneurs do not have the need to hire employees and thus their entrepreneurial activity goes unnoticed when examining payroll data but is picked up when using the CPS. The remainder of this section explains what is being measured in each of the six "business-friendly" indices employed in the empirical section of the paper, as well as putting each index in perspective by using specific state examples.

Index #1: CODB

The Cost of Doing Business Index (CODB) is published annually by the Milken Institute. This index is meant to measure the comparative advantages and/or disadvantages in attracting and retaining businesses in each state. As basic economic theory would predict, the CODB index finds that states that have lower costs of doing business, on average, experience greater levels of job growth and business retention than states with higher costs of doing business. A few of the many characteristics that this index includes are wage costs, taxes, electricity costs, and real estate for industrial office spaces. Each state's individual weighted scores for each measure is then complied to make the overall index score, with 100 being equivalent to the average U.S. state in that year. For example, according to the CODB index (index score in parenthesis), Hawaii (143.1), New York (130.7) and Massachusetts (125.5), were the most expensive states in the nation in which to do business in 2005. At the other end of the index, the states with the lowest costs of doing business were South Dakota (71.9), North Dakota (76.9), and Iowa (80.2). The hypothesis is that states with lower scores in this index, and thus lower costs of doing business, will have a greater number of entrepreneurs per 100,000 people.

Index #2: SBTCI

The State Business Tax Climate Index (SBTCI) is published annually by the Tax Foundation (Padgitt, 2009). This foundation creates the SBTI by comparing the U.S. states on five separate aspects of their tax systems and then adding the results up to a final, overall ranking with higher numbers indicating a better business tax climate. According to the Tax Foundation, the SBTCI is advantageous as it can reward states on particularly strong aspects of their tax systems (or penalize them on particularly weak aspects) while, at the same time, it can measure the general competitiveness of their overall tax systems. In 2005, according to the SBTI index (index score in parenthesis) Wyoming (7.64), South Dakota (7.56), and Alaska (7.29) had the "best" tax environments in which to do business. These high scores result, in part, from the fact that Wyoming and South Dakota have no corporate or individual income tax and Alaska has no individual income or state-level sales tax. Conversely, Rhode Island (3.47), New York (3.60), and New Jersey (3.63) had the "worst" tax environment in which to do business.

The Tax Foundation argues that companies often locate where they have the greatest competitive advantage and thus states that have the best tax systems are better at attracting new businesses and are most effective at generating economic and employment growth. In terms of the global economy, American companies frequently function at a competitive disadvantage as they pay one of the highest corporate tax rates of any of the industrialized countries (Padgitt, 2009). The same idea is true with regard to the tax competitiveness of U.S. states in that states with higher business taxes often find that they are at a competitive disadvantage when compared to states with lower business taxes. For these reasons, the hypothesis is that high scores on the SBTI index, and thus states with good tax environments, will be positively related to KIEA.

Index #3: SCR

The State Competitiveness Report (SCR) is published annually by the Beacon Hill Institute (BHI). This index is essentially a measure of how competitive each state is in comparison to other states using eight variables which include: (1) Government and Fiscal Policies, (2) Security, (3) Infrastructure, (4) Human Resources, (5) Technology, (6) Business Incubation, (7) Openness, and (8) Environmental Policy. The BHI (2005) also lays out two criteria that states must meet in order to be considered competitive: (1) the state must have policies in place that ensure and sustain a high level of per capita income and its continued growth and (2) states must be able to attract and incubate new businesses. In 2005, Massachusetts (7.16), Utah (6.78), and New Hampshire (6.67) had the top SCR scores and thus had microeconomic polices that were most conducive to growth and competition according to BHI. Conversely, Louisiana (2.6), Mississippi (2.83), and Arkansas (3.08) had the lowest SCR scores.

The purpose of the SCR is essentially to apply the big question in economics, "why do some nations prosper while others remain poor" and apply it to the individual states in the US by asking "why do some states prosper at high levels while others fail to attain the level of competitiveness that is necessary for prosperity." The BHI points out that states all have an equal playing ground in terms of macroeconomic conditions but where they differ is in their microeconomic policies and these are the policies that matter. Thus this index is meant to outline the important aspects of competition that policy makers should be focusing on. For these reasons, the hypothesis is that a higher score in this index, and thus states that have more competition and growth promoting microeconomic policies, will positively influence KIEA.

Index #4: NSTECH

The National State Technology and Science Index (NSTECH) is published by the Milken Institute. This index examines each state in light of their technology and science assets as well as their ability to leverage these resources to achieve high levels of economic growth. According to the Milken Institute (2010), this index "offers one of the most comprehensive examinations of state technology and science assets ever compiled." Furthermore, the NSTECH index uses 77 indicators that measure how well a state will perform in a knowledge-based economy. These indicators are lumped into five categories which include: (1) Research and Development Inputs, (2) Risk Capital and Entrepreneurial Infrastructure, (3) Human Capital Investment, (4) Technology and Science Workforce, and (5) Technology Concentration and Dynamism. Ultimately, the NSTECH index provides a valuable framework of measures to aid both policymakers and the public in their decisions regarding their performance in the knowledge-based economy.

In the empirical work we employ the 2004 NSTECH data because the index was not available for 2005. In 2004, Massachusetts (84.35), California (78.86), and Colorado (78.77) had the highest NSTECH index scores and thus experienced the best environment in which individuals and businesses could productively leverage their technological assets, whereas, Mississippi (27.48), Arkansas (29.53), and Kentucky (32.62) had the lowest. For these reasons, the hypothesis is that higher scores on the NSTECH index, and thus a better ability to leverage technological resources, will have positive effects on the Kauffman Index of Entrepreneurial Activity.

Index #5: SBSI

The Small Business Survival Index (SBSI) is published by the Small Business and Entrepreneurship Council (SBEC). This index focuses on major government-imposed or government-related costs impacting investment, entrepreneurship, and business. In other words, the SBSI index measures the governmental burdens placed on entrepreneurship among the states. The SBEC argues that with the information provided by the index, business owners, employees, and elected officials can better grasp the competitive position of their respective states. It is important to note that the states with poor small business policies receive higher SBSI scores and states with good small business policies receive lower scores. Thus, South Dakota (24.28), Nevada (27.08), and Wyoming (33.36) had the lowest scores in 2005 and thus provided the best environment for small businesses to survive, according to SBEC. Conversely, California (62.52), Maine (61.07), and Rhode Island (60.39) received the highest index scores and thus had the worst environment for small businesses.

The reason that the SBSI index is important, according to Keating (2005), is that small enterprises do not only dominate the business landscape and create the bulk of new jobs but they are also a key source of economic growth and innovation. Thus, small enterprises are a fundamental component of economic growth and variation between the states. Therefore, ignoring, denying or misunderstanding the role that small businesses and entrepreneurs play in economic development is simply not an option if a state wishes to grow and prosper. Ultimately, Keating (2005) argues that the ever-mounting governmental burdens placed on entrepreneurs and small businesses are having an increasingly negative effect on economic growth and job creation. Moreover, this negative effect is growing at an exponential rate with the increasing technological advancements that allow for the mobility of both labor and capital. For these reasons, the hypothesis is that lower levels on the SBSI index, and thus better existing policies that create incentive to invest and take risks, will be positively related to the KIEA.

Index #6: Days to Pay

The number of days spent working to pay for state and local taxes is published by the Tax Foundation and is available beginning in 2006. The purpose of this data is to show individuals how many days they work out of the year solely to pay their taxes. The variation between states in the number of days needed to work to pay state taxes assumedly creates incentives for both businesses and entrepreneurs to work in states with the lowest number of working days needed to cover taxes. The reasoning behind this is simple in that fewer days spent working to pay taxes means more days spent working to make a profit. To put this data in perspective (raw number of days in parenthesis), in 2006 Mississippi (65), Louisiana (66), and West Virginia (68) had to work the lowest number of days to pay for state taxes. Conversely, Connecticut (90), New Jersey (86), and Washington (84) had to work the highest number of days to pay. The hypothesis is that a lower number of working days needed to pay for state taxes in 2006 will have a positive effect on the Kauffman Index of Entrepreneurial Activity.

Table 1: Summary Statistics										
Variable	State	Mean	StDev	Min	Max					
Kauffman Index	Minnesota	312.50	98.80	155.60	553.90					
CODB	Maine	97.18	14.83	71.90	143.10					
SBTCI	Pennsylvania	5.35	0.93	3.47	7.64					
SCR	California	5.00	1.00	2.60	7.16					
NSTECH	Kansas	52.64	14.27	27.48	84.35					
SBSI	Wisconsin	47.19	8.41	24.28	64.52					
Days to Pay	Michigan	74.42	5.57	65.00	90.00					
Education	Georgia	26.97	5.11	15.10	36.80					
Percent Hispanic	Idaho		9.54	0.85	43.42					
Percent Male	New Hampshire	49.34	0.70	48.30	51.71					
Median Age	Michigan	36.78	2.11	28.45	41.07					
Population Density	Virginia	189.30	257.70	1.20	1175.30					

Non-Index Explanatory Variables

In addition to our six measures of a state's business climate, we also control for a variety of other factors that could theoretically be related to state-level measures of entrepreneurship. These variables are the percentage of the population 25 years old and over that have completed a bachelors degree, the percentage of the population that is of Hispanic origin, the median age of the population, the percentage of the population that is male, and the number of persons per square mile of land area. In all cases these variables are measured for the year 2005. Table 1 presents summary statistics for all measures of all variables used in the empirical analysis. In addition, the "state" column presents the state that is closest to the sample mean in order to get an idea of what the average state in each index looks like. For example, Minnesota has a Kauffman index score of 311.98 which is the closest to the sample mean of 312.50.

EMPIRICAL RESULTS

It is possible that some of the business climate indices are highly correlated with KIEA. If this is the case it would clearly interfere with our regression results. Therefore, it is important to determine whether or not issues with multicollinearity exist in our data. Table 2 presents a correlation matrix that incorporates data for each of the indices that were previously introduced.

I able 2: Correlation Matrix for Business Climate Indices											
Index	KIEA	CODB	SBTCI	SCR	NSTECH	SBSI					
CODB	-0.077										
SBTCI	0.194	-0.219									
SCR	0.020	0.091	0.188								
NSTECH	-0.060	0.485 ***	-0.275 *	0.540 ***							
SBSI	0.013	0.426 ***	-0.743 ***	-0.043	0.324 **						
Days to Pay	-0.124	0.656 ***	0.016	0.423 ***	0.596 ***	0.053					

Table 2: Correlation Matrix for Business Climate Indices

Note: * indicates whether the correlation is significantly different from zero at the 10% level,

** at the 5% level, and *** at the 1% level

As can be seen, the correlations between KIEA and each of the business climate indices are statistically insignificant but there is a high correlation between some of the measures of business climate and a low correlation between others. In addition to providing further evidence that these measures are very different from one another, they provide a first look at the lack of a relationship between KIEA and these indices.

We then further our analysis by estimating the relationship between our independent variables and our measure of entrepreneurship using ordinary least squares. Before presenting the regressions results, it is important to recap our predictions regarding the relationship between the KEIA and the six pertinent business climate indices. Table 3 presents this recap and provides a preliminary snap shot of how the predictions held up in the regression analysis and whether or not the results were statically significant. The implications of the information provided in Table 3 will be discussed in detail after taking a closer look at the regression results.

Table 3: Simplified Findings								
Index	Predicted Relationship	Correct Sign?	Significant					
CODB	Negative	Yes	No					
SBTCI	Positive	No	No					
SCR	Positive	No	Yes					
NSTECH	Positive	No	Yes					
SBSI	Negative	No	No					
Days to Pay	Negative	Yes	Yes					

Table 4 presents the results of our regression analysis. Note that each column uses a different business climate index in the row labeled "State Business Index." Thus, the first column of regression results contains the CODB index, the second column the SBTCI, and so on. In each column, the other independent variables remain the same.

	Table 4. Indices as Determinants of Entrepreneurial Activity									
Dependent Variable: Kauffman Index of Entrepreneurial Activity										
Variables	CODB	SBTCI	SCR	SCR		NSTECH			Days to Pay	
C	-2360	-2233	-3110		-1022		-2205		-3360	
Constant	(1.73) *	(1.52)	(2.44)	**	(0.73)		(1.60)		(2.48)	**
State Business	-1.509	-6.76	-57.44		-3.322		1.239		-9.954	
Index	(1.27)	(0.39)	(3.20)	***	(2.01)	*	(0.72)		(2.69)	***
Education	6.568	4.99	13.437		12.052		4.523		8.896	
Education	(1.98) *	(1.55)	(3.48)	***	(2.62)	**	(1.37)		(2.73)	***
Percent	1.626	1.242	-0.223		2.136		1.198		1.861	
Hispanic	(1.06)	(0.81)	(-0.15)		(1.39)		(0.78)		(1.29)	
Percent	49.12	46.48	66.42		23.82		44.9		75.64	
Male	(1.86) *	(1.60)	(2.68)	***	(0.90)		(1.70)	*	(2.77)	***
Mallan Ass	5.873	4.446	2.663		0.244		3.577		11.433	
Median Age	(0.84)	(0.63)	(0.42)		(0.03)		(0.51)		(1.63)	
Population	-0.067	-0.109	-0.135		-0.100		-0.109		0.019	
Density	(0.84)	(1.46)	(1.99)	*	(1.40)		(1.46)		(0.23)	
R^2 Adjusted	19.50%	16.70%	32.50%		23.60%		17.40%		28.50%	

Table 4: Indices as Determinants of Entrepreneurial Activity

Note: * indicates significance at the 10% level, ** at the 5% level, and *** at the 1% level. Absolute t-statistics in parentheses.

Turning to our variables of interest, only three business climate indices are statistically significant: SCR, NSTECH, and Days to Pay. In the case of Days to Pay index the relationship was as expected. The greater the number of days to pay state taxes in a state, the lower the rate of entrepreneurship, ceteris paribus. In the other two cases, however, the observed relationship is the opposite of what was expected. In the case of the NSTECH index, while the relationship is statistically significant at the ten percent level, the coefficient has the opposite sign. Theory would predict that higher scores in this index would result in higher measures of entrepreneurship, yet we find a negative relationship. Similarly, the hypothesized positive relationship between SCR and the KIEA does not hold in the results presented in Table 4. More business friendly states according the SCR have lower levels of entrepreneurial activity. Finally, in the case of the CODB, SBTCI, and SSBI, we observe no statistically significant relationship.

Variables	Dependent Variable: Kauffman Index of Entrepreneurial Activ								vity			
v allables	CODB		SBTCI		SCR		NSTECH		SBSI		Days to Pay	
Constant	179.5		101.0		181.77		128.22		113.80		385.4	
	(1.77)	*	(0.89)		(2.53)	**	(1.78)	*	(1.18)		(1.82)	*
State Business	-0.702		6.68		-44.09		-2.839		0.645		-4.240	
Index	(0.61)		(0.42)		(2.56)	**	(1.92)	*	(0.38)		(1.25)	
Education	8.627		7.697		14.708		13.462		7.535		10.023	
Education	(2.69)	***	(2.66)	**	(3.83)	***	(3.31)	***	(2.55)	**	(2.97)	***
Population	-0.166		-0.168		-0.240		-0.155		-0.185		-0.147	
Density	(2.72)	***	(2.65)	**	(4.10)	***	(2.73)	***	(3.14)	***	(2.35)	**
R ² Adjusted	15.7%		15.4%		25.6%		21.3%		15.3%		17.8%	

 Table 5: Indices as Determinants of Entrepreneurial Activity - Fewer Explanatory Variables

Note: * indicates significance at the 10% level, ** at the 5% level, and *** at the 1% level. Absolute t-statistics in parentheses.

The fact that two of the three significant relationships were the opposite of our hypothesis led us to search for a more parsimonious model of state entrepreneurship. While many of our explanatory variables are common in the entrepreneurship literature, our regressions in Table 4 suggest that Hispanic origin, median age, and the percentage of the population explain little of the variation in KIEA.²⁷ Table 5 presents the results of the regression analysis with these variables removed.

As can be seen, the results in Table 5 are quantitatively similar to those in Table 4. One notable difference is that the SBTCI index, although insignificant, became positive which corresponds well with our original prediction for the index. Additionally, the Days to Pay index remained negative but lost its significance. The statistical significance of our explanatory variables also increased across the board, with the education variable showing positive statistical significance in every model and population density showing negative statistical significance in every model.

The overall results of our analysis are a bit puzzling. Perhaps it is the result of our somewhat parsimonious regressions, however, we are at a loss as to what additional explanatory variables might be so important as to affect the coefficients on the "state business index" variable enough to change the sign in direction and significance. It could be that the relationship between these variables and entrepreneurship is not as straightforward as might be viewed at first glance. For example, because of the way it is measured, KIEA picks up a lot of necessity entrepreneurship, i.e., people who self-employ because of a lack of other opportunities. If that is the case, this would help explain the negative relationship between SCR and NSTECH and the KIEA.

²⁷ An additional reason for removing the percentage of the population that is of Hispanic origin from the analysis is because the standard deviation of this variable was greater than the mean suggesting that the variable has too much fluctuation to be useful. We thank a helpful referee for pointing this out.

CONCLUDING REMARKS

In this paper we examined the relationship between "business friendly" policy indices and entrepreneurial activity among the fifty states. Our preliminary results suggest that further research is needed to better understand the relationship between these indices and entrepreneurship. The only state business index that we feel comfortable saying was a useful representation of how friendly a state is to entrepreneurship (as measured by the KIEA) is the Tax Foundation's "Day to Pay" measure. With respect to the other indices, not only were more than half of the indices not good predictors of entrepreneurship but at times they had the opposite sign.

Although we found that many of the business climate indices are not useful in explaining entrepreneurial activity, these types of indices will most likely remain popular in the policy arena. As Skoro (1988) has noted, when a state ranks low on an index of business climate there is considerable pressure placed on elected officials to explain the ranking and to take remedial action. Bittlingmayer et al. (2005) further stress the importance of business climate indices by pointing out that they often play a role in discussions that elected officials, business associations and consultants have regarding state and local government tax policy and regulatory policies.

Given the significance in empirical relationship between the Days to Pay measure and the KIEA in our original regression results, we believe state officials and policy makers may benefit from utilizing the Days to Pay measure in attracting entrepreneurs to their state. More specifically, because the Days to Pay measure calculates the total tax burden borne by residents in each state, state officials may find it useful to advertise when policies are implemented that reduce this burden and move the state to a higher ranking in the index. These actions may signal to entrepreneurs that the state is creating an environment that is more conducive to entrepreneurial activity.

This paper is not meant to show that these indices are necessarily bad indices because researching them clearly shows that each of them contains very useful economic data. Instead our purpose was to take a quick look at the relationship between these variables as useful measures of the institutional environment for entrepreneurship. Further research is needed to extend these results. For example, other definitions of entrepreneurship could be used to see how these results compare. Also, for the "business friendly" measures that exist for multiple years a panel data analysis would be an important extension. Finally, it could be the case that some measures of how a state's policies are conducive to business are not actually good measures of whether they are conducive to entrepreneurship.

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