

# **Summary of Analysis of the Legislative Service Commission Report (May 2002) on S.B. 102, Exempting School Construction from Prevailing Wage Requirements**

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To review for a minute, when the Ohio General Assembly created the Ohio School Facilities Commission, it exempted school construction from Ohio's prevailing wage laws. This is known as Senate Bill (S.B.) 102, and it took effect in August 1997. That law mandated that the state's Legislative Service Commission (LSC) report within 5 years as to the amount of money saved by districts due to the exemption, the impact of the exemption on the quality of construction, and the impact of the exemption on wages of construction employees. After publishing some preliminary reports, the LSC in May 2002 published its final report. They claim there were "indications of \$487.9 million" in savings, without an impact on construction quality or on construction employee wages. Their report often admits how difficult it is to gather good data and reach definitive conclusions. Their report is highly statistical, and I was asked to evaluate its use of statistics.

There actually are several parts to the LSC report. Let me start with the less statistical parts. One part is based on a survey of school districts about quality. They asked school superintendents around the state about the quality of school construction before and after the exemption of school construction from prevailing wage legislation. However, this survey of school districts is very subjective. Even the LSC Report admits that the quality of construction depends on "one's point of view." They asked whether "compared to projects subject to prevailing wage requirements, non-prevailing wage projects are of higher quality, are of about the same quality, or are of lower quality." However, the comments they quote about quality generally focus instead on whether or not the person likes the exemption, so they can be giving biased answers about the quality. They should instead have asked about the quality of specific parts of the process in a manner that would have obtained more objective replies. Furthermore, quality cannot be fully assessed over the few years since the exemption was instituted, since the goal for construction should be to have high enough quality to be useful for the long term. Let me quote one answer "I cannot answer this question at this time. Quality is usually discovered after a period of time. It takes a while before shoddy work and poor quality work begins to show." Besides, the surveys had a low response rate, which can bias the survey results. In fact, the LSC report didn't even indicate the distribution of the responding districts around the state so one could tell how representative they are.

There was also a survey of contractors about costs. They asked contractors to state what their bid prices would have been under prevailing wages. That's a terrible question, because non-union contractors had an incentive to overstate the prevailing wage price, as the LSC report itself admits. And the response rate on this survey isn't even reported

The LSC report also analyzed Current Population Survey data on wages. But that survey is a national survey conducted by the U.S. Census Bureau, and, as the LSC report admits, it "is not a representative sample of Ohio construction workers." What was worse yet is that the LSC report divided that survey into ridiculously small categories of people. For example, they claim an increase of 156% in hourly pay rates for glaziers. But when I looked closely at their table, it became clear that they were comparing one non-union glazier before the exemption to one union glazier after the exemption. That is simply ridiculous -- you can't do statistical comparisons based on one or two people. Sample surveys are designed to permit generalizations to larger populations, but not from data for a single person.

So, what we have so far is 3 surveys. A survey of school districts in which people are invited to answer subjectively, a survey of contractors in which the contractors had an incentive to overstate the prevailing wage price, and misusing a national survey on wages that does not necessarily show what wages are like for Ohio workers. All in all, these surveys do not provide very compelling evidence.

But, the part of the LSC Report that was quoted the most was when it claimed nearly \$500 million in savings since S.B. 102 took effect, and that was what I analyzed the most. Was there really \$488 million in savings from the exemption of school construction from prevailing wages? My analysis of their Report shows that is not the case. The *Columbus Dispatch* published an article based on this part of my study, they interviewed the Legislative Services Commission, and the LSC did not dispute my findings. The *Dispatch* actually interviewed James Burley, the director of the Legislative Service Commission, and they report that he "did not dispute Weisberg's analysis." So, let's go through that part, and I'll try to keep the statistics light.

S.B. 102 took effect in August 1997. The LSC Report was published in May 2002, so they were analyzing data over that 4+ year period. A company known as F. W. Dodge collects information on construction projects, including their bid prices. The LSC Report was based on statistical analysis of the Dodge data. Several people have analyzed the Dodge data for states including Ohio, and no one before found significant savings from exempting construction from prevailing wage legislation. Indeed, the LSC Report summarizes their results with paragraph after paragraph of showing that prevailing wages did not significantly affect construction costs. This was the case for a study by Prus in 1996, another Prus study in 1999, a Philips study in 1999, and another Philips study in 2001 -- no significant costs increases for school construction from prevailing wages. Since then there has been a 2002 study by Azari-Rad, and again he does not find the prevailing wages affects costs. And, when I looked carefully at the LSC Report, I found that they too did not find statistically significant savings.

The statistical technique that these papers routinely use is a very standard statistical technique called "regression analysis," and that is what the LSC used too. The idea is to try to analyze statistically the differences in bid prices, looking to see how important various possible causes of differences in bid prices are between different projects. For example, you'd expect higher bid prices for senior high schools than for elementary schools, so the type of school may reasonably be expected to explain why some projects are bid higher than others. Regression analysis tries to pick apart the effects of prevailing wage, type of school, and other factors on the bid prices.

Regression analysis fits an equation to the data, and the claimed \$488 million saving comes from the equations that they fit to the data. But an important question is how well the equations fit the data. Regression analysis reports a statistic showing how good the fit is. It would report 1.00 if it fit 100% of the data -- 100% of the differences in bids between different projects. However, this statistic in the LSC analysis is generally around .03, or even lower, meaning that at most 3% of the differences in bids between projects are being explained. Of the \$488 million savings their Report claims, \$408 of that comes from school additions, and their equation for additions only accounts for 1% of the differences in bids. Explaining only 1-3% is meaningless. Good regression equations can be used as prediction equations, if they're explaining say 70% or maybe even 50% of the differences, but not a regression equation explaining only 1-3%. That's one of my main statistical criticisms of the LSC Report, and I can assure you that any statistician would agree with me on that.

Let me give you a different example of this procedure. Several political scientists have developed regression equations that they're using to predict in advance the outcome of U.S. presidential elections. These equations typically predict 90+% of the differences in vote results between different elections, which is a lot higher than the 1-3% in the LSC Report. However, two of the major prediction efforts in the 2000 U.S. election predicted that Gore would win with 57% and 60% of the vote! If the election had been that one-sided, there would have been no need for the election to end up in the U.S. Supreme Court. Now those are prediction equations that claimed 90+% explanatory success and were that far off in predicting the result of the presidential election. Imagine how far off equations are that have only 1-3% explanatory success. You just can't predict from them validly, and the LSC shouldn't have used them to estimate savings. They are not valid equations to use for estimation purposes.

One more very important point. This statistical technique shows the effect associated with each possible causal factor, like whether the school is a senior high or whether prevailing wages were paid. This statistical technique also shows whether that effect is large enough to be considered "statistically significant." That's the important phrase: "statistical significance." If it's not significant, the effect could just be due to random chance. The effect of prevailing wage in the LSC Report is NOT statistically significant. And there are several analyses of the Dodge data by other people, mainly from states other than Ohio, and they always find that the effect of prevailing wages is not statistically significant. If it's not statistically significant, there's nothing there. And there's nothing here. I couldn't publish a journal article if my findings are not statistically significant. A new disease treatment is not going to be used in the medical field unless they find that its claimed effect is bigger than you'd expect by chance. The effect of prevailing wage is NOT bigger than you'd expect by chance. This means that prevailing wage simply does not matter. The exemption did not save money. There was no cost savings.

A final essential point before I summarize. The Dodge data refers only to accepted bids for projects. It doesn't keep track of the actual cost of the construction, so it doesn't check whether there was a cost overrun. Obviously, the actual cost can be much higher than the original bid, especially if the low bidder is inexperienced in keeping costs within the level of the bid. Therefore, the Dodge data can never be used to show actual cost savings.

Putting this together, the equations have nearly zero-explanatory power and the effect of prevailing wage is not statistically significant. You just can't use these results to try to predict the cost savings from the exemption from prevailing wages. Indeed, the best evidence from the LSC analysis is that prevailing wage has no effect on the bids.

There's a lot more detail in my analysis of the LSC Report. There are several secondary analyses in the LSC Report that it takes a while to figure out, and my analysis had to be complete, looking at each part of their report and trying to describe what it means technically.

But let me finish by returning to the main point. All the Prevailing Wage effects that the LSC Report claims are not statistically significant. All estimates of cost savings are based on faulty reporting of statistical procedures. There is no evidence in the LSC Report that the prevailing wage exemption reduces construction bids, let alone the actual cost of projects.