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CONNECTING NC TO JOBS:

Infrastructure Investments Can Build an Economy that Works for All

BY PATRICK MCHUGH, ECONOMIC ANALYST

Introduction

Voters in the North Carolina primary will have the chance to approve prudent state borrowing that can boost our economy in the short run and make the state more competitive for the long haul.

The **Connect NC Bond Act**, which will appear on the primary ballot, is an initiative to issue $2 billion in new debt to finance public infrastructure across the state.

It would support thousands of jobs over the next few years as projects are completed, with hundreds of millions of dollars paid out in wages—earnings that could help boost local economies as working men and women purchase basic goods at community businesses. Long-term, these investments can make our economy function more efficiently, create new market opportunities, accelerate innovation, and make North Carolina a better place to live and raise a family.

The Bond Act comes at a time of need. Years of budget cutbacks have left a backlog of repair and renovation work across much of the state's building and transportation stock. At the same time, our state's swelling population is ratcheting up the pressure to expand education, transportation, public safety, and infrastructure that improves our very quality of life.

Public Infrastructure investment is overdue

Gov. Pat McCrory hasn't minced words about how badly funds are needed for our state's infrastructure. He called several of our National Guard facilities "frankly disrespectful" and a science building at Western Carolina University "an embarrassment," and joked about feeling somewhat apprehensive that the roof of the Engineering and Science building at UNC Charlotte would fall through while he and his team were inspecting it.[1]

North Carolina has a multitude of infrastructure needs, some quite urgent. The American Society of Civil Engineers has already identified several areas of critical need, giving North Carolina grades no parent would want a child to bring home from school: aviation infrastructure , D-plus; dams, D; bridges, C-minus; and C's for our roads, public schools, and storm water and wastewater facilities.[2]

After a recession and years of tax cuts, North Carolina now invests a smaller

CONNECT NC BOND AT A GLANCE

WHEN: March 15th Primary

WHERE: A voting booth near you

WHAT: Authorize $2 billion in General Obligation bonds to fund a range of public infrastructure projects

- The $980 million made available by the Bond Act would make possible construction projects across the **UNC system**, mostly focused on science, engineering, mathematics, and health care facilities.
- The **North Carolina College System** would receive $350 million for repair and renovation projects.
- **Local governments** could access $312.5 in funds to support local water, sewer, and park infrastructure.
- Two facilities, with a combined cost of $179 million, would support **agricultural science and services**.
- The **state park system and North Carolina Zoo** would receive a combined $100 million for repair and expansion projects.
- The **North Carolina National Guard** would receive funds to repair and existing facilities.
- The **Department of Public Safety** would build a new officer training academy, with a combined price tag of $78.5 million.

For a complete list of projects go to **connect.nc.gov**.

FIGURE 1: Projects Would Help in Many Important Areas

share of the state economy in public infrastructure than it once did.[3] Even if the Connect NC Bond act passes, the last several years have left a deep backlog of repairs and maintenance that will still need to be addressed.

Current low interest rates reduce borrowing costs

The actual timing of Connect NC is also fortuitous—now is a good time to borrow. The cost of borrowing for state and local governments is lower than any time since the 1970s.[4] Though the Federal Reserve recently raised the base interest rate for the first time since the Great Recession, weakness in the global economy and a lack of robust wage growth in the United States will likely keep interest rates low for the next few years.[5]

When issuing large bonds, even small differences in interest rates can dramatically change the final cost to borrow. Compared to issuing bonds under more normal credit conditions, incurring debt at current interest rates would potentially save North Carolina hundreds of millions of dollars over the 20-year bond repayment period.[6]

North Carolina has the debt capacity to take advantage of these low interest rates. The State Treasurer found that the Connect NC Bond debt would not threaten the state's credit rating, the highest in the nation.[7]

Public infrastructure investments help the economy

Public infrastructure investments produce a range of immediate and long-term economic benefits. In the near-term, infrastructure investment is a tried and true way of putting people to work, providing a boost to the overall economy.

Despite the importance of this immediate impact, the long-term benefits often outweigh the short-term economic upside. The improvements to transportation, for example, that come from updated public infrastructure can make workers and companies more efficient, boosting productivity and global competitiveness. Major public investments can also help attract even greater private investment, as was the case for the Research Triangle Park. Lastly, investing in research and development infrastructure can leverage innovation to create entirely new markets and attract talented companies and people to our state.

Public infrastructure projects can attract even greater private sector investment, as happened with the Research Triangle Park.

Short-term gains are significant

Investment in public infrastructure is part of why the Great Recession never became a full blown depression. Without it, the Great Recession could have lasted twice as long, and unemployment might still be near double figures.[8] With people losing work, and business demand collapsing, public projects injected billions of dollars into the economy through a variety of channels, likely saving millions of jobs during the recession and first few years of the recovery. The Congressional Budget Office estimates that every $1 the government spends on direct purchases can ultimately create as much as $2.50 in economic activity.[9]

Public infrastructure investments create good, middle-class jobs. Construction and manufacturing, two areas that are particularly likely to generate well-paying jobs and decent benefits, account for the majority of jobs created by public infrastructure projects nationally.[10] Significantly, these are the very jobs that have been slow to recover from the Great Recession. There are roughly 60,000 fewer construction jobs in North Carolina than there were on the eve of the recession, and manufacturing employment is down over 70,000.[11]

Investment increases productivity

The improvements brought about by public infrastructure investments help boost the economy by making people and businesses more productive.[12] Making an advanced economy that does not rely on cheap labor more efficient and productive is at the heart of what makes the United States competitive on the global market. There is substantial evidence that, on average, public infrastructure investments boost productivity more than private sector investments.[13]

There's compelling evidence from studies on the productivity gains of specific industries that could take advantage of public infrastructure investments. For example, investments in the Interstate highway system made the transportation and logistics industries much more efficient and productive.[14]

Public infrastructure investments create good, middle-class jobs.

Private investment follows

Public infrastructure investments often create new economic opportunities for private companies, enabling investment that would not have happened otherwise.[15] The International Monetary Fund found evidence that when nations increase public investment, private investment also rises in the following years.[16]

A common misconception is that any dollar spent by the public sector comes, by definition, at the expense of private investment. This zero-sum logic may make intuitive sense, but it's not how the economy works. As the IMF study shows, public infrastructure spending can increase, rather than supplant, private investment.

That's because public infrastructure projects can create new market opportunities that motivate private sector investment, ultimately surpassing initial public spending. Setting up the Research Triangle Park took substantial public investment, but it has ultimately attracted many times more private capital. Particularly during slack economic periods, when private investors struggle to find acceptable rates of return. Transformative public projects can create the conditions to lure capital back into active economic use, particularly during slack economic periods when private investors struggle to find acceptable rates of return.[17]

Infrastructure investment promotes innovation

Public research institutions facilitate the flow of ideas, and can help those ideas reach the market. These institutions create marketable spinoff potential, as shown by the many successful private enterprises that have emerged from UNC laboratories.

Some of the commercial spinoffs from public research institutions are unanticipated, broadening the potential economic impact beyond the research's primary objective. For example, the European Organization for Nuclear Research (who operates the Large Haldron Collider), developed a data repository and management system that has proven to have applicability in the private-sector.[18] In North Carolina, SAS has a similar origin story. The company began as a coding project by an NC State agriculture researcher and is now one of the largest data analytic companies in the world.

Public research universities facilitate the flow of ideas, and help those ideas to become market-ready products.

Public research institutions can also foster the kind of dynamic, interdisciplinary collaboration that typifies successful research hubs around the world. In many technology markets, companies regularly collaborate on new technologies while also directly competing with one another. Many market observers see public research institutions as key to building a business culture that facilitates these productive and flexible partnerships.

HOW NORTH CAROLINA FUNDS INFRASTRUCTURE

North Carolina funds infrastructure in three ways.

General Fund Appropriations: Much of the regular upkeep, expansion, and construction of new state-run facilities is paid for through the yearly General Fund budget, which appropriates the majority of state revenue.

Highway Fund: A variety of sources, including the gas tax and DMV fees, are earmarked for the Highway Trust Fund, which pays for much of the vehicle transportation infrastructure in the state. This arrangement has become problematic of late as more fuel-efficient cars and low oil prices have cut into the amount of revenue generated through the gas tax.

Bonds: Like most governments, North Carolina has used debt to pay for public building and transportation infrastructure, particularly projects with a large upfront cost and a long service span. The state borrows money by literally selling bonds and paying back the buyers with interest. The Connect NC Bond Act would authorize the issuance of General Obligation Bonds.

- **General Obligation (GO) Bonds** require approval in a voter referendum. Most North Carolina GO bonds are repaid through appropriations from the General Fund, with a smaller portion from the Highway Fund. The bonds are attractive to investors because they are backed up by the state's ability to tax. If the state were to stop payment, bond holders could compel the state to change its tax or spending policy to repay the debt. This puts GO bond holders at the front of the line for payment from the state, so it is the safest type of loan from the perspective of the lenders, which in turn reduces reducing the interest rates a state has to offer investors.

Museum of Natural Sciences, Raleigh.

Myers Park High School, Charlotte.

- It has been 15 years since the last GO bond referendum was passed

FIGURE 2: Estimated Economic Impacts of Connect NC Bond Construction Activities

IMPACT TYPE	ESTIMATE
Employment	
One-time jobs	**25,000**
Per year for five years	**5,000**
Income	
Employee Compensation	**$980 million**
Labor Income	**$1.2 billion**
Proprietor Income	**$235 million**

FIGURE 3: Examples of Industries Poised to Add Jobs Due to Connect NC Bond Act

SELECTED TOP INDUSTRIES
Construction
Architecture and Engineering Services
Food service and drinking places
Real estate
Wholesale trade
Retail stores
Truck transportation
Automotive repair
Structural product manufacturing

Building areas of research excellence can help raise the global profile of regions, often adding to the local talent pool when industry-leading companies invest nearby. Leading public research institutions, for example, foster broader innovation hubs by attracting top-caliber talent and public university programs create pipelines for local companies looking for specific and advanced skillsets.

Of course, The Research Triangle region is a testament to the transformative power of sustained investment in public research institutions.

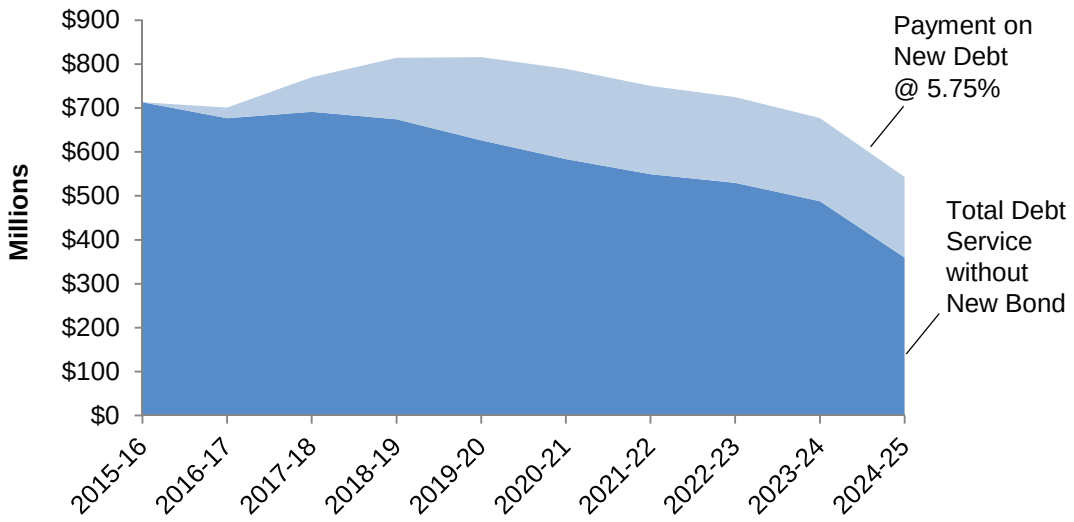
Connect NC Bond construction activity will boost employment

The Connect NC Bond has the potential to create thousands of jobs and almost a billion dollars in wages, through the initial construction phase alone. As shown in Figure 2, construction activities funded through the bond could create 5,000 jobs over a five-year period, and put almost $1.5 billion into the pockets of North Carolina workers and business owners.

It is not feasible to accurately predict specific employment levels in each of the next few years, as financing and construction schedules are not yet known. If all of the construction took place in one year, which will not happen, it could create the equivalent of 25,000 jobs in North Carolina. Legislative estimates projected that part of the $2 billion in bond debt would be issued in each of the next four fiscal years running through mid-2020.[19] Assuming that funds raised through the sale of bonds will largely be used in the year in which the debt is issued, it is likely that construction activities will begin sometime in 2016 and run through least 2020. If the construction activity is spread out evenly over the next five years, it could support roughly 5,000 jobs across that time span.

As one would expect, the majority of the jobs to be created are in construction, but the economic benefits will be felt across the North Carolina labor market. Projects will create demand for goods and services like architecture, engineering, transportation, and manufacturing. Even more broadly, all of the new employment will boost consumer demand, producing job gains in sectors like food service and retail trade. The results presented above include the full universe of jobs that would be supported by the Connect NC Bond.

FIGURE 4: Cost of Connect NC Bond Payments with Other State Debt



Need long term plan to capture economic benefits

Realizing the full potential of the Connect NC Bond Act will require a long-term financial commitment. The Connect NC Bond will cast a long fiscal shadow. North Carolina has the capacity to shoulder the new debt, but payments will be a standing feature of the state's ledger book for a long time. The actual cost will depend on the interest rate at the time that each portion of the bond debt is issued, but the yearly payment will likely fall in the $150-$200 million range once payment is fully under way.

Realizing a return on the Connect NC Bond Act investment will require long-term funding commitments. An engineering building without equipment or engineers won't make North Carolina more competitive. Zoo exhibits with no animals won't enlighten our children, and public safety training facilities won't do much good if we don't hire new officers. As such, capturing the economic benefits of the Connect NC Bond will hinge on whether state leaders allocate adequate funding to use and maintain the new infrastructure.

After years of dwindling state investments, the bond will not solve all of the North Carolina's pressing infrastructure problems, so we should not sacrifice other important projects to pay for the bond. However, a long-term commitment to funding public infrastructure can grow our economy and make North Carolina a better place to call home.

APPENDIX: Economic Impact Methodology

The IMPLAN model,[20] a commonly employed economic impact assessment tool, was used for this analysis to estimate only the short-term economic impact of construction, repair, and renovation work funded by the Connect NC Bond Act. The long-term benefits are extremely difficult to estimate with any confidence, so this analysis is limited to the immediate economic impacts of building the infrastructure that the bond would finance.

The IMPLAN model is designed to estimate the how a specific change in economic activity impacts the broader economy. Here, the IMPLAN model was used to estimate how many jobs, and how much personal income, would be created in North Carolina if $2 billion in construction activity takes place over the next several years.

Because most or all of the construction would be performed by private sector contractors, the funds that would be expended if the Bond is passed are treated in this model as industry sales. In other words, the model estimates the economic consequences of the State government purchasing $2 billion in construction activity.

The IMPLAN model allows some high-level distinctions between different types of construction and repair work, so the most relevant type of construction industry was selected for each of the types of projects included in the Connect NC Bond Act.

The economic impacts estimated by the IMPLAN model break down into three types:

- **Direct (Construction Jobs):** Jobs created by firms that are hired to complete the projects financed by the bond act.
- **Indirect (Supply Chain Jobs):** Jobs created through supplying goods and services to the firms performing the construction (ex: Architectural and engineering services, Truck transportation, concrete, quarrying, lumber, parts manufacturing).
- **Induced (Consumer Supported):** Jobs created when workers spend their income as consumers (e.g. restaurants, retail sales, groceries, child care).

LIMITATIONS AND CAVEATS

The IMPLAN model is a useful and widely recognized tool, but the results must still be interpreted with caution. It is impossible to perfectly capture the impact of any shock to the regional economy, particularly something as significant and complex as the Connect NC Bond Act. Some of the inherent limitations to the method include:

- **Yearly job impacts depend on the length of construction activities.** Without detailed construction schedules for the projects that would go forward if the Connect NC Bond Act is approved, it is not possible to precisely predict how much of the economic impact will accrue in each of the next several years.
- **Imperfect match between IMPLAN industries and what would be built using the Connect NC Bond Act funds.** The Construction industries available in IMPLAN are high-level, mostly distinguishing between residential and commercial construction, and between new construction and repair work. As such, there is no industry in the model that perfectly captures the inputs needed to build the different projects included in the Bond Act.
- **Does not capture dynamic economic effects.** The IMPLAN model does not attempt to capture dynamic price or substitution effects of an economic change. For example, increasing demand can drive up the price of a particular good, potentially impacting any industry or consumer who also wants to purchase the good in question. Similarly, an increase in employment can make it harder to get and keep workers, putting upward pressure on wages. The IMPLAN model does not capture these types of market dynamics, so any impacts they may have are not reflected in the results presented here.

As such, the results of this analysis must be viewed as a broad indication, not a precise estimate, of the likely economic impact of completing the projects financed by the Connect NC Bond Act.

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