



Bucking Stiff Headwinds

The Connecticut Economic Outlook: May 2011

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This CCEA Outlook explores the foundation for recovery in the face of the loss of domestic stimulus and increased international competition. Modern logistics and an abundance of the newly educated global workforces at once offer new market opportunities while changing the dynamics of recoveries from recessions. These competitive forces increase the challenge for both the nation and the state to accelerate recovery. Whither Connecticut?

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Bucking Stiff Headwinds

Introduction

Connecticut confronts economic headwinds as its economic recovery struggles to gain traction. In the last two years, the state has enjoyed \$6.4 billion in stimulus from federal grants, spending down its entire Rainy Day Fund, and borrowing about \$800 million to “balance” the FY2011 state budget. These stimulus funds probably protected 60,000 or more jobs—that stimulus is now gone.

The proposed biennial budget reduces the rate of state spending, imposes an array of tax increases, and anticipates major savings from public sector workers—or threatens extensive layoffs and budget cuts. While unavoidable, this budget, whichever course it follows, is itself contractionary. Add to this the tepid pace of national recovery, running at only 2.8% in 2010 and falling to 1.8% in the first quarter of 2011; the Federal Reserve then aggressively cut its forecast for national growth from a possible 3.9% to 3.3% including inflation. While the April jobs numbers looked better, first time unemployment filings surged up, the public sector continued to shed jobs at a rate of 300,000 annually, housing, with sharp declines in both new starts and permits, took another beating—suffering now 58 consecutive months of decline—and global threats, from continuing sovereign debts crises in Europe to political unrest in the Middle East and North Africa, raises additional concerns.

Connecticut has historically trailed national recovery, in part because of the absence of a consistent, coherent economic development strategy and public sector investments weakly linked to economic growth. The complexity and instability in the global and national economies make forecasting the path of the state’s economy especially difficult. Unfortunately, the risks are almost entirely on the down side; the most optimistic recent forecast sees state output growing no more than 2.4% in 2011, falling to 1.3% in 2012.¹ Such weak growth, consistent with previous CCEA *Outlook* forecasts, points to minimal job creation in 2011 and increasing unemployment in 2012. This *Outlook* is less pessimistic, anticipating growth of 15,000 jobs through 2012—but this ignores the multiple downside risks noted above.

The challenge to Connecticut is to break out of this pattern, adopting policies and initiatives that will change its long-term trajectory. Governor Malloy has just announced the first major initiative that clearly, unambiguously addresses this challenge: the major investment in biosciences at the University of Connecticut. As past *Outlooks* have argued, Connecticut does have the assets to change course dramatically in a relatively short time.

Before looking at the forecast for Connecticut, this *Outlook* takes a broad view of many of the underlying causes of the Great Recession and reviews why the prolonged recovery calls for multiple corrective actions.

¹ Dan Kennedy, “The Quarterly Forecast,” *The Connecticut Economy*, Spring, 2011, p. 22.

Recessionary Forces: Financial System

The current recession flowed from financial collapse, underestimated risks, and more generically, opaque accounting in areas of vital commercial intelligence. A prolonged over-valuation of the dollar compounded the American collapse. The dollar is now depreciating, a necessary corrective, and one that can help drive growth in American exports. At the same time, financial markets remain exposed to major systemic risks not unlike those that brought down the world economy at the end of 2007. In Washington, the continuing fight over the national debt limit and excess of zeal in cutting federal spending may significantly injure national recovery. In addition, some believe that recovery has been slowed by the relative absence of transformational technological breakthroughs that would stimulate growth; this *Outlook* argues that there has been an abundance of novel scientific platforms. What has changed dramatically from previous recoveries is the accelerated global application of those technologies that challenges North America's economic competitive advantage. To put it bluntly, it is harder for America to capture the growth and jobs that come with important innovations—wherever they are developed.

In his perceptive essay in *Bloomberg Businessweek*, Hernando de Soto attributes the financial collapse that triggered the latest recession to the lack of accessible financial knowledge, including traceable transfers of tangible and intangible assets among persons and financial institutions. He charges that:

Governments have allowed shadow markets to develop and reach a size beyond comprehension. Mortgages have been granted and recorded with such inattention that homeowners and banks often don't know and can't prove who owns their homes. In a few short decades the West undercut 150 years of legal reforms that made the global economy possible.²

In the ensuing credit crunch, he points to private lending dropping 21% since 2007³ while loans to large and small companies continue to decline. De Soto argues that while the Dodd-Frank Consumer Protection Act moves in the right direction to collect information on financial derivatives, it is insufficient on several grounds:

- Likely significant exceptions for end-users such as nonfinancial companies and sovereign wealth funds;
- Proprietary constraints that limit access to the information to regulators;
- Total notational value of the over-the-counter (OTC) derivatives valued at \$513.3 trillion at the end of June 2010⁴;
- Delays in becoming fully operational of up to a decade; and,
- Lack of information handling systems at many clearing houses.

Several recent mechanisms have been developed that obscure debt, including (1) mortgage bundling held by Mortgage Electronic Registration Systems (MERS),⁵ a unified electronic data base of mortgages

² Hernando de Soto, The Destruction of Economic Facts, *Bloomberg Businessweek*, April 28, 2011.

³ *Ibid.*

⁴ **BIS Quarterly Review** Table 4, June 2010.

⁵ <http://www.mersinc.org>.

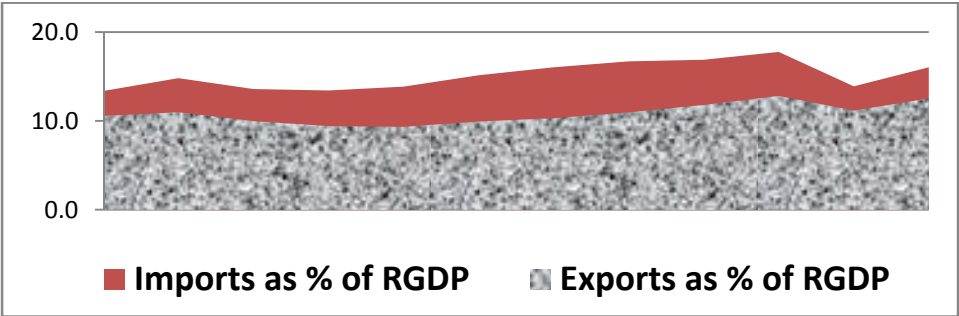
and the owner of record of nearly 60% of all mortgages and (2) credit default swaps (CDS). CDS transactions are not traded on public markets; they are rather negotiated transactions. There is no public price discovery and/or transparency mechanism in place as such information is proprietary. Exceptions to market-to-market accounting rules that allowed some assets to remain valued at their most advantageous market valuations rather than a more likely market prices⁶ and off-balance sheet accounting that hide losses (e.g. Special Purpose Entities (SPEs) and Special Investment Vehicles (SIVs), of which Enron had created 3,500 by the time of its implosion). All these factors have undercut needed transparency for informed assessments of risks; coupled with the failure of rating agencies to assess fully risks, this created a substantial gap between perceived- and actual-market risks, and thus continuing systemic risks to the financial system. We are not yet out of the financial woods.

Recessionary Forces: Trade Deficit

Chart 1 reveals that the prolonged U.S. trade deficit exacerbated financial market turbulence. The granite color represents exports as a percent of GDP, the upper rim of the solid color shows imports as a per cent of U.S. GDP, and the solid color itself is the deficit of trade.

As long as the world was willing to hold U.S. dollars as the international reserve currency, annual deficits could be offset easily. Over the last 13 months that has been progressively changing, of the \$1.3 trillion raised in international reserves, only \$296 billion was in U.S. dollars⁷. The remaining trillion dollars was in other currencies and precious metals, principally gold. The international advantage of paper transactions is that they are relatively cheap to produce. Precious metals are not. Inputs devoted to the production of precious metals for reserves constitute resources no longer available for the production of goods and services to meet consumer and industrial demands, ranging from machinery and equipment to food around the world. There is a global cost to the decline in international confidence in the American dollar. In the last five years the price of gold has rise 122%, silver 182.7%⁸.

Chart 1: U.S. Trade Imports and Exports as Percent of GDP 1999-2010



⁶ The way the Financial Accounting Standards Board (FASB) rules are currently written, firms (particularly financial firms/banks) are not required to mark all assets to the market price in all situations. FASB’s Statement on Financial and Accounting Standards 157, 2008, FAS157 specifies that transactions costs will not be taken into account (clause 9) and that assets will be valued at the their highest and best use” (Clause 11) . Further fair-value prices will be determined in “the principal (or most advantageous) market.”

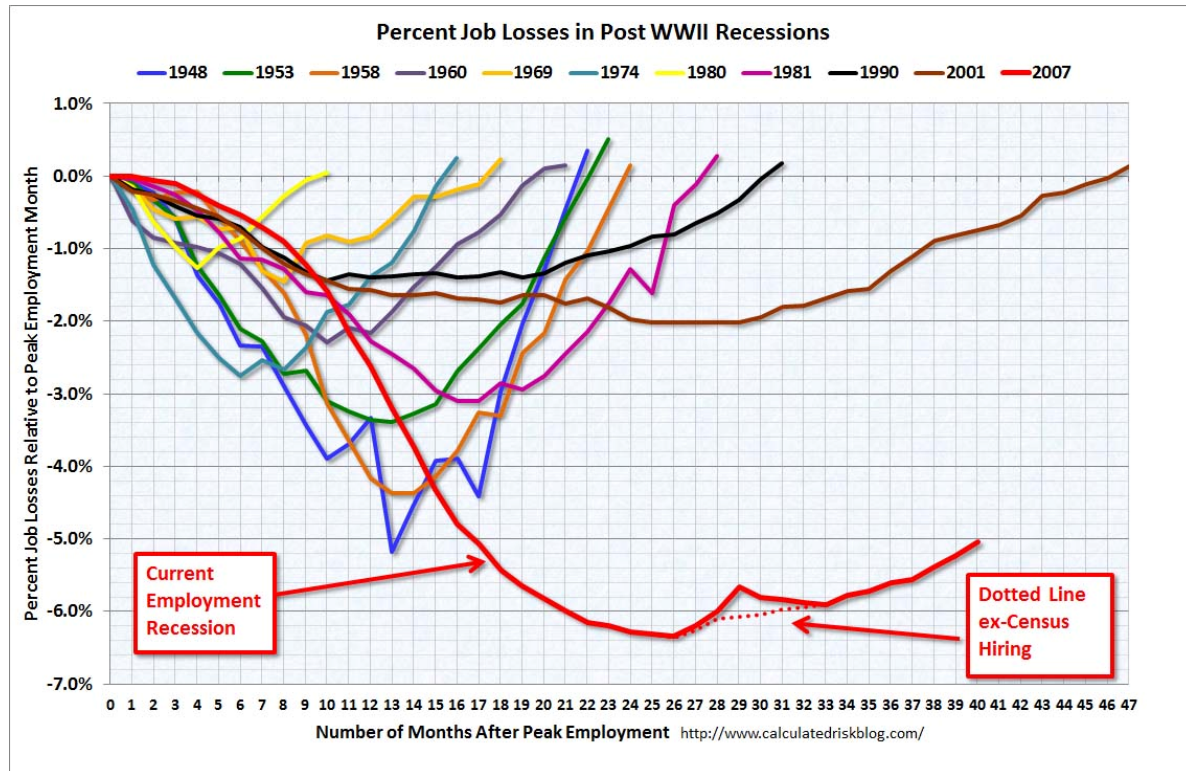
⁷ <http://blogs.forbes.com/afontevvecchia/2011/03/16/central-banks-dump-treasuries-as-dollars-reserve-currency-status-fades/>

⁸ <http://www.goldprice.org/spot-gold.html>. May 05 2011 12:15 EST.

Recessionary Forces: the Abyss

The recent recession has cut jobs more deeply and for longer than any of its post World War II predecessors, as Chart 2 reveals; the dates indicate the outset of downturns.

Chart 2: Recession Dynamics 1948-2011⁹



Dollar Depreciation: Fallout or Opportunity

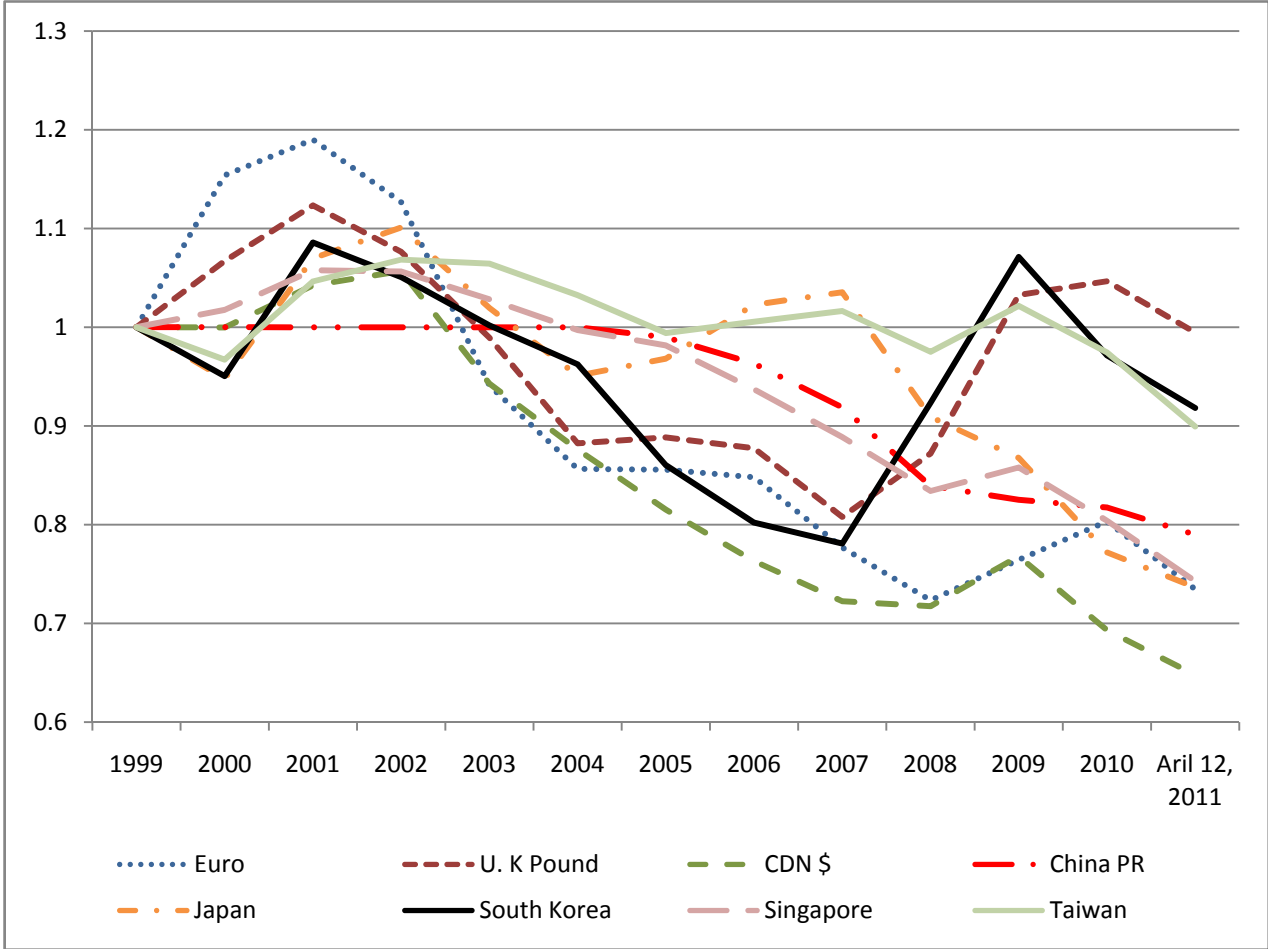
Declining international confidence in the United States economy has also manifested itself in the devaluation of the greenback, resulting in a loss of world purchasing power for Americans over the last decade. Chart 3 sets the foreign currency that an American dollar would buy in 1999 at one and then indexes its value to the amount of that foreign currency it could purchase in subsequent years. At the extreme among these currencies is Canada, where a U.S. dollar currently purchases less than 65% of the Canadian dollars it bought in 1999. Note the points of inflection in most of these curves is around 2009 when they all turn downward, suggesting a downward revision of the dollar against the currencies of nearly all major trading partners.

⁹<http://www.calculatedriskblog.com/>:

<http://cr4re.com/charts/charts.html#category=Employment&chart=EmployRecessionApril2011.jpg>

Depreciation against the Canadian dollar is similar to that of other petroleum producing countries in North Africa. In contrast, the Trinidadian dollar, not shown above, has remained fixed at par. Because Trinidad and Tobago is a major supplier of gas and due to new domestic sources of gas coming on line, energy cost efficiencies are supportive of switching from oil to gas.

Chart 3: Depreciation of the U.S. Dollar against Most Major Trading Partners 1999 to April 14, 2011



Dire predictions that the world faced inadequate reserves of fossil fuels have not materialized due several innovations in drilling technologies, which now support multi-wells from a single platform, directional drilling, and the ability to drill much deeper, enhanced recovery technologies, improved technologies facilitating recovery from tar sands and shale, and better exploration technologies. The United States has remained heavily reliant on imports for crude oil, but shifted suppliers away from the Middle East to Canada and other non-African suppliers, including crude oil originating from the tar sands where considerable progress is being made in redressing environmental issues. The exchange shifts combined with rising resource prices confound U.S. attempts keep minimize inflation while moving to more balanced trade.

Sailing into the Wind: Where is the Growth Potential

One of the theories for regaining accelerated growth relies on new technologies to reset global economies¹⁰ to produce more and better goods and services at lower costs than would otherwise be the case. The expanded body of knowledge on harnessing known reserves of hydrocarbons, noted above, is one technology among these forces expected to drive the recovery. Ongoing research is targeted at both environmentally-improved, enhanced recovery techniques from known reserves to harness the energy locked into methane hydrates. Japan, Canada, Korea and India with the United States are currently involved in experiments that recover methane locked in at a solid-to-gas ratio of down to 1/164.^{11,12}

Economists argue that a series of innovations based on different scientific platforms will drive growth, in those jurisdictions that are most conducive to technology applications.¹³ Among current candidates are various scientific platforms embodying transformative technologies which facilitate a broad range of innovations and impact multiple markets:

- Global adoption of the atomic clock that facilitates and continues to foster multiplexing technologies that lie at the heart of terrestrial and extraterrestrial high-speed and high-volume multi-modal communications systems;
- Human genome mapping that accelerates scientific discoveries, from improved diagnostic tools including those based on downstream metabolites¹⁴ to proteomics and stem cell treatments, through to novel pharmaceuticals and novel indicators for extant pharmaceuticals;
- Transformative battery technologies facilitating the mass production of electric motor vehicles (EMVs) where rates of adoption will depend on use, climate, and peak/off-peak electricity rates;
- Biotechnologies that facilitate optimal harvesting and conversion of molecules from plants and waste materials;
- Advances in fission to at least safely harness more nuclear power and minimize waste fuel;
- Safely tapping energy inherent in methane hydrates; and,
- Advances in fusion that will allow mankind to harness the power of such reactions.

Readers may well be aware of additional potential transformative technologies. The world not only has more people than it has ever had, but also a larger percentage of them are better connected and educated, so that transmission and receptor capacities for innovation are globally stronger.

¹⁰ Richard Florida. **The Great Reset: How New Ways of Living and Working Drive Post-Crash Prosperity**, Harper 2010.

¹¹ While global estimates vary considerably, the energy content of methane occurring in hydrate form is immense, possibly exceeding the combined energy content of all other known fossil fuels. However, future production volumes are speculative because methane production from hydrate has not been documented beyond small-scale field experiments. <http://fossil.energy.gov/programs/oilgas/hydrates/>

¹² "Pure methane hydrate produces 164 volumes of gas at STP." R.D. Hyndman and Dallimore S.R. Gas Hydrates in Canada: Natural gas hydrate studies in Canada, Geological Survey of Canada. 2011.

http://gsc.nrcan.gc.ca/gashydrates/canada/index_e.php.

¹³ Op cit. Florida.

¹⁴ Jonathon Shaw, *Fathoming Metabolism*, **Harvard Magazine**, May-June 2011.

Foundations for Growth

What is different from past dynamic growth-drivers is that many scientific foundations are now easily transmitted and can become universally applicable virtually overnight. Indeed, from the discovery of the double helix¹⁵ onward to the mapping of the human genome and subsequent advances have involved international projects on a grand scale.¹⁶ Rather than contributing primarily to the competitive advantage of North America, as was the case from the mid-nineteenth century through most of the twentieth century, intellectual property is now vastly more mobile. International companies and countries innovate at the leading edge to compete in Olympic scale operations for the goal and the gold of being first to be ensconced in markets.

Certain technologies and scientific directions from the above list would be expected to impact more heavily in the United States than elsewhere -- for instance, because of fleet sizes those involving alternative fuels for vehicles EMVs and those biotechnologies most suitable for extracting chemicals from U.S. based resources. Other testing and marketing thrusts may be more targeted at U.S. citizens. Because about half the world market for legitimate drugs is located in the United States technologies most targeted to the United States include the development of new and more effective drugs where there have been major R&D shifts to biotechnology-based pharmaceuticals.

Whither Goes Connecticut?

Several messages come from this overview of strategies:

- Recovery will come slowly, and remains at risk, due to both domestic politics and global conditions;
- Certain technological developments may impact more emphatically in the United States than elsewhere;
- Getting to domestic and international markets rapidly is important;
- Many scientific platforms that accelerate recovery are in place, but there is much to be accomplished in fully developing and exploiting these scientific platforms; and,
- The recently announced expansion of the University of Connecticut Health Center (UCHC) in conjunction with Biosciences Connecticut combines short-term construction with sustained growth in medical services and a catalytic force to create sustained employment opportunities.

To assess the current situation, CCEA explored a business-as-usual case based on the extrapolation of the future from past trends. The sluggishness of forecast recovery raises questions as to how to accelerate it in the national and global context.

Business as Usual

The business-as-usual case contains some pressures that are likely to hinder Connecticut recovery. The national *Outlook* is conservative, reflecting downward adjustments by many national modelers as well

¹⁵ James D. Watson and Berry, A. DNA the Secret of Life, Knopf 2003.

¹⁶ Craig Venter, M Collins, Others, J. Craig; Adams, Mark D.; Myers, Eugene W.; Li, Peter W.; Mural, Richard J.; Sutton, Granger G.; Smith, Hamilton O.; Yandell, Mark et al. (2001). "The Sequence of the Human Genome". *Science* **291** (5507): 1304–1351.

as parallel reactions that occurred during the second quarter a year ago. Thus this analysis projects national RGDP¹⁷ growing only 2.1% for the 2011Q2-2012Q1 period and at 0.5% in the following four quarters. Due to exchange pressures on the dollar, real prime bank interest rates to high-quality commercial clients are expected to rise from 3.3% to 4.7%. Charts 4 and 5 show the resulting impacts on employment and CTRGDP.

Chart 4: Employment Outlook

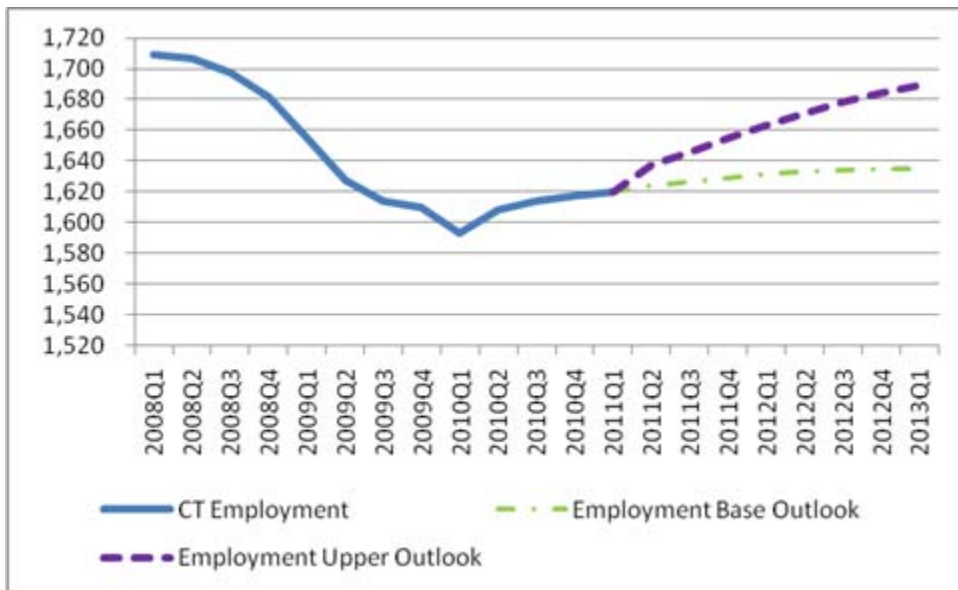
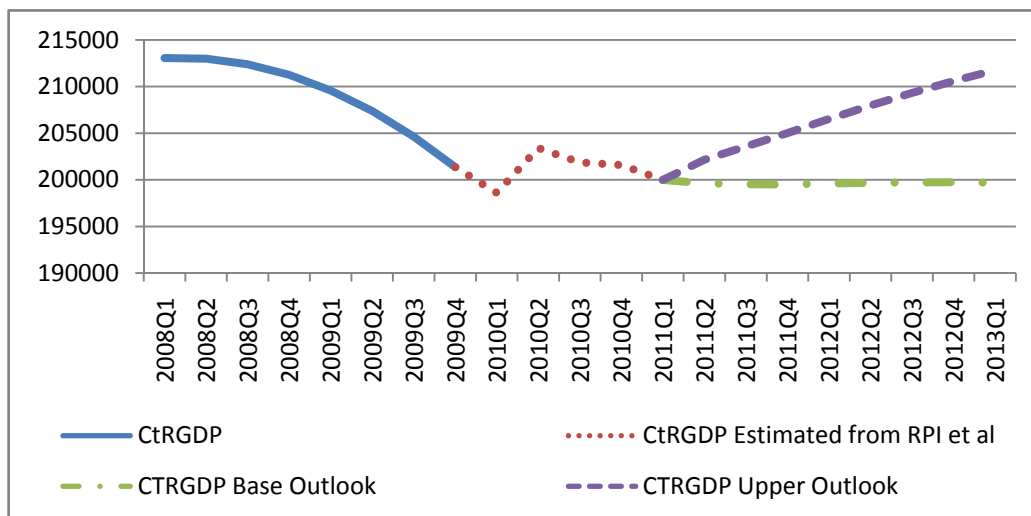


Chart 5 CTRGP Outlook



¹⁷ RGDP refers to real gross domestic product—that is, growth in national output minus inflation. Thus these numbers are lower than those commonly seen in the media, which are for growth measure in current dollars, which includes inflation.

Despite the nearly flat CT-RGDP in the base case, employment expands by 15,000, due largely to the ongoing shift out of manufacturing into services other than government. This base case also does not account for the downward pressure from the loss of the \$6.4 stimulus Connecticut enjoyed over the last two years, the impacts that will flow from the biennial budget which is about to be adopted, and any impacts the result from changes in federal spending and policies—all of which will work against recovery.

The background setting for this analysis indicated several variables that could stimulate growth which were excluded from the retrospective modeling that underpins the *Outlook*. In particular, manufacturers may be able to take advantage of the devalued American dollar by recovering domestic sales where they were previously supplanted by foreign competition. Similarly, America exports have become more attractive in foreign markets with commensurate opportunities for sales, subject to market access. In addition, several of the scientific platforms driving the potential recovery may bear fruit, enhancing American competitive advantage in the short-term. The recently announced expansion of the UCHC including the catalytic Biosciences Connecticut carries with it short-term construction stimulus and longer-term growth prospects. The work on the New Britain-Hartford bus way will also generate significant construction jobs in the short-term. For these reasons the upper bound estimates from the outlook regressions are included in the charts. While it is unlikely that these best-case-scenarios will be achieved, they reveal what is feasible and well within capacity limits—that Connecticut could return to its previous highs in both employment and output, those of 2008Q4.

Given the importance of technological advances to the United States' continued international competitive position, the continuation of leveraged fiscal stimulus and growth-promoting monetary policy are required. In that manner, the private and public sectors can work in tandem to accelerate adoption of future technologies that will drive synergistic developments.

Conclusions

The lackluster recovery with shifts to lower paying jobs in Connecticut, highlighted in the last *Outlook*, underlines the need for considered simulative policies and initiatives that build on those emerging scientific platforms with the greatest potential for the State.

Clearly, Connecticut has a strong competitive advantage in life sciences, where both the dramatic success of the Yale medical complex, along with its new West Campus assets, and the potential for growth at the University of Connecticut and Biosciences Connecticut to sustain strong, long-term growth. Connecticut also has, uniquely among all states, a huge reservoir of currently unusable R&D tax credits that could be unleashed to support major capital projects, creating tens of thousands of new jobs in a relatively short time, and drive commercialization of inventions currently lying dormant in company laboratories. The success of these projects, and ultimately Connecticut's economic future, depends crucially on forming productive synergies among team members, the intellectual property developed, and ways and means of accelerating its adoption and the growth to deliver unforeseen goods and services to market—the essence of economic development.

Other options could:

- Facilitate adoption of Electric Motor Vehicles through peak and off-peak options for pricing electricity, opening commuter lanes to those vehicles no matter how many people they are carrying, and other ways and means of encouraging energy savings;
- Encourage companies to participate financially in and train management to develop spin-offs;
- Legislative reform to encourage CT-based companies to promote economic development by helping attract businesses to the state, and retain those located here;
- Active promotion of technology-transfer projects/initiatives between academic, governmental, and private enterprises; and,
- Continued educational initiatives to link investments in higher education to the specific competitive strengths of the state, to produce better workers in the future, and to train current workers to remain competitive.

To a measured degree, Connecticut has the resources to frame its own economic future; it need not continue to be a mere follower. The Biosciences Connecticut initiative announced earlier this week is a critical foundation piece to that process; the remaining challenge is to build a broader foundation to foster sustained future growth.