



GETTING OUR **MONEY'S WORTH?**

*An Evaluation of the Economic Model Used
for Awarding State Business Subsidies*

By Elaine Mejia, Kristopher Nordstrom, and William Schweke

March 2007



NC BUDGET & TAX CENTER

A Project of the



NC JUSTICE CENTER

ABOUT THE JUSTICE CENTER

The Justice Center is a statewide, non-profit advocacy organization dedicated to securing economic justice for disadvantaged persons and communities. The mission of the Justice Center is to address poverty by ensuring that low-income individuals and communities have the resources and services they need to move from poverty to economic security. The work of the Justice Center is based on the belief that four objectives must be realized to enable disadvantaged individuals and communities to move from poverty to economic security. They include:

- work that is safe, pays a living wage and provides benefits that will enable a family to be self-sufficient;
- government action that supports and protects those able to work;
- a safety net of income and services that supports those unable to work;
- equal opportunity for low-income persons to achieve economic security free of discrimination.

To achieve its mission, the Justice Center works in collaboration with North Carolina's disadvantaged individuals and communities employing a multi-forum advocacy model in which the Center uses four primary strategies to fight poverty:

Litigation: Undertaking high-impact litigation to ensure that the rights of traditionally underrepresented populations are protected.

Research and Policy Development: Conducting and disseminating policy research and developing alternatives to existing policy on key issues facing traditionally disadvantaged populations.

Public Policy Advocacy: Working with traditionally underrepresented populations to define and shape the public policies that will most dramatically impact their communities.

Grassroots Empowerment/Community Capacity Building: Developing and implementing initiatives designed to enable low-income, working poor and minority individuals and community-based organizations to take the lead in solving the problems that they face.

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North Carolina Living Income Initiative
North Carolina Immigrants Legal Assistance Project
North Carolina Poverty Law Litigation Project
North Carolina Education and Law Project

North Carolina Budget and Tax Center
North Carolina Consumer Action Network
North Carolina Health Access Coalition
Grassroots and Community Empowerment Project

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EXECUTIVE SUMMARY

Over a year ago, the bidding war for the Dell Inc. computer assembly plant, which located in Forsyth County, created a great deal of controversy due to the overall costs involved and the large discrepancies between the North Carolina and Virginia bids. The Tar Heel State offered \$242 million (and its counties offered almost \$40 million more), while Virginia's total offer was only \$37 million. Moreover, North Carolina's model projected 8,086 jobs created or stimulated by these investments, while Virginia estimated only 4,113 jobs. These discrepancies, coupled with the lack of sufficient data and analysis published by the state about these large subsidy deals, are the impetus for this report.

Recent controversial deals with Google and other firms are heightening citizen and elected official interest in the rising incentive costs and the danger of bidding too much to attract new business. House and Senate leaders recently announced the formation of a special joint committee that will examine the state's use of business incentives.

This report explores concerns about the costs and benefits of North Carolina's business incentive efforts and seeks to educate policymakers, the media, and citizens about the use of economic and fiscal impact models, which are key tools of accountability.

The report's main finding is that, despite employing an economic impact model designed to help the state develop optimal bids, North Carolina taxpayers are not adequately protected from the risk of over-bidding. Furthermore, in some cases, the state could be losing tax revenues on these deals, rather than gaining revenues as its fiscal model projects.

An examination of the Virginia project's public records suggests that North Carolina dramatically overbid for the Dell deal. The authors closely examined the cost-benefit model used by the North Carolina Commerce Department to justify large incentive deals. Under certain scenarios and using the state's own methodology, the employment, income, and fiscal impacts projected for the Dell project appear to be rather high – at least 3 times higher than more conservative simulations.

The magnitude of the North Carolina bid for Dell appears to have been driven by two factors. The first is a number of weaknesses in the North Carolina economic model, which can be addressed to make projections more accurate and reasonable. The second is a reliance on sales estimates provided by Dell of \$2.3 billion, which is significantly higher than estimates from standard methodologies.

When equally if not more plausible assumptions were used in the same North Carolina Commerce Department model, the total projected 20-year impact on Gross State Product (GSP) decreased from \$24 billion to between \$5 billion and \$8 billion, while the net change in state revenue dropped from positive \$707 million to between negative \$63 million and negative \$72 million.

The economic projections from the North Carolina model were compared against two alternative models: one developed in part by the Iowa Department of Economic Development and one used by the state of Virginia in formulating its bid for the Dell plant. Both models returned results that were less optimistic than those predicted by the North Carolina Department of Commerce. In addition, the results between models varied significantly.

These various comparisons are not meant as an indictment of the North Carolina Department of Commerce. While the variables chosen by the North Carolina Department of Commerce appear to be overly optimistic, it is possible that a case can be made for using the more aggressive numbers. Economic projections from these models are educated guesses, and policymakers will be best served by adapting a cautious approach, and reflecting on results.

However, a preliminary review of 31 projects receiving Job Development Investment Grants (JDIG) confirms that the weaknesses of the Dell projections may be widespread. Aggressive use of a reasonable, but imperfect, model appears to be leading the state to regularly make overly generous incentive offers.

The findings can be summarized as follows:

1. Neither this report's nor Commerce's projections should be regarded as 100 percent correct. Each model has its strengths and weaknesses, and input variables require a degree of guesswork.
2. Models can be very volatile, and changing one number for an assumption can cause significant swings in the outcomes.
3. The North Carolina model is principally driven by its projected annual sales figure, which might not be appropriate for modeling the effects of multi-state corporations, because the sales figure includes profits for the shareholders--most of whom live outside the state. Thus, it is very important to build in this "leakage" into thinking and modeling.
4. For the Dell deal, the North Carolina Department of Commerce used a sales number provided by Dell, rather than numbers generated by its regular method of estimating sales at a particular facility. The Dell sales estimate of \$2.3 billion appears unrealistically high.
5. Application of a less aggressive sales number produces a prediction that the size of the final incentive package was too large and may result in a loss of public money on the deal.
6. *Using sales estimates to drive the model's estimate of Gross State Product and fiscal impacts is too imprecise and ultimately not the best choice. Sales*

estimates cannot be readily reviewed or verified, which leaves open the possibility of either the prospect or a state policymaker using them to “game” the negotiations and the public relations of the deal. *We think it’s the “fatal flaw” of an otherwise credible model. Employment numbers should, instead, drive the model.*

The authors make the following recommendations regarding the model:

1. Adjust the model to improve the accuracy of projections.
2. Improve its applications with better and more cautious assumptions.
3. Conduct needed incentive policy and program reviews.
4. Enhance openness and public scrutiny in a number of ways, such as posting the model and the final spreadsheets on all project agreements on the Department of Commerce website in a user-friendly and interactive fashion.
5. Improve the process for delivering information about potential projects to policymakers.

In addition, we suggest a series of other subsidy accountability reforms, such as:

1. Raising the return on the state’s public investments by targeting more disadvantaged areas, including stronger “clawback” provisions, and requiring “first source hiring.”
2. Crafting a unified development budget (UDB) report that identifies and totals all on- and off-budget spending on development to provide policymakers a better understanding of overall spending on economic development.

With some refinement in its assumptions, greater openness and accountability for its processes and projections, and a commitment to continuous improvement, North Carolina’s economic and fiscal impact model could become a marvelous tool for generating more and better development returns for its citizens.

INTRODUCTION

No state can rest on its laurels when it comes to economic development and jobs. No policymaker wants to be seen creating the sort of business climate that drives firms away and discourages employment creation and private investment. But investing scarce public monies unwisely can harm state economies. *Citizens have a right to know if they are getting their money's worth.*

In 2005, state Senator David Hoyle and state Representatives Jennifer Weiss and Daniel McComas introduced legislation to make public the information necessary to evaluate key elements of North Carolina's economic development efforts. Now public law (S.L. 2005-429) clarifies the "open records" law in a way that allows citizens and policymakers to access the data and information needed to more fully understand the workings of North Carolina's incentive programs. Key memos, spreadsheets, and e-mails are now available to the press, the public and others by request.¹

The North Carolina Department of Commerce has also taken the step of developing, with economics professor Michael Walden, a model for projecting potential costs and benefits of big recruitment prospects. This is an important advance. Department of Commerce staff review the model's projections and develop a customized package of in-kind and financial inducements that they think will lead a company to locate the facility in North Carolina. Ideally, the model should aid the state in making an optimal bid - not too much, but not too little.

But a model is only as good as its assumptions, and it has to be used prudently to guide decisions on how much is too much.

The recent events concerning the incentive package offered to Dell Inc. to attract a computer manufacturing plant are a case in point. North Carolina offered \$242 million (and its counties offered almost \$40 million more), while Virginia's total offer was only \$37 million. Moreover, North Carolina's model projected 8,086 jobs created or stimulated by these investments, while Virginia estimated only 4,113 jobs. These discrepancies, coupled with the lack of sufficient data and analysis published by the state about these large subsidy deals, create significant concerns that are laid out in this report.

This paper consists of seven elements:

1. We provide background on the science, art, and use of cost-benefit models.
2. We carefully examine the structure and methodology of the model used by North Carolina's Department of Commerce.
3. We rerun the numbers where they appear questionable, using the Dell project as an example.
4. We examine a portfolio of 31 Job Development Investment Grants (JDIG) deals and see if their figures need to be adjusted.² Furthermore, we discuss

the fiscal implications of providing windfalls to companies that would have located in North Carolina without JDIG and other fiscal sweeteners.

5. We raise the issue of the cost of the Dell project relative to other potential uses of these funds - universal preschool in North Carolina, incumbent worker training, manufacturing modernization, and research and development (the "opportunity costs" of one investment relative to another).
6. We offer a number of policy recommendations.
7. Finally, we conclude with additional reflections about whether state policymakers are balancing their fiscal stewardship roles effectively with their economic development functions.

A PRIMER ON COST-BENEFIT AND OTHER MODELS

Economic impact models constitute an effort to spend limited public funds prudently. They require the user or designer to identify all costs and benefits, identify all parties that are affected, watch out for double-counting, and pick the right time frame and discount rate. But doing this quickly gets complicated. There are 10 basic steps that all economic development officials should consider, according to Schramm and Wilcox:

1. Identify the need for public investment and the alternatives to be evaluated.
2. Establish a planning horizon for the analysis.
3. Establish the reference groups (e.g., small firms) for the analysis and their goals (for example, management assistance increases the likelihood that the business will survive).
4. Identify the effects of the alternatives (e.g., new highway versus smaller class sizes; targeted subsidies to a few firms versus general business tax cut, etc.) under consideration and classify them as costs or benefits.
5. To the extent possible, quantify project effects.
6. To the extent possible, put costs and benefits on a common basis by applying an appropriate discount rate to find present values such as net positive benefits, social return, etc. that ease decision making.
7. Identify the uncertainties associated with the costs and benefits.
8. Adjust for the effects of inflation, if necessary.
9. Condense findings into a summary number, such as net positive benefits, social return, etc., to avoid data overload and to ease decision making.³
10. Evaluate the alternatives and make a final choice.⁴

Straightforward? Yes. Easy? No. It is often quite difficult to identify credible numbers for a key variable in a model. This inevitably leads to reasoned and imaginative speculation, and despite the best of intentions, an analysis can go wrong. In evaluating economic

incentive packages, analysts are often overly dependent on numbers provided by the private sector firm or developer to flesh out the model. The self-interest of the involved parties on both sides of the negotiation encourages a tendency to view the project through “rose-colored glasses”.

Similarly, there is a tendency to gloss over risks and probabilities. All too often, discussions of the larger trends that might affect the project and the danger posed by a poorly timed or unpredictable event do not take place. Indeed, a cost-benefit tool has much greater integrity if its users are cautious in their expectations of benefits, recognize that “there are no solutions; there are only trade-offs,” and appreciate the fact that the proposed option must be compared with something (even if it’s only the status quo).

Cost-benefit and fiscal impact studies can be used to evaluate a proposed incentive tool (with pro forma data), to help make a better decision about offering a particular incentive package (ex ante, or evaluating the offer), and to assess the effectiveness of an incentive program that has been operational for some time (ex post). In each case, it can separate the wheat from the chaff.

A few quick definitions:

- **Cost/benefit analysis** compares the tangible (and intangible) costs and benefits from a program or project to society as whole. These might be public expenditures as well as individual, community, or environmental gains or losses.
- A **cost effectiveness analysis** establishes a maximum level of acceptable costs by evaluating a number of policy options (including the status quo).
- A **fiscal impact analysis** simply looks at whether a specific program or project generates a revenue gain or loss for a particular level(s) of government.
- An **economic impact analysis** is another type of cost/benefit analysis. But, in this case, it looks solely at the economic impacts (e.g., presumed additional income, employment, private investment, output of goods and services) of a specific project or program.

The North Carolina Department of Commerce has a customized model that can do a fiscal impact analysis as well as an economic impact analysis. The model can be used for assessing the impacts of the state’s discretionary incentives (e.g., JDIG, One North Carolina Fund) when negotiating with a significant recruitment or retention project. The Department’s website describes it as a cost-benefit model, but strictly speaking, this is only partially true. A cost-benefit study always considers the “opportunity costs” of an alternative project, program, or policy. To be fully assessed, business subsidy programs should be compared to other uses of these funds.

Note: our later analysis and critique does not undertake this either. The models we use are fiscal/economic impact tools.

Press releases on the latest business attraction success provide minimal specifics about the North Carolina model - only noting that each project adds to gross state product, has a positive fiscal impact, and brings new jobs to the state. The public is only provided the results of the state's analysis. What the public is not told is whether the state performed any sensitivity analyses, or where they varied the assumptions and values. Most importantly, which assumptions were most significant for the outcomes? And were these reviewed closely?

This paper is the first opportunity to explore these questions and assess the effectiveness of North Carolina's economic model.

HOW DOES THE STATE OF NORTH CAROLINA DETERMINE THE APPROPRIATENESS OF INCENTIVE PACKAGES?

In 2004, the North Carolina Department of Commerce used its model in deciding to offer \$242 million in tax breaks and other incentives to Dell Inc. in order to entice the company to locate a new production plant in North Carolina. Dell was also reportedly considering locating its production plant in Virginia, but Virginia's incentive package was only \$33 - \$37 million.⁵ The massive discrepancy in the two competing incentive packages has caused many to question whether or not the North Carolina Department of Commerce is overpaying in its efforts to entice businesses to the state.

The North Carolina Department of Commerce utilizes an economic model to determine the size and appropriateness of various incentive packages to offer for a given project. The model estimates the economic impact in North Carolina resulting from the creation of a new firm, or the expansion of an existing firm. It measures the effect by

1. contribution to Gross State Product (GSP);
2. addition to statewide employment; and
3. the net effect the project and incentives will have on North Carolina's General Fund (weighing the costs of incentives against the benefits of the new tax revenues).

The measured impacts include direct jobs (new hires), indirect (jobs created by the purchases of the new plant), and induced jobs (jobs created by the buying power of those hired at the new facility).

VARIABLE	VALUE USED FOR DELL
VARIABLES RELATED TO CONSTRUCTION	
Company spending on construction	\$30 million*
Share of construction inputs from NC	99.5%
% Remaining in NC (accounts for fed. taxes and pensions)	87%
Construction value-added multiplier	2.13**
Non-NC construction worker days	25,387
Construction worker per diem	\$95
Value-added multiplier for const. worker spending	1.65**
Company spending on machinery & equipment	\$59.5 million over 8 yrs.*
Share of M&E purchased in NC	10%
Value-added multiplier for M&E purchases	1.99**
M&E installation spending	\$25.5 million over 8 yrs.*
Share of installation inputs from NC	95.5%
Value-added multiplier for M&E installation	1.54**
Construction workers from NC	Varies*
Construction employment multiplier	8.8**
General Fund revenue per dollar of income	0.0462
State incentive spending on construction	\$4 million over 6 yrs.
VARIABLES RELATED TO OPERATIONS	
Total direct employment at the Company	building to 2,355*
Value-added to sales ratio	0.32**
% Remaining in NC (accounts for fed. taxes and pensions)	87%
Income multiplier	2.39**
Total annual sales in NC plant	building to \$2.3 billion
% of sales that do NOT displace sales at other NC firms	93%
Employment multiplier	3.43**
General Fund revenue per dollar of income	0.0462
Total grants, tax credits, and job training	\$243 million over 15 yrs.
Short-term in-migrant ratio	0.25 (yrs. 1-2)
Long-term in-migrant ratio	0.50 (yrs. 3-19)
General Fund spending per worker (excl. HHS & corrections)	\$2,682
Re-employment factor (% workers previously unemployed)	5.3%
HHS & corrections spending per worker	\$1,119

* from Dell

** from IMPLAN 2001

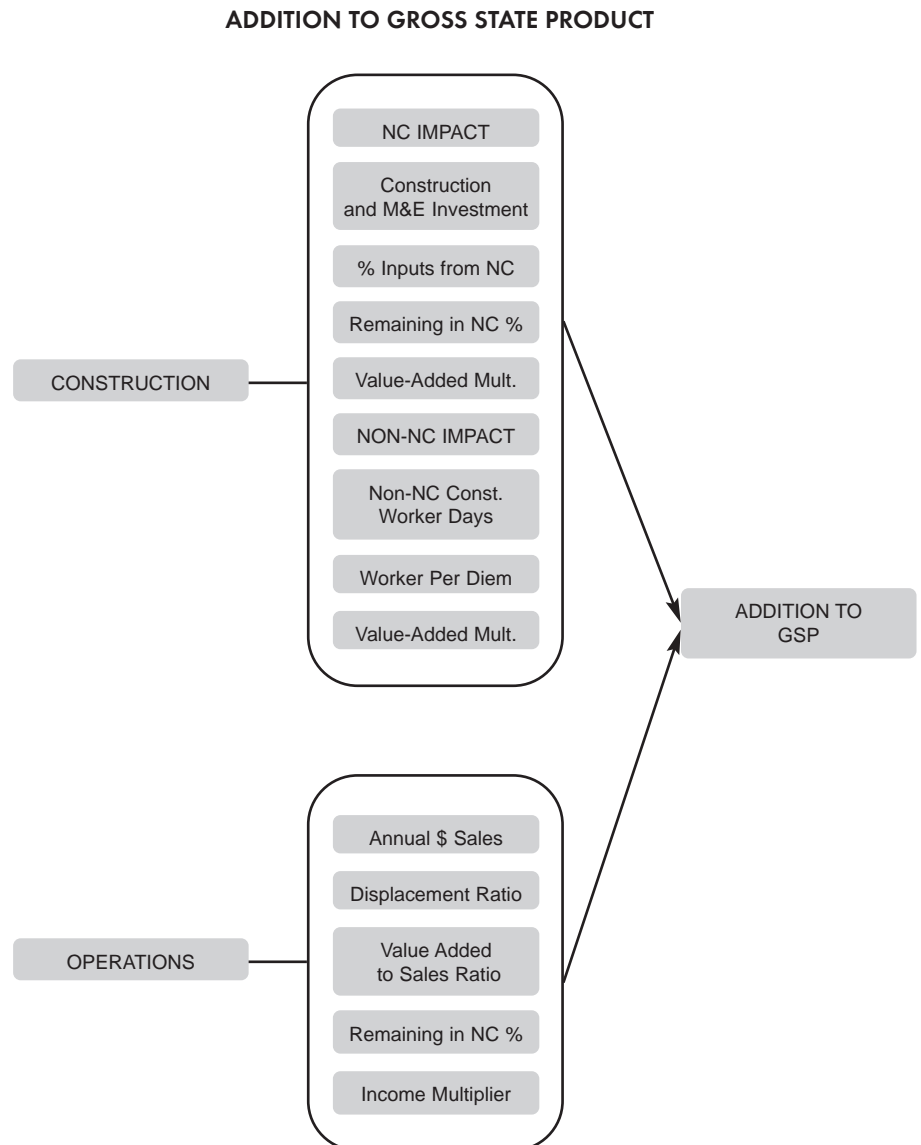
HOW DOES THE NORTH CAROLINA MODEL WORK?

The North Carolina model requires the input of several estimated variables, many of which are educated guesses and are open to interpretation and debate. This is inevitable. Some of the estimates for the inputs are provided by the company. Of course, the company has an incentive to paint as optimistic a picture as possible in order to secure a large incentive package. The Department of Commerce also has a motivation to use optimistic numbers, as its mission is to create additional jobs and business for North Carolina. Often, only the Department of Commerce's predictions are found in the popular press, and these shape public opinion of the department's performance. Retroactive investigations of actual results are seldom done or reported by most states. The DOC tries to protect itself by using the model and structuring some of the incentives to be performance based. For instance, if the company hits a hiring or capital investment benchmark, it will trigger a tax credit or grant infusion of public dollars.

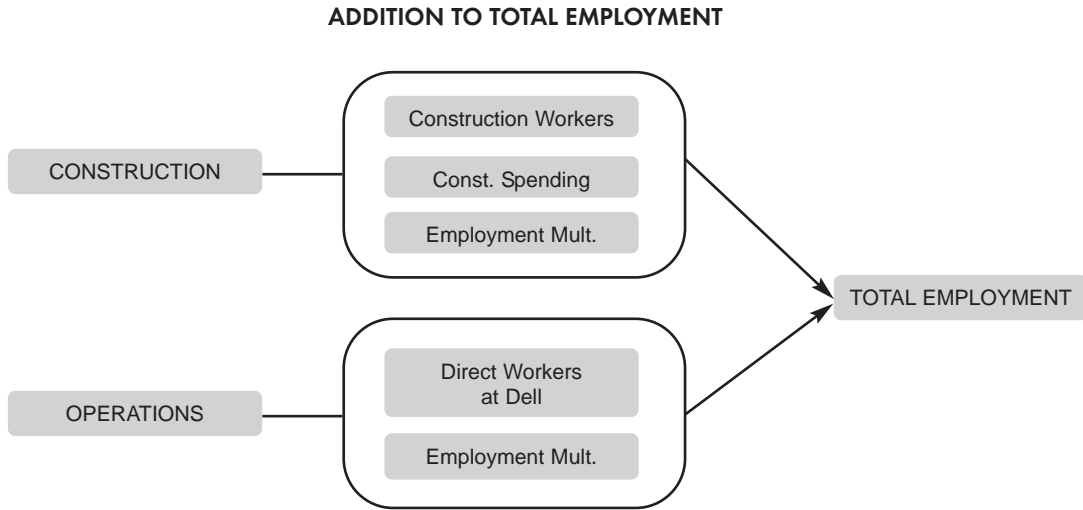
The table on page 8 is a full list of the required inputs, along with the values used by the North Carolina Department of Commerce in evaluating the effects of a new Dell plant.

Once respective values are assigned to each variable, the model will show the year-by-year impact of the project on the economy of North Carolina. Impacts include:

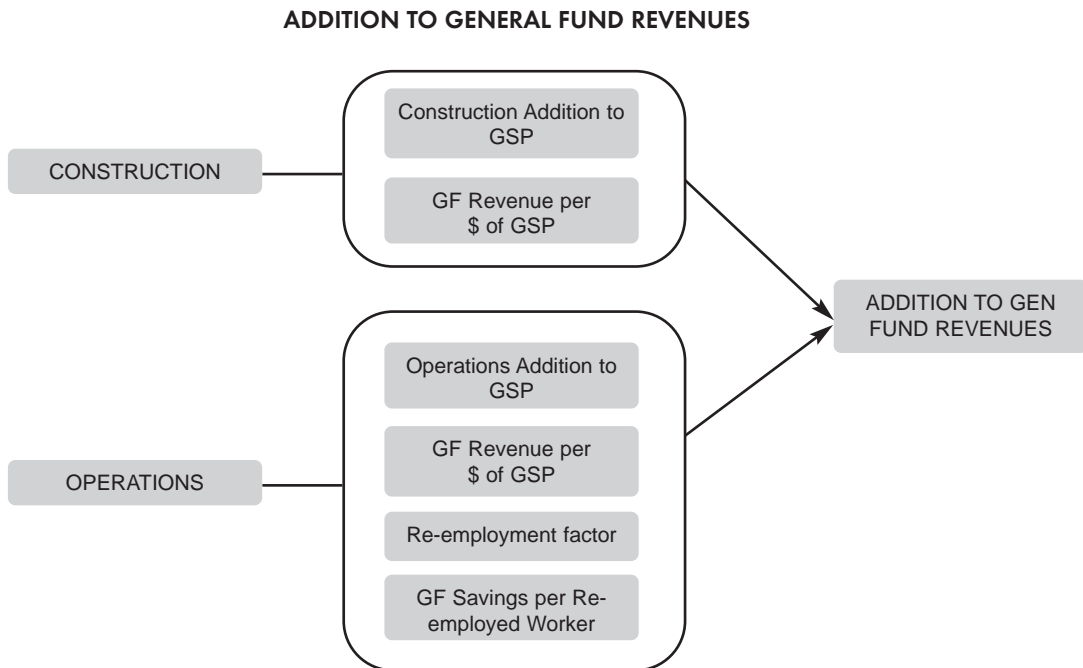
1. The yearly contribution to North Carolina Gross State Product (GSP) attributable to construction, investment in machines and equipment, and from company operations. The diagram below demonstrates which variables contribute to change in GSP.

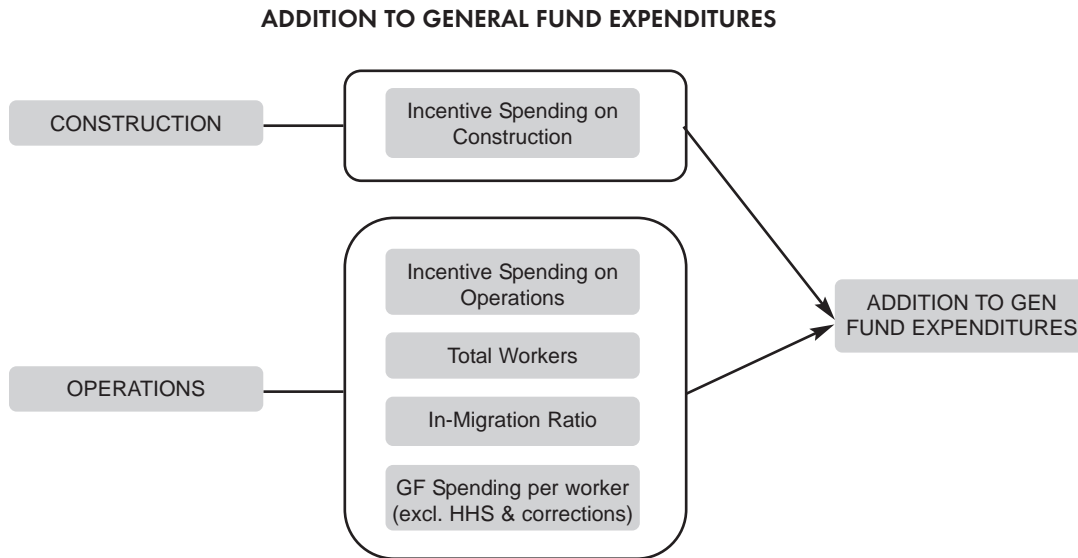


- Yearly effect on employment from construction, company operations, and those jobs created at other businesses through the multiplier effect. The diagram below demonstrates which variables contribute to change statewide employment.⁶



- The impact on the state’s General Fund includes the increased tax receipts from operations, savings as a result of newly-employed workers, less payment on incentives and new spending on in-migrants.





These effects on North Carolina's economy can then be aggregated to show the total effect of the new business over the life of the project. Generally, the state employs 10 - 20-year projections.

AN EXAMPLE: THE DELL PROJECT

The North Carolina Department of Commerce used the model described above to estimate the economic impacts of the Dell computer plant that has now been constructed in Forsyth County. Both North Carolina and Virginia were hoping Dell would locate its new plant within its borders. As such, each offered substantial incentive packages in the hopes of influencing Dell's location decision.

When modeling the impacts of the Dell plant on North Carolina's economy, the Department of Commerce anticipated that Dell would invest \$115 million in construction and purchase of machines and equipment. Once the plant came to full operation, Commerce anticipated that it would generate nearly \$2.3 billion in annual sales and directly employ 2,355 workers, 50% of whom were expected to be in-migrants from other states. According to the model, the Dell project was expected to contribute \$24.5 billion to North Carolina's GSP over a 20-year period, and lead to the creation of 8,086 jobs across the state. Despite total state spending of more than \$247 million on incentives⁷, the project was expected to have a net positive impact on the General Fund, contributing an additional \$707 million over 20 years.⁸

The state of Virginia, which used a different model and set of assumptions to gauge the economic impacts of a Dell plant, anticipated more modest impacts on its economy. North Carolina policymakers defended the optimistic projections from the North Carolina model, stating that "good people can debate about these calculations."⁹ The state of Virginia estimated that a Dell plant in Virginia would create 4,113 jobs, about

half the North Carolina projection. Virginia's incentive package (state and local) was only \$33 - \$37 million, compared to North Carolina's \$284 million package (state and local).

Given the size of the incentive packages now being granted to incoming businesses, as well as the vast discrepancies in competing state bids, it is important to determine whether or not the North Carolina model is an effective tool for ascertaining the economic effects of new business in North Carolina.

We do not know if Dell made the exact same proposal to both North Carolina and Virginia, although the total dollars are quite similar. Virginia was counting on a \$125 million project investment by Dell (\$45 million for building construction and \$80 million for machinery and equipment). The direct job estimate was the same as North Carolina's if you exclude DOC's counting suppliers as direct jobs - 1,650 employees. Interviews with the Virginia staff found that they did not remember Dell making a formal, final pitch to give them an offer. Virginia's economic development policymakers also did not recall that Dell had conducted any significant site visits in the state, which seems to indicate that the corporation was only (or primarily) interested in North Carolina.

WHY THE NORTH CAROLINA MODEL MIGHT HAVE LED THE STATE TO OVERSPEND

At first glance, the Commerce Department's model looks promising. It uses many of the variables that one would expect in a model that tries to forecast economic development and fiscal impacts. But the North Carolina model can be criticized along two dimensions. First, there is the model itself. Does the model used by North Carolina adequately and accurately capture all of the costs and benefits of the Dell deal? Second, the results can vary dramatically depending on the choice of variables and data proxies. Choosing different values for variables, such as estimated sales and employment, can lead to dramatically different results.

There are five general weaknesses in the North Carolina model:

1. **It relies upon sales numbers that might not be appropriate for multi-state corporations.** The economic impacts in the North Carolina model are almost entirely driven by the number for "annual sales not displacing North Carolina output." This sales number drives 99.6% of the effect on Gross State Product (GSP), as well as 99.6% of the plant's gross addition to General Fund revenues for the Dell plant. However, it might not be an appropriate base number from which to derive statewide effects on GSP. The model multiplies sales by a value-added-to-sales ratio to arrive at the plant's value added. This is then multiplied by an income multiplier to arrive at the impact on GSP. However, not all of the plant's value added will remain in North Carolina. Value added has four components:

- **Wages and Salaries** – These will stay in-state and should be applied to the income multiplier.
- **Profits** – Profits go back to the company and are retained, or paid out to shareholders – the vast majority of whom are not located in North Carolina. Profits therefore should not be counted in value added to North Carolina.
- **Interest Payments** – Interest payments to in-state banks are likely going to be small, as the construction could be financed internally, or through out-of-state banks.
- **Rents** – These are likely to be only a small component of value added.

For multi-state corporations then, it is more appropriate that the income multiplier only be applied to the wages and salaries portion of value added.

2. *It does not take into account the change in net government spending on GSP.* The components of GSP are consumer spending, investment, government spending, and the interstate trade balance. The North Carolina model, however, fails to account for the change in government spending caused by the incentive package. From the perspective of residents of North Carolina, public tax expenditures and subsidies directed at businesses, whether at the state or local level, are real costs that decrease GSP.¹⁰ The North Carolina model totals the income derived from Dell's decision to expand in North Carolina, but it does not take into account the net change in government spending to arrive at a net benefit figure.
3. *It appears not to discount costs and benefits, although this is in the model.*¹¹ Discounting is necessary to capture time preference. "For any project that has costs and benefits extending over extended periods (years), we need a method to aggregate the costs and benefits that occur at different times. Future benefits and costs are discounted relative to present costs and benefits in order to obtain their present values. The need to discount arises due to most people's preference to consume now rather than later. Discounting has nothing to do with inflation per se, although it takes this into account."¹² If no discounting takes place, costs and benefits in later years can be sometimes greatly overstated. It is most critical when comparing two projects, or if the timing of the deal's costs and benefits vary greatly. It could also be used to calculate the return on investment of all DOC corporate incentive projects, allowing clearer comparisons of the Dell project with the recent, less costly Honda and the expensive Google deals.¹³
4. *It calculates additional General Fund revenues based on revenue per dollar of income, ignoring the quality of jobs created.* The North Carolina model utilizes an indirect method to calculate the anticipated impact on General Fund revenues. The model first calculates the impact of the

project on GSP, and then multiplies the project's contribution to GSP by the average revenue per dollar of GSP for the state. It does not, however, take into account the quality of the jobs created. If new jobs are primarily low-salary, then the tax revenue generated per wage dollar will likely be lower than average. Average expected wages for the Dell plant were far lower than the average firm receiving JDIG grants in 2004. Of the 19 firms receiving JDIG grants in 2004, only two firms had lower expected annual wages, and both of these firms were located in Tier 1 counties (Tier 1 is "most distressed"). Dell located its plant in Forsyth County, a Tier 5 county. According to U.S. Bureau of Labor Statistics data, the average wages at the Dell plant would be more than 25% below average wages in Forsyth County.¹⁴ Thus, the model's default value should not be just one number. Instead, a range of parameters should be available, reflecting the varied quality of jobs. (Dell production workers at the site will only average \$21,000 in annual income.) For workers making \$28,000 (the anticipated average salary at the Dell plant for all employees) in North Carolina, state expenditures are likely to be higher than the tax revenue collected from that individual. The revenue per dollar figure used in the North Carolina model also includes all state taxes, including the corporate income tax. Other models disaggregate the effects of personal income taxes and corporate income taxes to more accurately assess a given project's effects on General Fund revenue.

5. *The North Carolina model does not incorporate the costs of local incentives.* The North Carolina model incorporates only the state incentives and neglects to measure the costs of the local incentives. In the case of Dell, Forsyth County and the City of Winston-Salem offered approximately \$37 million in incentives. These incentives also create a change in government spending at the local level that affects North Carolina's GSP.¹⁵

IT'S MORE THAN THE MODEL - THE NUMBERS PLAY A KEY ROLE

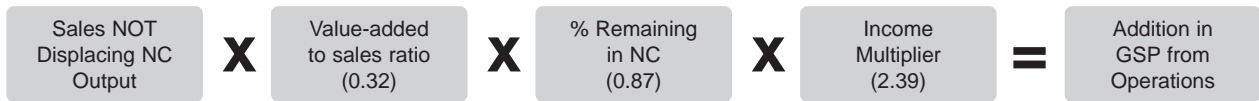
In addition to the five weaknesses in the structure of the model identified above, there are also questions regarding the numbers used by the Department of Commerce as inputs into the model. Assumptions, understandably, are somewhat speculative, but the choice of inputs can drastically change the output of the model. It is important that inputs are estimated carefully. Below are four variables, the values of which appear questionable or raise larger issues.

1. *Share of Construction Inputs Purchased in North Carolina.* The economist who designed the North Carolina model says that it should be assumed that 54% of inputs will be purchased in-state as a default value. This number can be adjusted upwards or downwards depending on the circumstances. In evaluating the economic impacts of the proposed Dell factory, the North Carolina Department of Commerce assumed that 95.5% of construction inputs would be purchased in North Carolina. While there might be good reason to adjust the number above the default value of 54%, it seems unrealistic that nearly all inputs would be

purchased in-state, especially given that Dell used an out-of-state general contractor (although Dell made that choice after these North Carolina numbers were run). No reason has been given for why this was done.

2. *Total Employment.* When modeling the Dell deal, Virginia and North Carolina had widely varying calculations and assumptions on the number of jobs that would be created at the plant.¹⁶ North Carolina assumed that the factory would employ 2,355 workers once it reached full capacity. Virginia assumed that a Dell factory would directly employ only 1,680 workers at full capacity.¹⁷ Most of the difference of 675 workers is attributable to North Carolina's decision to count 555 jobs for suppliers near the factory as directly attributable to the Dell factory. In most cases, this would be a misclassification, conflicting with standard multiplier theory and practice. For example, Dr. Michael Walden, creator of this model, categorizes suppliers and worker spending as indirect effects of the actual project.¹⁸ As most of these suppliers produce generalized goods that can be useful in other industries, they should not be counted as direct jobs. The model multiplies the number of direct jobs by a multiplier to arrive at a number for total statewide employment. The multiplier is a reflection of the relationship between direct jobs and indirect jobs for the industry. By misclassifying hundreds of indirect jobs as direct jobs, the Department of Commerce overestimates the total number of jobs that will be created by the Dell factory. (For more on this knotty problem, see technical note in Appendix One.)¹⁹
3. *In-Migrant Ratio.* When a new business opens in North Carolina, some of the jobs are taken by North Carolinians, while others are filled by in-migrants from other states. Jobs filled by North Carolina residents have a more positive impact on the North Carolina economy, as they do not require any additional expenditure from the state. In-migrants, however, place additional burdens on state services. Economist Timothy Bartik estimates that 8 in 10 jobs ultimately get filled by in-migrants.²⁰ The Department of Commerce, however, assumed that only 50% of jobs would be filled by in-migrants. Here, the Department may be more on target for this specific project. Admittedly, it might be appropriate to choose a lower in-migration ratio (as the state did) given the relatively low wages offered at the Dell plant. But it makes sense to run a variety of numbers, because this variable has a fairly large impact on the final numbers, demonstrating again that the choice of value is very consequential.
4. *Annual Sales not Displacing North Carolina Output.* As explained above, this number is undoubtedly the most important variable in the North Carolina model, driving 99.6% of the effect on GSP, as well as 99.6% of the plant's gross addition to General Fund revenues for the Dell project. As such, it is vital that the sales number be as accurate as possible. To determine the effect on GSP from operations, the sales number is multiplied by three factors:

- A value-added to sales ratio of 0.32 (IMPLAN provides this number.)²¹
- A factor of 0.87 to account for the portion of value added that leaves the state via federal taxes and pensions; and
- An income multiplier of 2.39.



The state calculates the plant’s contribution to General Fund revenues by multiplying the Addition to GSP by 0.0462 - an estimate of state revenues per dollar of state income. Because the sales number is the major factor determining the value of both the contribution to GSP, and the addition to General Fund revenues, it is important that it be as accurate and reasonable as possible.

The state typically estimated the sales number by multiplying the estimated wage bill by the ratio of output to wages from IMPLAN 2001 for the electronic computer manufacturing sector. The ratio of output to total compensation from IMPLAN 2001 is about 4.5 to 1. The average wages for the 2,355 direct workers at the Dell plant was estimated as \$28,000. Assuming wages account for 70% of total compensation, the annual total compensation bill for the plant is expected to be \$94,200,000 (2,355 workers times total compensation of \$40,000). When this number is multiplied by the output to total compensation ratio of 4.5 to 1, one gets a total sales number of nearly \$424 million.²² Despite claiming to use the same methodology spelled out here, the state used a sales number of nearly \$2.3 billion. We later found that the \$2.3 billion figure was provided by the Dell Corporation and that state staff did not use the routine IMPLAN sales estimation methodology they generally use.²³ (This, to be perfectly clear, is the Walden and IMPLAN methodology, which we used in our first round of projections.)

Other indicators also imply that the sales number used by the state seems large. The Department of Commerce predicts an annual contribution to GSP of over \$1.4 billion generated by 8,086 workers across the state. This implies that each worker is contributing approximately \$175,000 to GSP. The average job in North Carolina contributes about \$80,000 toward GSP.²⁴ It is unlikely that the jobs created at the Dell factory would have more than twice the impact on GSP of the average North Carolina job, given the modest average salaries of \$28,000.²⁵

Using the sales number provided by the Department of Commerce (\$2,298,568,796), one can also calculate the value added per worker at the Dell plant, as an additional check on the reasonableness of the sales number. According to the Commerce Department numbers, value added per worker at the Dell plant is \$312,332 per worker.²⁶ However, it appears that minimal value added is taking place at Dell’s North Carolina plant, as nearly all of the high value-added components are imported from overseas.²⁷ Furthermore, it is unlikely that wages (\$28,000) would be only 9% of value added.²⁸

For each of the four variables above, it is possible that a case can be made for using the more aggressive Department of Commerce numbers. Choosing appropriate inputs requires making some very rough estimates of future outcomes. For the four variables above, the Department of Commerce used aggressive numbers rather than erring on the side of caution. As the next section demonstrates, choosing aggressive inputs can lead to economic projections that differ widely.

HOW WOULD MORE CONSERVATIVE ASSUMPTIONS HAVE ALTERED THE DELL PROJECTIONS?

CFED reexamined the North Carolina model, using more conservative values for the model inputs. The table below summarizes how the variables used by the North Carolina Department of Commerce compare to the variables proposed in the paper.

VARIABLE	NC MODEL, OUR NUMBERS	NC MODEL, DOC NUMBERS
Construction Inputs from NC	54.0%	95.5%
Total Direct Jobs	building to 1,680	building to 2,355
In-Migrant Ratio	building to 80%	building to 50%
Annual Sales	building to \$746 million*	building to \$2,138 million

* This sales number was calculated assuming that each job would contribute an average of \$80,000 to North Carolina GSP.

By using the variables above, this paper projects that the Dell plant will have a much more modest impact on GSP. The new variables also indicate that the project will have a *net negative impact* on General Fund revenues through the year 2021, when the incentives end. In contrast, the Department of Commerce predicted that the Dell plant would have a *positive impact* on General Fund revenues in all years.

Over the 20-year life of the project, the Dell plant is expected to have the following impact on the North Carolina economy, depending on the assumptions used.

OUTCOME	NC MODEL, OUR NUMBERS	NC MODEL, DOC NUMBERS
Jobs Created	5,768	8,086
Addition to GSP	\$8,046 million	\$24,501 million
Net Change in State Revenues	- \$72 million	+ \$707 million

* This sales number was calculated assuming that each job would contribute an average of \$80,000 to North Carolina GSP.

As the results above demonstrate, the assumptions about inputs greatly impact the projected outputs. When two states are competing for a new business, the state offering the larger incentive package usually defends its decision by stating that reasonable people can disagree with the appropriateness of the variables plugged into the economic models used. This is certainly true. But if the projections are too far apart, then something is likely wrong.

WHAT ARE THE RESULTS IF THE NUMBERS AND THE MODEL ARE ADJUSTED FURTHER?

It is important to keep in mind that the above results were generated by changing the values of only four variables. The five weaknesses inherent in the model that were mentioned previously are still present. Several of these issues can be addressed within our revised model. One can easily adjust the model to:

- account for the effect of the change in government spending on GSP;
- discount the costs and benefits;²⁹ and
- incorporate the effect of local incentives.

Incorporating these changes would further reduce the projected economic impact of the Dell plant. When these structural changes to the model are taken into account, the project's estimated cumulative impact on GSP drops to only \$5.7 billion over 20 years, and General Fund revenues fall to \$63 million.

USING ALTERNATIVE MODELS FOR A BROADER RANGE OF PROJECTIONS

There are alternative models that can also be used to evaluate the economic impact of a new business in North Carolina. Each model has its own weaknesses, but policymakers in North Carolina might consider examining several economic models in order to get a better idea of the wide range of potential economic impacts of a given project.

One solid alternative model was devised a few years ago by a small working group collaborating with the Iowa Department of Economic Development. A later permutation is used by that state currently. Staff provided us with the "impact sheets" without the Iowa default values. We could use these to do our own North Carolina projections. Like the North Carolina model, it is a means to predict the addition to GSP and effect on government revenues attributable to a new or expanding business. It contains several advantages over the model currently used by the North Carolina Department of Commerce. This alternative model:

- takes into account the effect of the change in government spending on GSP;
- *discounts* costs and benefits;
- calculates the fiscal impact based on the quality of jobs created and the local and state government expenditure per worker;
- incorporates the effect of local incentives and revenues; and
- applies only the business's impact on wages and salaries toward GSP.

Despite these strengths, the model still has several theoretical weaknesses. It assumes:

- that all jobs are created as a result of the state and local incentive packages (i.e., there is no downward adjustment for the “if not for the incentive” question);³⁰
- all new jobs are filled by in-migrants, making the fiscal impacts more negative because in-migrants bring with them demands for new services,³¹ rather than savings in social safety net programs from the newly-employed; and
- that all jobs created via the multiplier effect are fiscally neutral, bringing with them a need for state and local public services and an equal average tax contribution to pay for these services.

This “alternative” model produces results that are much more similar to ones this paper arrived at, using the adjusted North Carolina model with more cautious assumptions. That is, this model is much more conservative than the current model used by the North Carolina Department of Commerce. The tables below summarize the results of the various models. The first row shows the results reached by the North Carolina Department of Commerce. The second row re-runs the North Carolina model, but uses the more conservative inputs, as described above. The third row uses the conservative assumptions on inputs, and takes into account the effect of government spending on GSP, discounts the costs and benefits, and accounts for local incentives. The fourth row shows the alternative model (from Iowa Department of Development, described above), using the direct jobs numbers used by the North Carolina Department of Commerce. The fifth row shows the alternative model (Iowa prototype), using the direct jobs number used by Virginia.

MODEL	ADDITION TO GSP	NET CHANGE IN STATE REV.
1) NC Model - Department of Commerce	\$24,501 million	+ \$707 million
2) NC Model - Our Values	\$8,046 million	- \$72 million
3) Adjusted NC Model - Added Variables	\$5,683 million	- \$63 million
4) Alternative Model - NC Jobs Assumption	\$1,205 million	- \$98 million ^a
5) Alternative Model - VA Jobs Assumption	\$837 million	- \$94 million ^b

a. NOTE: The Alternative Model using the NC jobs assumption also predicts a net decrease of \$23 million in local (city and county) taxes.

b. NOTE: The Alternative Model using the VA jobs assumption also predicts a net decrease of \$21 million in local (city and county) taxes.

While the alternative model has certain advantages over the North Carolina model, it is not necessarily the best economic model available. Perhaps a more thorough review of models used in each state will uncover better models. The important point is that no model is going to be 100% accurate, so no single model should be relied upon too heavily. Therefore, government officials need to be careful when making declarative statements such as, “the Dell project will provide over \$700 million in net revenue over 20 years,” as Governor Mike Easley did when announcing the Dell deal.³² As the alternative model shows, the Dell project could be reasonably projected to drain \$98 million from the General Fund over that same period.³³

ARE THESE RESULTS STILL TOO OPTIMISTIC?

Policymakers might have reason to further lower these projections. For instance:

The model assumes that all new jobs are created as a result of the incentive package. The model fails to account for whether the company would have chosen to locate in North Carolina even without an incentive package. In their review of the research literature on the effectiveness of tax incentives in generating economic growth, Peters and Fisher (2002) found that economic growth is relatively unresponsive to reductions in taxes on productive factors. According to generous estimates, a 10% reduction in taxes is associated with a 3.7% increase in growth.³⁴ Luger and Bae (2005) created a tax simulation model that suggested that the change in employment in 1999 attributable to North Carolina's business incentives was much smaller than the gross effects observed.³⁵ In other words, there is a high likelihood that Dell would have chosen to locate in North Carolina in the absence of the incentive plan.

While nearly all economists agree that some sort of downward adjustment is appropriate, there is no consensus way to account for this possibility in a non-arbitrary manner. Ideally, this would be determined on a case-by-case basis. However, the company has an obvious incentive to claim their decision was predicated entirely on the basis of incentives. The state also has an incentive to claim that incentives played a decisive role in order to justify their decisions in *ex post* evaluations.

While it may be difficult to quantify such an adjustment to account for this "if not for" question when examining any given project, it might be reasonable to assign a discount when examining the entire statewide "portfolio" of businesses that have been offered incentives.

Another fairly recent analysis found that those firms that were receiving incentives over-promised their employment projections, while those that did not get a subsidy were much more accurate in their estimates.³⁶

THE PROBLEM OF ESTIMATING SALES

In an effort to challenge our own results, and given its importance in the model's equations, we decided to look more deeply at the issue of estimating sales. As we have stated before, the Dell number and the number generated by the IMPLAN method come up with widely different results. (See Appendix Two)

Here are the various approaches to estimate annual sales in North Carolina:

- Dell's number: \$2,298,568,796. This is larger than what was calculated in three other ways. We believe that this number seems high. We would also guess that it is a gross number that does not exclude most of the capital income made by shareholders in Dell (most of whom live outside the state).

- The next approach is to assume that each worker contributes the average GSP per worker. Annual sales in North Carolina are \$1,020,835,561. On the one hand, the average GSP will be lower than working with the value added of a computer manufacturer, but there is no strong adjustment of the percentage of sales revenue remaining in North Carolina.
- The IMPLAN figure is the lowest of the four at \$423,900,000. Since it only counts wages, salaries, and benefits, it deals head-on with the leakage of profits from the revenues Dell made. Those people in North Carolina who own Dell stock would be omitted, but that number is probably not significant.
- The last approach uses industry census data to determine sales in NC. It calculates an annual sales number of \$1,813,914,346. This is the second biggest number. It also does not deal with the leakage of Dell profits from the state.

When we use these numbers to estimate fiscal impacts and GSP, all but the IMPLAN method project positive outcomes. However, they vary by millions of dollars. (See Appendix Three for details.)

None of these methods is perfect. Some indicators are proxies for what you would like to measure. The value of shipments is not precisely the same as sales, for instance.

The bottom line? The Dell project could still generate high positive results in state income and tax revenues. After all, two of the methods (not counting Dell's) estimate such a high number of sales that they can't avoid being in the black. But these two approaches also don't have a low enough percentage for sales revenues remaining in North Carolina.

However, one should always be cautious about using a company number unless it has been "interrogated." This would include an allowance for more leakage of money outside the state and a hard look at the reasonability of any multipliers used.

Also, it might be wise to use the much more reliable and predictable direct employee number to drive these models. After all, who can accurately predict sales over 20 years?

THE NORTH CAROLINA AND VIRGINIA MODELS: A DIFFERENCE IN APPROACH

An examination of the Virginia fiscal impact model clarifies things further and underscores a number of our earlier findings.³⁷

The Virginia model uses two metrics to quantify the impact of a new or expanded business in the state: (1) jobs and (2) net fiscal revenue impact. In contrast to North Carolina, Virginia does not consider the impact of the project on GSP.

The basic difference between Virginia and North Carolina's approaches is that North Carolina first looks at impact on GSP. Then, this number is multiplied by an "average

revenue per income dollar” number (0.0462). This approach makes the revenue impact of a new business completely dependent on an accurate estimate of the effect on GSP. The average revenue per income dollar number of 0.0462 seems reasonable, but for reasons covered already, the income numbers appear vastly inflated in the North Carolina model. This causes North Carolina to overestimate the expected revenue effects as well. In fact, North Carolina’s approach is likely a poor approach when dealing with a multi-state corporation, since much of its value-added is created out of state, and its revenues to shareholders also flow outside of North Carolina. In such situations, it is extremely difficult to accurately determine which elements of a multi-state corporation will add to North Carolina’s GSP.

The Virginia methodology, on the other hand, is much easier to calculate, and is less likely to count benefits that will be flowing out of the state. Virginia’s model hinges much more on the quality of jobs created, whereas North Carolina’s model rests almost entirely on the expected output of the plant.³⁸ The Virginia model looks at revenues from five sources:

- Taxes paid by direct workers
- Taxes paid by indirect workers
- Sales taxes from purchase of construction materials
- Taxes paid by direct construction workers
- Taxes paid by indirect workers due to construction spending

The Virginia model does not take into account corporate income taxes, which might be a more reasonable assumption than North Carolina’s, given that a multi-state corporation has methods, through transfer pricing and the tax apportionment formulas in a particular state, to lower its tax bill.³⁹

Furthermore, Virginia chose to discount expected cash flows to account for the time value of money. Virginia used a discount rate of 5.31% in its projections. This decision gives Virginia’s policymakers a much more accurate view of the costs and benefits of a project. At the same time, the Virginia model shows salaries for newly created jobs increasing at a rate of 2.5% per year. Therefore, the real discount rate is actually lower. This is substantial over a 20-year period. Undiscounted, Virginia’s model predicts net revenue of \$161 million. However, using the discount rate of 5.31%, the expected addition to net revenues falls to \$87 million. To make an apples-to-apples comparison to the results of the North Carolina model, however, *requires looking at the undiscounted cash flows with no salary increases*. Such an analysis provides the following results:

OUTCOME	VIRGINIA MODEL	NC DEPT. OF COMMERCE
Jobs Created	4,113	8,086
Addition to GSP	N/A	\$24,501 million
Net Change in State Revenue	\$135 million	net benefit of \$107 million over 20 years that

is \$572 million better than Virginia's projection. This difference in predicted tax revenues goes a long way toward explaining the huge disparity between Virginia and North Carolina's incentive packages.

IN SOME INSTANCES, VIRGINIA ASSUMED MORE CONSERVATIVE VARIABLES

In addition to employing a more cautious and appropriate economic model, Virginia also used more conservative variables in some instances. This is especially true when examining the estimated state impact of the Dell plant on employment. Virginia assumed that a Dell manufacturing plant would directly employ 1,680 Virginians.

Each of these direct jobs was then multiplied by an employment multiplier to determine the total statewide effect on employment. Once again, Virginia took a more conservative approach, using a multiplier of 2.45, versus the multiplier of 3.43 used in North Carolina.⁴⁰ By using a higher multiplier and a higher number of direct employees, North Carolina expected an increase of 8,086 new jobs across the state, while Virginia expected the new plant to generate only 4,113 additional jobs.

Indirect jobs do not have a huge impact on the North Carolina model. They do not, for example, drive the impact on GSP number. The only impact is that a certain percentage of new jobs (50%) are expected to go to in-migrants, who bring along some new costs to the state government. The more aggressive North Carolina numbers, however, did have an impact on the political process of selling the incentive package to North Carolina residents and politicians. The huge job creation number was featured prominently in the state's campaign to lure the Dell plant to North Carolina, and undoubtedly played a significant role in the decision-making process of many in the state legislature.

IN OTHER INSTANCES, VIRGINIA MADE MORE AGGRESSIVE ASSUMPTIONS

Despite the overall more conservative nature of Virginia's economic model, its analysis was more aggressive than North Carolina's in certain respects. For example, Virginia analysts assumed Dell would spend \$10 million more in construction/capital investments than North Carolina. Construction benefits were negligible in the North Carolina model when compared to effects of ongoing operations. In Virginia's model, construction spending plays a much larger role, but only in year one.

Virginia was also more aggressive in its assumption on who would get the new jobs created by the Dell plant. In most economic models, it is assumed that a certain percentage of new jobs will go to in-migrants, who bring along with them additional demands on state services. Research indicates that as many as 80% of newly created jobs ultimately end up being filled by in-migrants.⁴¹ Virginia's model, however, assumed that all newly created jobs would be filled by current Virginia residents. In other words, they assumed an in-migration rate of 0%. By comparison, North Carolina used an in-migration rate of 50%.

Other notable ways in which Virginia's estimates were more aggressive included an assumption that employee salaries would grow 2.5% per year, compared with no growth estimated in the North Carolina model.⁴² Virginia also assumed a higher average salary for new employees of \$33,423 compared with North Carolina's assumption of \$28,000.

LESSONS FROM THE VIRGINIA MODEL

In sum, the Virginia model and its applications seem to be more cautious. It is probably a superior model for projecting the fiscal impacts of multi-state corporations, as it only counts the true in-state impacts of the new firm. (However, the North Carolina model could be adapted to do so.) North Carolina's model might make more sense for a business whose entire operations are located within the state, but it is not appropriate for multi-state corporations. Furthermore, Virginia's analysis of the Dell project did not calculate its direct job number the same way North Carolina did.

What's the bottom line? An examination of the Virginia project's public records suggests that North Carolina dramatically over-bid for the Dell deal. State policymakers used the Dell number, which over-estimated the sales and value-added accruing to the state. Too much of the value-added is created elsewhere and too much of the sales revenues leave North Carolina to be worth business subsidies in excess of \$242 million.⁴³

It is worth remembering that state subsidies are not manna from heaven. Had the state not advanced \$242 million to Dell, those funds would likely have been used in one of two ways: to finance infrastructure, education, the safety net, and general public services, or to be returned to the citizenry as tax cuts and either spent, saved, or invested in the marketplace. The situation is not project X versus a total absence of any other options. We do have alternatives. Some may yield higher returns.

JOB DEVELOPMENT INVESTMENT GRANTS: A GOOD DEAL FOR NORTH CAROLINA TAXPAYERS?

In order to analyze the effectiveness of North Carolina's overall economic development policy, CFED examined a portfolio of 31 North Carolina businesses receiving Job Development Investment Grants (JDIG), along with other subsidies. Taking the Department of Commerce projections at face value, the results appear impressive. The 31 businesses are expected to add \$62.5 billion to North Carolina's GSP, add over \$2 billion to General Fund revenues, and create about 30,000 jobs.

In our preliminary analysis, however, many of these projections appear unrealistic. The average job in North Carolina adds about \$80,000 to GSP. On average, jobs receiving JDIG funds are each expected to contribute about \$140,000 to GSP. It might be possible that the jobs receiving JDIG funds really are almost twice as valuable to the state as the average North Carolina job. The exaggerated per job impact on GSP of the Dell projections, however, provides reason for skepticism. Furthermore, the Commerce estimates of per job impact on GSP for JDIG jobs varied widely. Jobs at Harris Corp. are

expected to add \$810,000 each to GSP, while jobs at AFG Wipes are each expected to add only \$30,000 to North Carolina's GSP. (We do not claim that we are certain in our broad conclusions about these 31 deals.)

The Department of Commerce projected the the economic impact of these deals using the same model it used to examine the economic impact of Dell. The weaknesses inherent in the North Carolina model have been detailed in previous sections. The most glaring omission, however, is the "if not for" question. Would the 31 firms receiving JDIG funds have made different location decisions if not for the incentive packages offered by the state? Academic literature indicates that the answer is most likely "no." The consensus estimates are that economic incentives are decisive, at most, 10% of the time. It is important then, to question the apparently large economic benefits touted by the Department of Commerce. The table below compares the economic impact of North Carolina's incentives under multiple scenarios, adjusting for the likelihood that the incentive package was decisive in the firm's decision to locate in North Carolina. The results are compared against the North Carolina Department of Commerce assumption that incentives are decisive 100% of the time.⁴⁴

RESULTS CHANGE WHEN % OF JOBS ATTRIBUTED TO INCENTIVES DROPS			
% OF JOBS ATTRIBUTED TO INCENTIVES	TOTAL JOBS CREATED	CUMULATIVE IMPACT ON GSP (\$MILLIONS)	NET EFFECT ON GEN. FUND REVENUES (\$MILLIONS)
100%	33,886	\$62,491	\$2,023
50%	16,943	\$31,246	\$615
30%	10,166	\$18,747	\$51
20%	6,777	\$12,499	- \$230
10%	3,389	\$6,250	- \$512
5%	1,694	\$3,125	- \$653

The break-even point, using the Commerce Department's model and assumptions for General Fund revenues, occurs when 28% of the jobs are created as a result of the state's incentive package. This is well above the best economic estimates, which place the actual number closer to 5-10%.

The numbers become bleaker when the per-job impact on GSP is adjusted to more reasonable levels. Hopefully, the businesses that are receiving incentives are bringing jobs that are better than average. The table below examines the economic impact of the JDIG portfolio, assuming that the jobs created will have an average GSP/job of \$100,000.

When using a more realistic GSP/job ratio, the break-even point for General Fund revenues occurs when 43% of jobs are actually created as a result of incentives offered

RESULTS CHANGE FURTHER WHEN GSP/ EMPLOYEE IS ADJUSTED			
% OF JOBS ATTRIBUTED TO INCENTIVES	TOTAL JOBS CREATED	CUMULATIVE IMPACT ON GSP (\$MILLIONS)	NET EFFECT ON GEN. FUND REVENUES (\$MILLIONS)
100%	33,886	\$41,439	\$1,064
50%	16,943	\$20,720	\$135
30%	10,166	\$12,432	- \$236
20%	6,777	\$8,288	- \$422
10%	3,389	\$4,145	- \$608
5%	1,694	\$2,073	- \$701

from the state. Given that incentives only play a role in about 5-10% of cases, it is therefore highly probable that JDIG incentives are causing a net drain on General Fund revenues.

THE DAMAGE THAT CAN BE DONE BY MISLEADING PROJECTIONS

The price tag of development incentives is increasing significantly in most states. Given the limited resources available to state governments and the growing size of economic incentive packages, it is important that projections are as accurate as possible.

1. *Trade-offs and Opportunity Costs.* Policymakers must bear in mind that each type of development program and every particular project has its pros and cons. Similarly, taking one course often means excluding the next best alternative. For instance, each dollar spent (or foregone) through incentive packages is a dollar that could have been spent on alternative economic development programs, or returned to taxpayers via generalized tax cuts. This is of special concern in North Carolina. Although current state revenues are higher than expected, many of the sources are one-time events and the state's finances may be tighter in the near future due to a structural shortfall.⁴⁵
2. *Economic Distortions.* In addition to overspending for a given project, inaccurate projections can create economic distortions by directing investments in less than optimal ways. That is, businesses might make location decisions based on tax policy, rather than by determining which location will lead to the greatest efficiency.
3. *Distributional Concerns/Wealth Transfer.* Furthermore, one must also consider the distributional effects of any incentive package. Are the incentives benefiting the poor and unemployed, or are they enriching corporate stockholders? Debate on the equity of a given incentive package is currently missing from the policy process in North Carolina, but it is especially relevant in the case of a multi-state firm like Dell, whose owners are mostly located outside of North Carolina. Absent this

debate, incentive packages could inadvertently transfer wealth from one sector of the population to another, subsidizing already-profitable owners with taxpayer funds. Here is a potential example. As of October, 2006, it was noted that given the stability of the unemployment rate since Dell opened, most of those hired are leaving other jobs. "Hopefully," said Bob Leak Jr., president of Winston-Salem Business, Inc., "many of those jobs were filled by unemployed or underemployed workers."⁴⁶ But right now, we don't know.

4. *Under-projected government expenses.* As of June 2005, state transportation officials found "the costs of the road improvements at and around the site of the new Dell Inc. plant in southeastern Forsyth County to run as much as \$1.4 million more than was anticipated when the project started in January."⁴⁷

Given the potentially negative impacts stemming from misleading projections, it is important that state and local development incentives are as strategic, cost-effective, and accountable as possible.

RECOMMENDATIONS

Our recommendations cover a number of areas, including: (1) fixing the model; (2) improving its application through better or more cautious assumptions; (3) conducting needed incentive policy and program reviews; (4) shedding light publicly on the workings of the model and its estimates; and (5) raising the rate of return on North Carolina incentive programs.

Adjust the North Carolina Model. There are clear weaknesses in the North Carolina economic model that could be addressed to make projections more accurate and reasonable.

- Assess the model. The model is due for a potential overhaul (or at least some fine-tuning). The Department should convene a diverse task force to consider our report's suggestions, as well as other concerns. The task force should include a broader range of expertise and perspective than what was involved in the original model design work.

DOC should step back from its current model and consider the economic models used in other states, comparing their strengths and weaknesses against the North Carolina model. There are many ways to measure the economic impact of a new business in the state. Even if Commerce decides to keep using a revised version of the current model, when appropriate it could obtain the results of multiple economic models in running its scenarios. After all, no economic model is without weakness. If done swiftly, the state's work on its offer could be aided by examining the predictions of multiple models.

Above all, we believe that the facility sales approach to estimate GSP and fiscal impacts is probably *fatally flawed and the employment assumptions should be substituted*.

- **Recognize that value added for a multi-state corporation will have different impacts than a company located solely in North Carolina.** Value added is composed of wages, profits, interest payments, and rents. For a multi-state or international corporation, much of this value added will be created outside the state. In many cases, mainly the wages portion will have an effect on GSP.
- **Include effect of local incentives.** The net change in local revenues will also have an impact on GSP, and should be added to the change in GSP number. The state has an important role in helping to ensure that regions, counties, and localities do not get embroiled in expensive over-bidding. The state can help by providing their model as a tool and by taking a stronger role in creating a united front of state and local jurisdictions in the project negotiations. Remember in the Dell case, as soon as negotiations were finished with the state, Dell management started up again the "auction" process and asked for offers from two adjoining counties. Recent concerns about the Caldwell County-Google project underscore this need. In this project, the county did not complete an

economic and fiscal impact study before it proposed its bid to Google. Obviously, since the county has already completed its negotiations with Google, this study is too late to impact that deal. Furthermore, state government has a policy interest in discouraging beggar-thy-neighbor bidding within state borders.

- **Include change in government spending in evaluating impact on GSP.** Because government spending is part of GSP, the net change in General Fund revenues should be included in the change in GSP number.
- **Discount costs and benefits.** Discounting is necessary to reflect the cost of capital. It is especially important when costs and benefits occur in different years, and when the project occurs over a long period of time. So, it is not absolutely required, but it would be a good idea to use discounting with the model in making comparisons between alternative policies and projects. The state could start with deriving return on investment numbers on all JDIG-financed projects and see how each compared, relative to other specific deals and the overall portfolio average.⁴⁸

Applying the Model: The Importance of Assumptions

Even the most conscientious of model users is still part of a time-sensitive, “all hands on deck” effort to land a project. Commerce must recognize the dangers of rushing too much and make sure that it has run and thoroughly discussed the various scenarios.

- *When choosing variables, err on the side of caution.* The firm has a motivation to overstate the impact of the new or expanded firm. Given that tax incentives ultimately play just a minor role in business location decisions, the North Carolina Department of Commerce should be very conservative with its choice of variables.
- *If for some reason, the state does not adopt an employment-based model, make sure the annual sales number is reasonable, especially in cases of multi-state and multi-national corporations.* Given that this variable ultimately drives nearly all of the GSP and gross revenue estimates in the North Carolina model, special care must be taken to ensure that the number is reasonable. It is easy to calculate the GSP per worker or the value-added per worker to see if the sales number appears reasonable.

Conducting Policy, Program, and Process Reviews

The Department of Commerce is required to conduct a full JDIG review for the legislature this year. We believe, given recent events, that a broader conversation about the role, costs, and benefits of incentive-based development strategies is needed too.

- *Undertake a full review of all its JDIG deals for compliance with the agreements and projections, accuracy of the project-by-project data file, how current they are, etc.* This report only superficially examined the

other 31 JDIG deals. (This was the number at the time when the North Carolina Justice Center made its open records request.) A more comprehensive inquiry is required, given the DOC's high level of success in landing prospects and the concern that some offers may have used overly optimistic assumptions and did not account appropriately for the impact of large out-of-state firms. The Department should consider contracting out this review to an independent (and possibly out-of-state) contractor. JDIG offer decisions are presently made by a small committee with members closely associated with the Administration. So, efforts should be made to create a temporary task group for overseeing the study that includes some broadened membership - including elected and appointed officials, academics, experts from consultancies or think tanks, foundation staff, and others so that a wider range of perspectives are tapped. We recommend a body of four to six members, half suggested by Commerce and half by Speaker of the House and the Senate Majority Leader.

- *Establish a "blue-ribbon" Commission on the Future of Incentives in NC Development Policy.* Because the price of the competition will certainly continue to climb and the demands of firms intensify, we must do more to understand the causes, "logic", and nature of these trends and explore how we can get ahead of them with smarter incentives and a well-balanced portfolio of other policies and programs. A key goal should be helping to create, grow, expand, and modernize firms within North Carolina. Moreover, the commission should be charged with "thinking outside of the box" by exploring ideas such as "unilateral disarmament" - new compacts with other states to curb interstate competition for firms,, federal actions, and so forth. Likewise, lifelong learning issues and their role in energizing a 21st century economy should be part of the mix. Such an initiative would be an excellent complement to the commission on revenues currently under way. The Hunt Administration created a similar group when it decided that the state had to start playing the incentive game but needed to do it thoughtfully. It reached a consensus on design and management principles for a grant-based incentive.
- *Lastly, in this Commission, consider comparing returns to other economic development policies.* Targeted grants and tax breaks are not the only way to create jobs in North Carolina. Studies predict greater return per tax dollar for other policies such as investments in early childhood education, incumbent worker training, manufacturing modernization, and investment in research and development. Compare the returns from an incentive package to the returns that could be achieved by pursuing these alternative development policies when choosing the state's priorities.⁴⁹

Raise the Return on Investment

There are several keys to getting a decent return on a state's incentive dollar. North Carolina practices a number of these. Its JDIG grants and Lee tax credits are triggered by the company meeting a specific benchmark. Contracts between a firm and a state can

have sanctions for non-compliance. But the number one way to run a cost-effective effort is to pay attention to the following facts when developing or reforming an incentive strategy:

1. Not all growth is good. If it does nothing to aid those most in need, adds to traffic snarls and other growth management problems, and generates less revenues than were spent, it's a loser.
2. Whenever possible and appropriate, provide training or infrastructure improvements rather than cash or tax incentives.
3. Unless federal or international action is taken, corporations will continue to expect incentives to increase, as lower transportation expenses and constantly evolving communication and information technologies make relocations less frequent.
4. Tax cuts have only modest effects on location decisions: other factors count for more. Tax cuts and other subsidies matter more on an intra-state than an interstate basis. Within a metro area, particularly, there is a stronger likelihood of beggar-thy-neighbor cuts or subsidies, in which poorer communities and central cities lose out.
5. No matter how deep the subsidy, some places will never win much (or ever) from conventional incentive and attraction efforts.
6. The state maximizes cost-benefit and fiscal impact when it avoids subsidizing more growth in healthy communities and targets growth to communities with higher rates of joblessness, poverty, inadequate tax bases, and under-utilized public services and infrastructure.
7. The more that incentive strategies actually lead to the hiring of the unemployed, the working poor, the ex-welfare recipient, and the displaced worker, the higher the yield on investment will be.
8. The state should pursue projects that, all things being equal, match the area's skill base and occupational profile so that fewer jobs are taken by in-migrants and corporate transfers.
9. If the wage standard is too low, relative to industry or county standards, the project will not pass a cost-benefit test.

In order to raise its return on investment, North Carolina should:

- *Include "clawback" provisions.* Improve returns on taxpayer dollars by providing most subsidies up-front, but negotiate "clawback" agreements allowing the government to recover the subsidy if the business relocates or fails to meet certain performance requirements. (North Carolina does a fairly good job by providing a "carrot" instead of a "stick" with its conditional subsidy payments.) Most businesses use a relatively high discount rate (compared to government), meaning that the business places little value in subsidies occurring in the future.⁵⁰
- *Target incentives to business in distressed localities (geographic targeting).*

New businesses will have a greater economic impact when they are located in more distressed localities. All things being equal, businesses in distressed localities will attract fewer in-migrants (who bring with them greater demand on government services) and lead to the re-employment of more unemployed persons.

- *Require “first-source” hiring provisions.* “First-source” agreements require private companies that receive public monies to agree to use the public sector (or its designated contractors) as the initial pool for job hires. The private company is under no obligation to hire these workers, but must interview them before seeking any other possible employees. Many localities have successfully included these provisions to improve the re-employment rate and decrease the in-migration rate. The only state that runs such a program is Oregon, which, like a number of cities, links the program to its enterprise zone programs.

Properly marketed, and with a strong commitment by the public and nonprofit partners, such programs can play an important role in bringing the private sector together with the economic development and workforce development fields.. Such agreements are valuable not just for the job opportunities they create and their impact on lowering employee turnover, but also for their ability to clarify the strengths and weaknesses of area workforces and their support institutions. Successful First Source efforts raise the public yield on its money and help to ensure that the public benefits, not just the financed business or project.⁵¹

To get under way, Commerce should charge the heads of the state workforce investment board and the Division of Training (DOC) with developing a feasible plan, which might be started with a series of pilots.

- *Use the Development Zone designation only in cases where a declining or disadvantaged community is the primary area of impact and where opportunities exist for partnerships with local government and non-profit organizations around a larger community development agenda.* This is in stark contrast to the intentional “gerrymandering” of project boundaries that commonly happens with big projects in the negotiations phase in North Carolina and other states as well.

Let the Sunshine In

Policy “sunshine,” when done right, increases citizen trust and knowledge and helps to improve program performance, funding prospects, and relevance.

- **Publicly Disclose Projections**⁵²

Approximately 30 days after a deal is closed, the North Carolina Department of Commerce should post the final spreadsheets for the offer that was accepted. The current model should also be fully disclosed and placed on the Internet. It should be done in an interactive format so that users can download the data and model and experiment with the projections. Improving the

openness of the decision-making process would allow experts from around the country to examine the model and its assumptions and offer constructive feedback. It would also reduce the perception that the state has something to hide and is overpaying to attract new businesses.

- **Improve the Process for Delivering Information to Policymakers**

In the case of the incentive package offered to Dell, a special session of the North Carolina General Assembly was called. Legislators were presented only with the outputs of the Department of Commerce economic model, and were told that any amendment to the incentive package proposed by the governor's office would "kill the deal." If the state plans to continue making available discretionary incentives and not just entitlement decisions (e.g., Lee tax credits), legislators must be allowed more than a hasty debate limited to the options of "take it or leave it" in order to craft a more effective incentive package. Going forward, the Department of Commerce should:

1. *Present an array of outcomes, using different values for certain variables.* As this report has shown, reasonable changes in certain variables can have a dramatic effect on the projections. There is a great amount of uncertainty surrounding these projections, so legislators should be presented with an array of possible outcomes.
2. *Present the predicted output of multiple economic models.* Presenting the projections of several models will also demonstrate the wide range of possible outcomes, as well as emphasize the large degree of uncertainty regarding projections.
3. *Allow time for debate on potential amendments to the incentive package.* Making time for information gathering and debate will allow legislators to make better-informed decisions, as well as negotiate to include provisions to improve the project's return on investment.
4. *Take time to compare to other priority uses of finite state dollars.* The state legislature, ideally, could develop a short standing priority list of spending priorities, such as complying with the Leandro decision, establishing universal preschool, lowering K-12 class size, expanding the community college system, and addressing other pressing needs. The proposed deal needs to be compared to other choices before the votes are counted. One method of doing so would be for legislative leadership to create a bi-partisan select committee for this purpose. Its nine members would also be charged with preparing a list of questions for cases in which the company is asking for more than existing programs can provide, and it should be given time to present even a contrarian's position. Don't we want the North Carolina legislature to be a deliberative body?⁵³

- **Craft a Unified Development Budget**

Investments in economic development include both line-item expenditures and off-budget tax incentives, as well as a range of interest rate subsidies, public agency commitments, financings by quasi-public

corporations, and other activities. Much of this spending occurs across a wide range of public agencies, or is hidden away in tax laws. Due to the fragmented nature of economic development initiatives, policymakers lack a clear understanding of how the state currently spends its economic development dollars. In order to address the information gap, state policymakers can develop a unified development budget (UDB). The idea behind such a budget is to allow policymakers, state opinion leaders, and policy advocates to better see what is presently being spent on development. A UDB would clarify existing commitments, and enable policymakers to better weigh conflicting imperatives. Currently, Texas is the only state with a UDB in place.

The latest example of a unified budget was authored by the Mountain Association for Community Economic Development in Kentucky in 2005. It found that most of Kentucky's economic development spending was hidden away in tax laws and not subject to public scrutiny. Furthermore, Kentucky was focusing an overwhelming amount of its economic development dollars on capital and financial subsidies. Finally, the state made no real effort to evaluate its economic development tax expenditures.⁵⁴

The UDB could be a tool for helping policymakers to think outside the box. Committees concerned with economic development, technology, education, revenues, and workforce committees should consider holding joint meetings to allow for comparing the payback of these differing strategies and for helping to prioritize all economic development spending.

CONCLUSION

The point of this entire exercise is not to discard the use of subsidies in business attraction strategies. What is needed, instead, is for the state of North Carolina to be a savvy investor -for its subsidies to match and ideally surpass its competitors not in largess, but in acumen. We should also consider shifting some of our economic development funding to other priorities for greater balance and return on investment.

The state's current model for projecting the costs and benefits of big attraction projects is not working as well as it should. Although the model captures many of the key data points and relationships, it is missing some critical variables.

More care is needed in applying the model and selecting the hard-to-find numbers for filling in some of the key variables. A little skepticism and reflection is also in order when those numbers are provided by the private firm that the state is courting.

There are still a few mysteries we have not cleared up. Why did the state not use the default number for construction inputs? A minor element, we admit. Why was the Dell number and not the normal methodology used? Why was the Dell figure more persuasive?

Moreover, each "run" of the model is, in fact, a test of its soundness and realism. Each time the question should be asked: "Does the model need a little fine-tuning?" Furthermore, over time, its projections should be compared to what really happened. Were the number and type of jobs really created? How do tax revenues look? Did the project change the economic dynamics of the community or region for the better in some measurable fashion? If such questions were asked, this ex ante assessment model can become part of an ex post evaluation effort. We know that Commerce does run a variety of scenarios, but it is a good idea to review these regularly.

Fundamentally, the model must be a tool that leads to "no" decisions as well as "yes" ones. If not, it is not being taken seriously as a priority-setting or decision-making tool. In fact, North Carolina has been so successful lately in landing significant projects that we worry that this "high batting average" may be a symptom itself of overbidding.

Passing on some deals requires good executive leadership and civic communication. Indeed, it is an opportunity to explain that economic development is not the same as business attraction. The latter is just one of many strategies in which jurisdictions engage.

With some refinement in its assumptions and greater public openness regarding its workings and projections, North Carolina's economic and fiscal impact model can be an effective tool for generating more and better development returns for its citizenry.

Amidst all of our criticisms and suggestions, we are clear on where the upgrade of the model should begin. It requires a concentrated focus of Commerce staff and other outside experts on these questions: how much of what Dell is earning "sticks" to the state; and is the lack of consistency in varied ways to estimate facility revenues a strong enough rationale for discarding this element of the model and substituting something better? We hope that this paper has already gotten close to resolving these two issues.

APPENDIX ONE

TECHNICAL NOTE ON COUNTING SUPPLIERS AS DIRECT JOBS

For the economic models profiled in this report, it is not standard practice to count supplier jobs as direct jobs, because it risks inflating the projections. However, we recognize that this cost-benefit “rule” can be broken if the connections between the original project and other partners are close enough to regard them as one project and you can do a reliable estimate of the suppliers’ job impact.

This is a tough judgment call. If you read the press around the time of the debate over the size of the offer to Dell, there is mention that some of Dell’s past suppliers might locate onsite or nearby. However, this arrangement does not appear to have been formalized as part of the “deal.” Only some time after the legislature agreed to the package were there descriptions in the press of whom the supplier firms might be (around February 18, 2005). Later, on May 28, 2005, the first supplier from out of state was announced.

If you read the fine print of the Commerce Department’s late November spreadsheets, you find that Dell’s supplier jobs are counted as direct jobs. (The fine print, however, does not say how Commerce staff came up with the estimated numbers of supplier direct jobs. Probably, they were provided by Dell or they were estimated on the basis of the Tennessee Dell plant.) Prudence suggests that if you make this change, you have to adjust how you do the indirect job projections, because some of the supplier base business with Dell is already accounted for and counting it both ways would inflate the job count. None of the documents provided to us showed adjustments that would address this issue.

To conclude, even if we go along with the Commerce choice to count some supplier jobs as direct, the total job count appears to be inflated. In general, we are wary about advising any development organization to depart from standard practice and speculate about anything beyond the actual facility’s direct jobs.

APPENDIX TWO: METHODS OF CALCULATING SALES

ACCEPT THE NUMBER THAT DELL GIVES YOU	
ANNUAL SALES IN NC:	\$ 2,298,568,796
ASSUME EACH WORKER CONTRIBUTES THE AVERAGE GSP PER WORKER	
NC GSP (nom. 2005)	\$ 344,641,000,000
Avg. NC workers (2005)	4,105,734
Avg. GSP/worker (NC)	\$ 83,941
Total new statewide jobs	8,086
Avg. GSP/worker (NC)	\$ 83,941
Annual Contribution to GSP	\$ 678,762,593
Annual Contribution to GSP	\$ 678,762,593
Value added to sales ratio	0.32
% Remaining in NC	87%
Income multiplier	2.39
ANNUAL SALES IN NC:	\$ 1,020,835,561
USE IMPLAN'S INDUSTRY OUTPUT TO WAGES RATIO	
Avg. wages at Dell	\$ 28,000
Wages as share of total comp.	70%
Avg. total comp	\$ 40,000
Avg. total comp	\$ 40,000
Workers at Dell	2,355
Annual Dell Compensation	\$ 94,200,000
Annual Dell Compensation	\$ 94,200,000
Ratio of output to total comp.	4.5
ANNUAL SALES IN NC:	\$ 423,900,000
USE INDUSTRY CENSUS DATA TO DETERMINE SALES PER WORKER	
Value of shipments	\$ 47,643,943,000
Industry workers	61,856
Industry output ratio per worker	\$ 770,240
Workers at Dell	2,355
Industry output ratio per worker	\$ 770,240
ANNUAL SALES IN NC:	\$ 1,813,914,346

KEY**CONSTANT INPUTS**

These variables can be changed manually

VARIABLE INPUTS

These variables are fed directly from the NC DOC Model tab

CALCULATIONS

These are calculations and don't require any manipulation

APPENDIX THREE:

ADDITIONAL SCENARIOS

Below are 12 new scenarios based on the Census data methodology. (See Appendix Two for more detail on different methods for estimating sales.) We vary the number of direct jobs created, sales, and local hiring and purchasing for the construction and operations phases. They generally come out higher than the IMPLAN method, but not as high as Dell's own figure.

Scenario 1A

Direct workers:	1,680
Annual sales:	\$1,294,002,591
Construction inputs from NC:	95.5%
In-migrant ratio builds to:	50%

Scenario 1B

Direct workers:	1,680
Annual sales:	\$1,294,002,591
Construction inputs from NC:	95.5%
In-migrant ratio builds to:	54%

Scenario 2A

Direct workers:	2,000
Annual sales:	\$1,540,479,274
Construction inputs from NC:	95.5%
In-migrant ratio builds to:	50%

Scenario 2B

Direct workers:	2,000
Annual sales:	\$1,540,479,274
Construction inputs from NC:	95.5%
In-migrant ratio builds to:	54%

Scenario 3A

Direct workers:	2,355
Annual sales:	\$1,813,914,346
Construction inputs from NC:	95.5%
In-migrant ratio builds to:	50%

Scenario 3B

Direct workers:	2,355
Annual sales:	\$1,813,914,346
Construction inputs from NC:	95.5%
In-migrant ratio builds to:	54%

Scenario 4A

Direct workers:	1,680
Annual sales:	\$1,294,002,591
Construction inputs from NC:	54%
In-migrant ratio builds to:	80%

Scenario 4B

Direct workers:	1,680
Annual sales:	\$1,294,002,591
Construction inputs from NC:	54%
In-migrant ratio builds to:	54%

Scenario 5A

Direct workers:	2,000
Annual sales:	\$1,540,479,274
Construction inputs from NC:	54%
In-migrant ratio builds to:	80%

Scenario 5B

Direct workers:	2,000
Annual sales:	\$1,540,479,274
Construction inputs from NC:	54%
In-migrant ratio builds to:	54%

Scenario 6A

Direct workers:	2,355
Annual sales:	\$1,813,914,346
Construction inputs from NC:	54%
In-migrant ratio builds to:	80%

Scenario 6B

Direct workers:	2,355
Annual sales:	\$1,813,914,346
Construction inputs from NC:	54%
In-migrant ratio builds to:	54%

Below is the comparison of the results:

BUILDING OFF OF DEPARTMENT OF COMMERCE #S						
	Scenario 1A	Scenario 1B	Scenario 2A	Scenario 2B	Scenario 3A	Scenario 3B
Jobs Created	5,768	5,768	6,867	6,867	8,086	8,086
Addition to GSP	\$13,863,812,285	\$13,863,812,285	\$16,485,309,181	\$16,485,309,181	\$19,394,008,590	\$19,394,008,590
Net State Revenues	\$266,735,840	\$256,156,857	\$363,781,761	\$351,187,733	\$471,458,992	\$456,629,102

BUILDING OFF OF CFED #S (CONSTRUCTION INPUTS FROM NC: 54%; IN-MIGRANT RATIO BUILDING TO 80%)						
	Scenario 4A	Scenario 4B	Scenario 5A	Scenario 5B	Scenario 6A	Scenario 6B
Jobs Created	5,768	5,768	6,867	6,867	8,086	8,086
Addition to GSP	\$13,840,741,190	\$13,840,741,190	\$16,462,238,086	\$16,462,238,086	\$19,370,937,495	\$19,370,937,495
Net State Revenues	\$195,934,060	\$255,090,973	\$279,696,952	\$350,121,849	\$372,636,913	\$455,563,217

Here is an additional summary of the different results of the Virginia model, run once with their assumption for number of direct jobs, and once using NC’s number of direct jobs:

	VA MODEL (1,680 direct jobs)	VA MODEL (2,355 direct jobs)
Total Jobs Created	4,113	5,765
Net State Revenues	\$134,921,856	\$162,067,919

Once again, the outcomes were positive, but not close to the large figure that DOC projected - more than \$700 million. The Virginia employment-based driver generated a larger outcome than did the NC sales figure based on the IMPLAN/Walden method for calculating sales.

ENDNOTES

- 1 The North Carolina Justice Center made a Freedom of Information Act request and was able to photocopy a variety of documents. This analysis is primarily based upon these North Carolina Department of Commerce materials, as well as additional studies and documents.
- 2 These projects also received other subsidies, such as tax credits.
- 3 This is in addition to discounting. It's akin to private sector finance, when you move from revenues to net profits to return on assets.
- 4 Richard Schramm and Duane Wilcox, *Cost-Benefit Analysis for Local Governments*. Local Government Program, Cornell University, 1981 (reprinted:1985), p. iii.
- 5 Curliss, J. Andrew, "State Took Rosier View of Dell Jobs" *Raleigh News and Observer*. December 19, 2004.
- 6 Construction costs and benefits are often not included in impact modeling, because they are "one-time" events. If counted, modelers must clearly distinguish the one-time nature of the spending from the annual operations of the new facility. Walden's North Carolina model clearly values both the costs and benefits of construction in his design.
- 7 This is State spending only and does not include the \$37 million in incentives offered by Forsyth County and the City of Winston-Salem.
- 8 These numbers might not perfectly match results reported in state press releases due to differences in rounding, and small adjustments to the model made by the state that were undisclosed in publicly available information.
- 9 "NC, Virginia officials had different Dell job estimates," *Winston-Salem Journal*, December 20, 2004.
- 10 This assumes that the equity holders in the company live outside the state of North Carolina. If the company is owned by North Carolina residents, one could argue that the incentives are directly raising the income of North Carolina residents.
- 11 Although our researcher spent two days gathering materials on the Dell and JDIG deals from the Department of Commerce under the open records law, we could not locate a final spreadsheet for Dell and no electronic versions were available. The spreadsheets that were available did not show a place where the discount rate was applied. So, we assumed it was not being done. In addition, there were no electronic copies of data on the 31 JDIG deals. So, we had to enter the data and reconstruct the model ourselves.
- 12 Anthony Boardman, David Greenberg, Aidan Vining, and David Weimer, *Cost-Benefit Analysis: Concepts and Practice*. Upper Saddle River, NJ: Prentice Hall (1996), p. 10.
- 13 The paper that describes the workings of the Commerce model uses a future values technique for discounting. This is an acceptable practice, although typically net present value is calculated in a different fashion. Because we did not have electronic versions of the Dell spreadsheets, it did allow us to avoid mixing two different approaches to calculating benefits and costs in different time periods. And we did not use the future values method that is outlined in the Walden overview paper, we used the present value over multiple years approach – either the one in the Iowa model, the Virginia model, or our own estimation. So, we were very careful to apply the same discount rate to both. Most of the time, our estimates were undiscounted. (It's clear in the body of the paper when we did and when we did not discount.) Any accusation that we compared apples with oranges is false.
- 14 BLS data for average wages in Forsyth County found at http://ecanned.com/indsum/level1/NC/index_10.html (downloaded July 28, 2006). We recognize that the Tier classification has been retooled repeatedly. There are only three now.
- 15 The model may have originally been designed and begun as solely a state device, but it really needs to change. Local governments rarely have such models and they are less equipped to negotiate a good deal.
- 16 Direct jobs are those that are employed directly at the plant in question, and do not include suppliers, or other related businesses.
- 17 The final contract between Dell and North Carolina only obligated the creation of 1,700 new jobs at the actual facility.
- 18 Walden, Michael L., "A Model to Estimate the Economic Impacts of Business Location in North Carolina" Version 2, p. 2.
- 19 In our view to count supplier jobs as direct jobs is generally unacceptable. We use the "podium" criteria. If when the final negotiations between the state and a corporation, such as Dell, are completed, top management from the supplier companies should be on the podium as well, saying that they are locating an operation on site. (Or somebody should be reading an official letter from said corporation.) Just talking about the possibility does not count. Moreover, if you count these supplier jobs as direct jobs, you have to adjust the multiplier some. Neither an early official announcement nor an adjustment of the model occurred. Also, there is further anecdotal evidence for the direct job figures being high. If you read the Dell press clippings in order from oldest to newest, the number of created jobs cited by company or state officials goes down significantly. Likewise, the performance contract that holds the firm accountable has a benchmark target that is far less than 2000 jobs.

- 20 Bartik, Timothy. "Who Benefits from Local Job Growth: Migrants or the Original Residents?" *Regional Studies*, 27:4, 1993. This is one of the few summary studies done, given the small size of the research literature.
- 21 IMPLAN is one of the two major input-output economic impact modeling systems used in the United States and are always integrated with the customized elements that are also part of a specific state or local cost-benefit, fiscal impact, etc. models. For more information, see: www.implan.com.
- 22 Admittedly, this number looks too low. It would imply a GSP per worker of only \$52,000.
- 23 Generally speaking, companies disclose little information to the state that is courting them. Typically, they divulge employment and salary/wage information, but rarely sales.
- 24 North Carolina GSP in 2004 was \$323,962,000,000. Average employment in North Carolina in 2004 was 4,017,193. GSP per worker in 2004 was \$80,644. All data from the US Bureau of Economic Analysis. (<http://www.bea.gov/bea/regional/gsp.htm>) and here (http://data.bls.gov/PDO/servlet/SurveyOutputServlet?series_id=LASST37000005&data_tool=%2522EaG%2522).
- 25 Perhaps DOC should have run two estimates - one company derived and one estimated by the North Carolina model.
- 26 Calculated this time by multiplying total sales (\$2,298,568,796) times the value added to sales ratio (0.32), divided by total direct employees (2,355).
- 27 Thomas Friedman, *The World Is Flat*. New York, NY: Farrar, Straus and Giroux, (Updated and Expanded, 2006), p.515-539.
- 28 We realize that this argument and numbers lends only so much credibility to the case that Dell overstated sales. But this argument would have more weight if we had sales numbers from comparable facilities elsewhere. On the other hand, our major point is that the leakage factor is higher than estimated, whatever the source of the discrepancy.
- 29 A discount rate of 3.25% was used. This number represents the average real return on 10-year U.S. Treasury bonds from 1994-2004 (nominal rate minus CPI).
- 30 This is hard to do for a single project. It is much easier for adjusting down a portfolio of deals. This is discussed in detail later.
- 31 However, in reality, Iowa policymakers and staff always present two scenarios - one with no jobs taken by in-migrants and one with a 100% of the employment accessed by new residents.
- 32 "Easley Announces Dell to Locate in Piedmont Triad," Press Release: North Carolina Office of the Governor. November 9, 2004.
- 33 The alternative model also generates a few other interesting ratios: (1) Dollar effect on income for each public dollar spent (ratio, direct effects only): 2.99; (2) Dollar effect on income for each public dollar spent (ratio, including multiplier effects): 4.72; (3) Dollar effect on net taxes for each public dollar spent (ratio, state taxes only): 0.48; and (4) Dollar effect on net taxes for each public dollar spent (ratio, state and local): 0.46. Unfortunately, we cannot compare these values to the North Carolina model, because of its omitted discount rates.
- 34 Peters, Alan, and Peter Fisher. *State Enterprise Zone Programs: Have They Worked?* Kalamazoo, MI: W.E. Upjohn Institute for Employment Research, 2002.
- 35 Luger, Michael I. and Suho Bae, "The Effectiveness of State Business Tax Incentive Programs: The Case of North Carolina," *Economic Development Quarterly*, Vol. 19 No. 4, November 2005 327-345.
- 36 Gabe, T.M., and Kraybill, D.S., "The Effect of State Economic Development Incentives on Employment Growth of Establishments." *Journal of Regional Science*, 42(4), 2002 703-730.
- 37 We obtained materials on Virginia's Dell bid courtesy of the Virginia Economic Development Partnership.
- 38 Some of Virginia's incentive tools require employers to pay above the prevailing wage in a specific county.
- 39 In fact, Dell wished to pay no corporate income tax. See: "Dell Dictates Terms to North Carolina", *Greensboro News and Record* (Editorial: January 22, 2005) This is but one of a dozen such articles.
- 40 This is not to say that the multiplier used by North Carolina was necessarily incorrect. Both projections were categorized in the right (and same) industry code. States will have different employment multipliers, based on differing productivities for the given economic sector. The discrepancy between employment multipliers can be explained if workers in North Carolina's electronic computer manufacturing sector are significantly more productive than their counterparts in Virginia. But the general rule of thumb is to be initially skeptical of any multiplier greater than 3.0 and to look twice at the calculations, economic assets, linkages, and model assumptions.
- 41 Bartik, Timothy. "Who Benefits from Local Job Growth: Migrants or the Original Residents?" *Regional Studies*, 27:4, 1993.
- 42 As discussed above, however, Virginia chose to use a discount rate of 5.31% in its projections, which more than negates any inflationary impact of rising wages.

- 43 Dell employs more workers abroad than in US. The North Carolina facility is only a final assembly point where components from elsewhere and software customized for the buyer is installed in minutes.
- 44 Some readers find this analysis puzzling. Why lower the effects of any of these goodies? We got the jobs and added taxes that the incentives may or may not have induced. As long as we come out fiscally ahead, we have lost nothing. But that is not precisely true, even though it's very hard to see and count the effects of subsidizing a decision that was made already on other grounds. What if you did not agree to the bid they wanted, and they came anyway. You would have the money you saved and the project and its benefits. Furthermore, were there high priorities that you could have used this money to finance? So, what follows is a rough way to get at this problem, quantitatively, and increase economic development staff's awareness that it's easy to buy something in this contest that you already "own." Lastly, there are efforts underway to devise a better set of assumptions, formulas, and calculations that could give an economic development policymaker ways to figure out how many jobs were created due to such assistance. This work is then recast as a decision rule. It's a matter of drawing on the same concepts that underline our attempt - deadweight spending (it would have happened anyway), displacement effects, impacts through the supply chain, multiplier effects through increases in household income, who gets the jobs, wages of new jobs versus market rate wages. Especially important is the cost per job to wage ratio. (This work is being done by European scholars such J. K. Swales.) Also helpful is the work of Peter Fisher of the University of Iowa who has developed for a number of states and cities ways to estimate revenue gained per induced job and revenue lost per non-induced job and see if the jurisdiction comes out ahead.
- 45 Elaine Mejia, "The Final Budget Agreement: Smart Investments in Services, But Shortfall Likely Next Year," BTC Reports, Volume 12, Number 7, August 2006. "According to [North Carolina Budget and Tax Center] calculations, if revenue forecasts hold true and if lawmakers follow through on plans to allow the 2001 tax increases to completely expire, revenues available for the 2007 budget will be \$1.1 billion short of what will be needed to maintain services as established in the 2006-2007 budget." This prediction did not come about, but we are not "out of the woods" yet.
- 46 Craver, Richard, "One Year of Dell: Progress Pleases Many, But Not All," *Winston-Salem Journal*, October 5, 2006.
- 47 Sparks, Jim, "Changes: Roadwork to Run Extra \$1.4 Million," *Winston-Salem Journal*, June 11, 2005.
- 48 If it is being regularly being used, the future values approach is fine. We prefer the present value approach. What's especially important is to use the right rate. First, adjust for inflation. Then choose the real interest rate that North Carolina state government pays on bonds. We're asking here whether the state makes money on the deal, and therefore, the relevant discount rate is what the state faces.
- 49 This may not be practical during the rush of negotiations. But regular comparisons with other options, along with assessing deal-versus-deal, is a good idea. Are we getting our money's worth?
- 50 For example, if the government uses a discount rate of 3% and the business uses a discount rate of 12%, a \$1,000,000 subsidy in year 10 costs the state \$744,094 (in today's dollars), but is only worth \$321,973 to the company.
- 51 For more information, see recent Oregon case study in "Back on Track", NC Rural Development Center (2006).
- 52 We know that this is controversial. Companies won't like it. Few citizens will use it or grasp it. But we believe that it is essential. A compromise might be to post a two page summary of the model with some sort of graphic, along with a two page summary of the final projection, with footnoted definitions.
- 53 We could also decide to avoid these hurry-up sessions by setting a ceiling on subsidies that has to be lived with, until the next budget. Or, the state could encourage debate about the pros and cons of discretion versus non-discretionary business subsidies.
- 54 Bailey, Jason and Justin Maxson, *Accounting for Impact: Economic Development Spending in Kentucky*. A publication of the Mountain Association for Community Economic Development, September 2005.

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