CALIFORNIA BUDGET PROJECT

February 22, 2010

TO: INTERESTED PARTIES

FROM: CALIFORNIA BUDGET PROJECT

SUBJECT: COST OF REGULATIONS REPORT IS DEEPLY FLAWED AND SHOULD NOT BE USED

In response to a number of inquiries, the California Budget Project (CBP) has reviewed a recent report by Varshney and Associates Investment Management (VAIM) on the impact of state regulations on California's economy.[1] The CBP agrees with the assessment of prominent economists that this report is "devoid of anything resembling intellectual content" and "one of the worst examples of schlock science we've ever seen."[2] The report's findings are derived from a deeply flawed analysis that disregards even the most basic principles of sound economic research. None of the report's findings hold up under scrutiny and, as such, they should not be cited or used to inform policy debates. The only useful purpose this report serves is as an important reminder that just because a study appears on the surface to have the elements of economic research does not mean that it actually follows sound methodology and results in reasonable findings. In the following memo, the CBP highlights only the most egregious of the report's numerous methodological errors. To enumerate all of the report's flaws would give the study far more attention than it deserves.

Report Bases Analysis on Poorly Defined Information in a Popular Magazine Rather Than on Verifiable Data Sources

The VAIM report makes claims about state regulations, but it doesn't even measure the impact of regulations directly. Instead, the report's analysis relies on a poorly defined ranking of state "regulatory environments" published by *Forbes* magazine, in which the top-ranking state is deemed to have the "best" regulatory environment for businesses and the state ranked 50th is said to have the "worst" environment. Specifically, the report's analysis suggests that if a state's rank on the *Forbes*

[1] Sanjay B. Varshney and Dennis H. Tootelian, *Cost of State Regulations on California Small Businesses Study* (September 2009). This study was commissioned by the Office of Small Business Advocate, as required by AB 2330 (Arambula, Chapter 232 of 2006).

[2] Personal communication with Christopher Thornberg, Beacon Economics (January 20, 2010) and Christopher Thornberg and Jon Haveman, "Viewpoints: State Rules Stymie Economy? Don't Trust Professors' Study," *Sacramento Bee* (October 12, 2009). See Appendix A for the full *Sacramento Bee* column.

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index were to increase by one – that is, if its regulatory climate "deteriorated" relative to other states – that state's annual economic output – the sum of all the goods and services produced in the state – would be $4.4 billion lower. This relationship between the *Forbes* regulatory climate ranking and state economic output is the basis for all of the VAIM report's claims.

Constructing an analysis around the *Forbes* ranking doesn't make sense because it's not clear exactly what the *Forbes* report means and whether it is an appropriate measure of state regulations. Since *Forbes* does not disclose the data sources or methodology used to develop the rankings, they cannot be independently assessed or verified. Consequently, it's impossible to determine whether the *key measure* upon which the VAIM report's conclusions are based is valid.[3] In fact, *Forbes'* ranking may *not* be a legitimate measure given research showing that some business climate rankings do not "do a very good job of measuring what it is they claim to measure, and they do not, for the most part, set out to measure the right things to begin with."[4] Moreover, basing an analysis on a poorly documented state ranking results in findings that cannot be understood in terms of concrete policy implications. Without information on which regulations contribute to a high or low rank on the *Forbes* index, it's impossible to determine what specific policy changes might improve a state's regulatory environment.[5] It would have been far more meaningful – and more transparent – had the VAIM report measured the impact of regulations separately and directly.

Correcting for a Significant Methodological Flaw in the Report's Analysis Reverses Its Key Finding, Invalidating the Entire Report

The VAIM report's analysis suffers from a significant methodological flaw: The authors failed to adjust their estimate of the impact of regulations on economic growth so that it is proportional to the size of state economies.[6] This error results in the highly suspect finding that the costs associated with regulations far exceed many states' total economic output. Specifically, the report's analysis suggests that each additional rank higher on the *Forbes* state regulatory climate index is associated with $4.4 billion in lost economic output each year, *regardless* of how big or small a state's economy is. This implies a loss of $4.4 billion for the state ranked first – the state with the "best" regulatory climate – and a loss of $221.2 billion for the state ranked 50th – the state with the "worst" regulatory climate. Since these costs are not adjusted for the size of state economies, they suggest vastly disproportionate impacts across states. For example, the cost of regulations in Vermont is supposedly $179.2 billion per year,

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[3] The only information provided by *Forbes* is that the regulatory environment ranking "measures regulatory and tort climate, incentives, transportation and bond ratings." From this description, it's impossible to assess whether this ranking is actually a valid indicator of states' regulatory environments. It's unclear what specific factors were included in the ranking, how exactly they were measured, whether all relevant factors were included, whether any irrelevant factors were included, and whether the factors were appropriately weighted by importance. Indeed, it's unlikely that the authors of the VAIM report themselves had answers to any of these questions.

[4] Peter Fisher, *Grading Places: What Do the Business Climate Rankings Really Tell Us?* (Economic Policy Institute: 2005), p. 72. More fundamentally, it simply may not be legitimate or meaningful to combine into a single index numerous data sources measured in different units that are not necessarily directly comparable. Fisher evaluates eight indices of state "competitiveness," but not the *Forbes* regulatory environment ranking specifically.

[5] Indeed, the inherent problem with using a ranking for this analysis is that each state's rank depends on other states' regulatory climates. This means that a state's rank could improve – even if the state made *no changes whatsoever* to its regulatory policies – simply because other states' regulatory climates deteriorated.

[6] To estimate the impact of business regulations on state economic output, the VAIM report's authors developed a "linear regression model" – a tool frequently used by researchers to explain how one variable affects another. For the results a regression analysis to be valid, the analysis must include all significant variables. For example, to isolate the impact of business regulations on economic output, the analysis should "control for," or hold constant, all the other factors that affect how much state economies produce. The VAIM report's authors failed to include in their regression model a variable that controls for the size of state economies, which is arguably *the most important factor* that affects state economic output: The amount of goods and services state economies can produce is largely a function of their size. The report's regression controls for states' rank on five other *Forbes* rankings, in addition to the regulatory climate ranking, including indices of business costs, labor, economic climate, growth prospects, and quality of life. These rankings are not clearly defined so it's not clear exactly what they measure.

according to the report.[7] That's *eight times greater* than the total amount of goods and services produced in the state.[8] Yet in California, where the regulatory environment is about the same as Vermont's – based on the *Forbes* rankings – the cost of regulations equals approximately one-tenth of the state's economic output.[9]

The VAIM report's failure to adjust its estimates for the size of state economies essentially invalidates all of the study's claims. To demonstrate the significance of this methodological flaw, economists at Beacon Economics replicated the report's analysis, correcting for this problem in the study's design, and found that doing so *reverses* the report's central conclusion: According to this revised analysis, state regulations *boost* state economic output (Appendix A).[10] Thus, a simple correction in the report's methodology dramatically alters its key finding, revealing that the entire report is erroneous.

Report's Flawed Analysis Produces Nonsensical Conclusions

The VAIM report's flawed analysis produces other illogical findings that should have signaled to the authors that their study's design was faulty. The report suggests that a state's economy would produce substantially more if the cost of doing business in that state *increased* or if the quality of its workforce *deteriorated*. For example, the report's analysis suggests that a state's annual economic output would be $623.6 billion *higher* if business costs in that state were to rise from the lowest to the highest in the nation. Similarly, the analysis implies that a state's annual economic output would be $524.9 billion *higher* if the quality of that state's workforce were to deteriorate from the "best" to the "worst" in the US.[11] In fact, the magnitude of these economic gains far exceeds the magnitude of the losses the report claims are associated with poor state regulatory environments: The report's analysis suggests that a state's annual economic output would be $216.8 billion *lower* if its regulatory climate were to deteriorate from the "best" to the "worst" in the nation. These findings lead to the absurd conclusion that states stand to benefit more by implementing policies that *raise* the costs of doing business and *diminish* the quality of their workforces than by implementing policies that improve their regulatory climates.[12]

Report's Flawed Findings Are Grossly Exaggerated

Not only are the findings of the VAIM report seriously flawed, those flawed findings are grossly exaggerated. The report's authors inappropriately inflate their estimate of the costs associated with business regulations by misusing an analytical tool commonly used by economists. Specifically, the authors use an economic model to estimate how the "direct" cost of regulations to businesses – derived from their deeply flawed analysis of the *Forbes* regulatory climate rankings – ripples through the economy and results in "indirect" costs. A direct cost of regulation could

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[7] The report averages states' rank on the *Forbes* regulatory environment index in 2006 and 2007 and multiplies this number by $4.424 billion to derive an estimate of lost economic output. Vermont ranked 46th in 2006 and 35th in 2007, which results in an average rank of 40.5 during this two-year period.

[8] The report compares "lost economic output" to states' 2007 gross state product (GSP). Vermont's 2007 GSP was $22 billion, according to the report.

[9] California ranked 41st on the *Forbes* regulatory climate index in 2006 and 39th in 2007, for an average rank of 40 during this two-year period. According to the report, this implies a $177.0 billion loss in economic output. California's 2007 GSP, according to the report, was $1.6 trillion.

[10] However, since the study suffers from numerous methodological flaws in addition to this one, these results should not necessarily be interpreted as the "right" conclusion about how business regulations impact state economies. Christopher Thornberg and Jon Haveman, "Viewpoints: State Rules Stymie Economy? Don't Trust Professors' Study," *Sacramento Bee* (October 12, 2009).

[11] The report bases its analysis of these factors on *Forbes*' rankings of the "best" and "worst" state business climates. The cost of doing business ranking measures "cost of labor, energy, and taxes," and the workforce ranking measures "educational attainment, net migration, and projected population growth."

[12] Christopher Thornberg and Jon Haveman, "Viewpoints: State Rules Stymie Economy? Don't Trust Professors' Study," *Sacramento Bee* (October 12, 2009).

include, for example, reduced profits for businesses due to state regulatory fees, while an indirect cost might include the lost jobs and wages that result if businesses respond to diminished revenues by reducing the size of their workforce or paying their workers less.[13] However, using this economic model was inappropriate and redundant because the authors' initial cost estimates derived from the analysis of the *Forbes* index *already included indirect costs*.[14]

This error results in findings that are virtually inconceivable. The report claims that the total annual cost to California's economy resulting from regulations is $493.0 billion. That supposed loss of economic output is on par with the total decline in the *nation's* economic output during the "Great Recession" of 2007 to 2009, which was the longest and most severe downturn in the US since the Great Depression.[15] The report also suggests that California's regulations result in nearly four times as many jobs lost each year as the state lost during current downturn.[16] According to one economist's assessment, the report's findings are so exaggerated that if a plague were to kill 20 percent of California's population, it would probably have less of an impact on the state's economy than the impact the VAIM report claims results from business regulations.[17]

Conclusion

The VAIM report should not be used to inform policy decisions. The report's authors failed to base their analysis on transparent, verifiable data sources; failed to adhere to basic rules of econometric analysis and, consequently, made serious statistical errors; and failed to recognize the absurdity of their flawed results. Pseudo-research like this simply distracts from serious policy debates.

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[13] The report does a poor job defining these costs. This is our best attempt to interpret what these costs include.

[14] Personal communication with Jeffrey Michael, director of the Business Forecasting Center and associate professor at the Eberhardt School of Business, University of the Pacific. According to Jeffery Michael, "Beacon Economics Rips Sacramento State Study on Regulatory Costs," *Valley Economy* (October 13, 2009), the VAIM report's inappropriate use of this tool, called IMPLAN, is "one of the worst abuses of IMPLAN I have ever seen." Disturbingly, the authors of the report actually claim that their estimates are *understated*.

[15] Bureau of Economic Analysis data show that inflation-adjusted US Gross Domestic Product (GDP) declined by $489.7 billion between the fourth quarter of 2007, when the national recession began, and the second quarter of 2009, when GDP reached a trough. These data are reported in 2005 dollars.

[16] The report claims that California loses 3.8 million jobs per year as a result of the cost of business regulations. California lost 1,054,400 jobs between July 2007 and December 2009.

[17] Jeffery Michael, "Beacon Economics Rips Sacramento State Study on Regulatory Costs," *Valley Economy* (October 13, 2009).

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Viewpoints: State rules stymie economy? Don't trust professors' study

By John Haveman and Christopher Thornberg
Special to The Bee
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A new study by two professors at California State University, Sacramento, estimates that the burden on California's economy resulting from state regulations amounts to a shocking $500 billion - nearly one-third of the state's output.

Disturbingly, this result is based on one of the worst examples of schlock science we've ever seen. And chillingly, it is already being held up by a number of state leaders as a shrill rallying cry in the partisan fight over the state's regulatory environment.

This is truly bad analysis, and it matters because it once again points to the urgent need to have policy research vetted through third parties for methodological soundness and intellectual honesty. Now more than ever, the state must make it a priority to base policy decisions on rigorous research rather than pseudoanalysis that twists or flat-out ignores the truth.

The report's authors generate their estimate of direct losses caused by California's regulatory environment using a statistical technique called regression analysis. This method allows researchers to measure the direct impact of one variable while controlling for many others. For example, it might allow a researcher to see the direct impact of exercise on weight loss after controlling for other factors such as caloric intake and age.

In this study, the authors purport to assess the economic output of all 50 states based on six measures of the business climate taken from a Forbes magazine survey. The six categories include such things as the quality of the local labor force, the overall cost of doing business and, of course, the regulatory environment.

Each state is ranked in each category using a simple 1-to-50 ranking, with 1 being the best state and 50 being the worst. California is ranked unfavorably in most of the categories, including regulatory environment. The authors compare what the state's economic output is today relative to what they imagine it would be if it were ranked first in this category.

Regression analysis is an invaluable tool for academics, but it relies critically on all statistically important variables being included in the model. To leave out a key variable biases the results and can create nonsensical outcomes.

In this case, the authors do not even control for the most basic determinant of economic output, the size of the labor force - shockingly obvious when you consider that Los Angeles County alone has a larger work force than 44 U.S. states.

Indeed, if you add this one key variable to the equation, the negative relationship the researchers find between the Forbes ranking of regulatory environment and economic output is actually reversed. Whoops!

The illogical results are abundantly clear elsewhere in the report. For example, the results for two of the other measures - the cost of doing business and the quality of the labor force - imply that California could increase its economic output by reducing the quality of its labor force and increasing the cost of doing business in the state. This seems absurd.

There are plenty of other fatal flaws in the "science" behind these numbers, but there is a bigger point to be made. While California's regulatory environment has plenty of room for improvement, to date we seem to have largely overcome these self-inflicted obstacles.

After all, the state has grown faster than the United States overall in terms of employment, income, population, jobs and economic output since 1994. This is the case even after we add in the pain of the current downturn. No coefficient can triumph over this most basic of truths.

California's leaders need to find ways to improve our economy and help it grow. Blanket condemnations of the state's regulatory environment based on research that can kindly be characterized as "highly flawed" do nothing to help. It is not too much to ask that policy debates focus on real research that attempts to measure both the positive and negative results of the rules in question.

Christopher Thornberg and Jon Haveman are economists and the founding principals of Beacon Economics, an independent economic research and consulting firm with offices in Northern and Southern California.