Investing in Hospitals: Projecting Economic Impacts 2016-2035: Study I: Direct investment

Prepared by:
Peter Gunther, Senior Research Fellow, CCEA
Fred Carstensen, Director, CCEA

For:
Connecticut Hospital Association

December 1, 2015
Investing in Hospitals: Projecting Economic Impacts 2016-2035:
Study I: Direct Investment

Introduction
The State of Connecticut wisely invests in its economic future, notably with major commitments in bioscience (BioScience Connecticut and Jackson Labs), aerospace (United Technologies), and digital broadcasting (ESPN), among others. Such public sector investments, whether through tax incentives, use of stranded tax credits, or direct expenditures, both strengthen existing critical sectors of the state’s economy and bring new, vibrant, growing sectors into the state. What is critical, in each case, is that the investment leverages new economic activity, bringing additional money into Connecticut’s economy, whether through increased sales of jet engines and medicines, venture capital investments in new biomedical companies, expanded digital broadcasting capabilities, externally funded research, or other vectors. Whatever the source, it is those “new” dollars flowing into the state’s economy that drives job creation, increases household income, and delivers additional tax revenue. The litmus test in every case is whether the State’s investment generates sufficient return to cover the cost of that investment. Investing in hospitals, held to that standard, clearly passes the test.1 Moreover, hospitals are deeply connected to the bioscience sector—now so important to Connecticut’s economic future—because of their central role in providing clinical support to that sector. Investing in Connecticut’s hospitals thus has multiple payoffs.

Effective and efficient hospital operations yield both private and public benefits. Private benefits flow to recovering patients through better health, quality of life, and longevity. Social benefits accrue to society through effective preventive interventions, reduced incidents of contagious diseases, extended lives of friends and family, enhanced medical research, more and earlier patient participation as a productive worker, and medical education, creating a pipeline of entering doctors. A strong hospital sector is also capable of generating “medical tourism,” attracting out-of-state patients to high quality, specialized services. This report lays out the findings of the first of three alternative approaches to assessing the economic impact of a $556 million annual investment in Connecticut hospitals, a combination of a federal investment of $373 million together with a State investment of $183 million.

This approach, “Investing,” treats federal funds as external dollars, which is conceptually the same as increased sales of aerospace products or broadcasting services, attracting out-of-state customers,2 or capturing external research dollars, whether federal (e.g. N.I.H.) or private sector, State investments generate. The analysis here assumes that the State invests annually $183 million in the hospitals; the State investment generates the additional $373 million investment from the federal government; the

---

1 The argument in support of State investments, whatever their form, is that increasing State expenditures actually increases State revenue. Conversely, cutting State expenditures that are in fact investments, because they bring external money into the economy, may (and have in some cases have) actually made the fiscal situation worse. Spending choices thus should be made on the basis of careful analysis of the dynamic outcomes, not on the basis of simplistic budgetary bookkeeping.
2 State funding of the Bass Pro store in Bridgeport was predicated on attracting a large volume of out-of-state customers, whose expenditures are thus net new to Connecticut.
hospitals, for their part, agree to invest the total $556 million in expanded services and facilities. This study thus projects the economic benefits flowing from this investment in exactly the same way the DECD does for manufacturing, financial services, or other investments the State makes. Leaving aside social benefits, the question germane to the State is: Do fiscal benefits (income, sales, and business tax revenues) cover the cost of the state incentive? Earlier survey responses by the hospitals indicate that the direct projected job creation is about 2,100.

**Funding**
This case is the basic one: it less complicated than more comprehensive studies, briefly outlined at the end, and will be subsumed within each of them. It is also the easiest way in which to understand the major benefits of investing in Connecticut’s hospitals.

**Economic Stimulus**
Modeling is straight-forward. The federal and State government split the projected $556 million in annual investment. The analysis treats federal funding of $373 million as hospital revenues coming from outside the state: no account is taken of any federal efforts to capture revenues within the state to support those expenditures, because the vast majority of federal revenues are external to the state. In contrast, $183 million in additional state expenditures requires the modeling match that cost with increases in personal income taxes, designed to balance the state budget.\(^3\) A further complication arises in this modeling process because State expenditures in REMI are in general rather than specifically direct to hospitals, though that is the intent. Because the vast majority of government expenditures eventually become household income, the equivalent of this funding is directed to hospitals by a $183 million increase in household consumption of hospital services and by decreasing general household consumption by an equal amount.

**Results**
The investment generates positive impacts throughout Connecticut’s economy, on employment, real gross Domestic Product (GDP), personal income, personal disposable income, and state tax revenue; the hospital investment thus fully satisfies the standard requirement for State investments.

**Employment Impacts**
Investing in hospitals delivers initial new employment of 6,618 jobs in 2016, which number then declines—because inflation eats into the real value of the constant stream of investments and the modeling assumes improving productivity—annually to 3,596 in 2035.\(^4\) The jobs include both full and part time employment. The largest sector impact on employment comes among hospitals workers,

---

\(^3\) The REMI model specifies a balanced state budget, reflecting that constitutional requirement. The question is whether, at the end of the analysis, there is sufficient fiscal impact to offset fully this hypothetical increase in taxes. If that impact is sufficient, there is then no need for the new taxes; the State can capture the benefits in jobs and household incomes without a loss in aggregate state revenue. Moreover, the analysis will reveal how much the State would gain in net new revenue without a tax increase.

\(^4\) The assumption is that the nominal dollar investment annually remains the same, without adjustment for inflation or rising wages. Thus over the period of the study the annual investment by Connecticut steadily declines in real (purchasing power) terms, and thus of course the economic impact contracts as well.
where job increases start at 2,667 in 2016 but shrink to 1,667 jobs in 2035. The REMI model picks up on the direct, indirect, and induced employment impacts so total hospital employment impacts exceed the expected direct impacts.

Chart 1 shows the most highly impacted sectors and therefore those that most benefit from investing in hospitals by order of magnitude in the early years. Inclusive of hospitals, these nine industries account for 58% to 60% of annual employment impacts. While construction and retail employment impacts are the closest industrial employment impacts relative to hospitals, ambulatory care is initially highly ranked but gives way to both administrative support systems and professional, scientific, and technical support.5

**Incremental Income**

Two measures of incremental income are used in this report: real GDP and current dollar personal income. The two differ significantly, especially over time, because real measures are adjusted for inflation, thus shrinking over time, whereas current dollar measures are not adjusted. In addition, personal income flows to people and households, whereas GDP is equal to aggregate value-added in an economy, value that goes to both persons and businesses (prior to depreciation). In essence, personal income measures how well people are doing; GDP measures how the economy is doing.

**Real GDP**

Given the effects of lagged impacts on real GDP, GDP peaks in 2017, then declines, but at a slower rate than employment because productivity improvements over time deliver increasing value-added. Chart 2 captures these incremental impacts from the $556 million investment measured in 2009 dollars in 2016 to a $362 million investment measured in those same 2009 dollars in 2035. Both these impacts are above the real (2009) value of combined federal and state stimulus in the respective years of $469 and $325 million.

---

5 The hospital employment result is consistent with what the hospitals are claiming is happening with the current government cuts of a similar magnitude to hospital expenditures.
Chart 1: Investing in Hospitals: Most Impacted Industries: 2016-2035 (# Jobs)

Chart 2: Investing in Hospitals: GDP Impacts 2016-2035 (Millions 2009 $)
**Personal Income, Personal Disposable Income, and Personal Taxes**

Unlike real GDP impacts, the modeling measures impacts on personal income and personal disposable income, as well as personal income taxes, in current dollars. As Chart 3 reveals, these series climb to 2021 and then remain in a narrow range over time, demonstrating the sustained benefits that these investments deliver over the entire period of analysis.

![Chart 3: Investing Hospitals: Personal Income and Personal Disposable Income Impacts 2016-2035 (Millions Current $)](chart)

Once the investment program is in place, Connecticut citizens benefit from disposable incomes that exceed those in the base case prior to the program by at least $200 million annually.

The difference between the two personal income measures is personal income taxes that go to either the federal or state governments. This spread can be divided among the governments by including the $183 million in state costs and estimating the state’s share of the remaining additional personal income taxes at roughly 23.5%. The critical outcome for Connecticut is that the increase in personal income is sufficient to both cover the higher personal taxes to cover the hospital funding and to generate additional personal income taxes for Connecticut. As noted in Chart 4, there is an annual impact on state revenues approaching $35 million over and above the state’s annual costs from 2019 onward and somewhat less in 2016-18 at $30.3 to $34.2 million. The preponderance of this surplus is raised through personal income taxes relative to state sales taxes.
Conclusion to Study I
Leveraging federal funds, which are “new” dollars flowing into Connecticut’s economy, through the State’s sustained investment in hospital, generates significant new economic activity, jobs, per capita income, and disposable income. Most important, this strategic investment is self-financing for the State: it generates sufficient additional revenues to offset fully the cost of the annual investment and actually increases total annual revenue. In short, both the State and its citizens are better-off, even before taking any positive impacts of improved health outcomes into account.

In future studies, CCEA will analyze two alternative approaches, both of which subsume the results of this first study. Study II, “Employment and Leverage,” relies on aggregated employment data from the hospitals themselves projecting how many positions and what quality of care they would create, the services they would provide (opening new clinics, etc.), and capital expenditures. This analysis provides a separate approach from the first analysis, working from jobs and capital expenditures to the economic impact rather than from the money to the jobs, income, and fiscal impact. Its outcomes are non-additive with the first results, but rather an alternative to them. What is important here—and critically means that it does not simply confirm the first analysis—is that in includes incremental services and expenditures hospitals would make if there is a clear commitment to sustain the State’s investment. This approach emphasizes the leveraged dynamic, forward-looking aspect of the State’s investment in hospitals and health care.
Study III, “Total Investment Impact,” adds the "amenity" values from projected savings on health care costs to households, improved employment (productivity), educational outcomes, and other social benefits. This is the "softest" part of the analysis, and easiest to challenge. But it underlines the differential nature of health care from other potential economic drivers. And by treating it as a separate scenario, it avoids the question of whether the outcomes of the first two scenarios overstate benefits and focuses on the unique nature of high quality, accessible health care, which delivers a broad array of measurable benefits. Presenting this in a separate scenario also underlines the conservative nature of the first two studies--they clearly undercount benefits, even if it is difficult to capture the full monetary benefit of the "amenity" value of health care.