

Current Conditions and Outlook for the U.S. and Connecticut Economies: 2011-2013



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**Economic Analysis and Forecasting Group
Office of Research, CT Department of Labor**

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Thank You to the Economists' Panel

To critique and advise in setting the assumptions for the economic outlook and Connecticut's short-term industry employment forecasts, a panel of economists from the Office of Research, and economists from outside the agency, from business, academia, and the non-profit sector, convenes every year in the Spring to assess the current and near future conditions and prospects for the U.S. and Connecticut economies. This year, we were also joined by Acting Commissioner of the Connecticut Department of Labor, Dennis Murphy. The Office of Research thanks them for their time and effort in participating in this process. As always, any errors are the responsibility of the author of this outlook.

Putting the Economists' Panel Together

Office of Research staff were critical in putting together the panel, they are, in alphabetical order: Debbie Barr, Administrative Assistant, Andy Condon, Ph.D, Director, Office of Research, Patrick Flaherty, Economist, Jonathan Hand, Systems Developer, and economists Matthew Krzyzek, Manisha Srivastava, and Sarah York.

Economists' Panel (April 2012 Participants)

The table on the following page lists the members of the 2012 Economists' Panel and their affiliations, in alphabetical order.

CTDOL ECONOMISTS' PANEL FOR 2012: Members and Affiliations

PANELIST	AFFILIATION
Susan Coleman, Ph.D.	Professor of Finance, University of Hartford, former member Governor's Economic Council
Andy Condon, Ph.D.	Director, Office of Research, CTDOL
Ed Deak, Ph.D.	Professor and former Economics Department Chair, Fairfield University, CT Forecast Model Mgr. New England Economic Partnership, and former member of the Governor's Economic Council.
Alissa DeJonge	Director of Research, Connecticut Economic Resource Center (CERC)
Tom Fiore	Section Director, Economics, Capital and Revenue Forecasting, CT Office of Policy and Management
Patrick Flaherty	Economist, Office of Research, CTDOL
Chuck Joo	Editor, <i>Connecticut Economic Digest</i> and Senior Research Analyst, Office of Research, CTDOL
Don Klepper-Smith	Chief Economist, DataCore Partners, and Economic Advisor to Farmington Bank, former Chair of the Governor's Economic Council.
Matt Krzyzek	Economist, Office of Research, CTDOL
Steve Lanza, Ph.D.	Editor, <i>The Connecticut Economy</i> , Adjunct Professor of Economics, University of Connecticut, and former member of the Governor's Economic Council
Stan McMillen, Ph.D.	Contributing Editor, <i>The Connecticut Economy</i> and Adjunct Professor of Economics, University of Connecticut, former Managing Economist, CT DECD, and former member of the Governor's Economic Council.
Dennis Murphy	Acting Commissioner, Connecticut Department of Labor (CTDOL)
Dana Placzek	Research Analyst, Office of Research, CTDOL
Manisha Srivastava	Economist, Office of Research, CTDOL
Art Wright, Ph.D.	Editor, Emeritus, <i>The Connecticut Economy</i> , and Professor of Economics, Emeritus, University of Connecticut
Sarah York	Associate Editor, <i>Connecticut Economic Digest</i> and Economist, Office of Research, CTDOL

FOREWORD

What follows is the outlook for the U.S. and Connecticut economies for 2012 and 2013, which is prepared by the Office of Research, Connecticut Labor Department (CTDOL). After review by a panel of economists from academia, business, non-profits, and government, the U.S. and Connecticut outlooks are revised, updated, and then used as the basis for setting the assumptions for the next round of short-term Connecticut, industry employment forecasts, and is posted on the CTDOL website. In addition, every year the U.S. and Connecticut outlooks are forwarded, as required, to the U.S. Labor Department.

As this is written, in June 2012, it has been three years since National Bureau of Economic Research (NBER)-designated official end of the 2007-09 Recession in June 2009. And, there is now talk of a significant slowdown, or even a recession. This recovery has followed the first U.S. systemic banking panic since the 1930's, the first collapse of a shadow banking system since 1907, and the first succession of collapses in asset bubbles in housing and the stock market, in conjunction with unsustainable levels of household debt since the 1920's. This resulted in what has been called a *Balance Sheet Recession*. The Great Depression was a balance-sheet recession, as was the recession that followed the collapse of Japan's real estate bubble in 1989. Balance sheet recessions are steeper and last longer than non-balance-sheet recessions, and they are followed by weaker recoveries. This is the direct consequence of households and unincorporated businesses paying down unsustainable levels of debt to rebuild their Net Worth. This process has been referred to as *Deleveraging*.

At the time of writing, the economy has experienced, what is referred to in the outlook, as its "Arab Spring". The year 2012 began with strong growth, in jobs and retail sales, which followed the slowdown over the last half of 2011. The slowdown in the second half of 2011 was the result of supply-chain disruptions in the auto industry from the earthquake and tsunami in Japan, the sideshow over the debt ceiling in the Summer of 2011, the continuing waxing and waning of the Eurozone Debt Crisis, and political gridlock. But, lurking in the background, through it all has been the constant drag-force on the economy, namely the long slog for, especially, middle- and working-class households to

try to re-build their Net Worth after the collapse of the Housing Bubble, and the accumulation of unsustainable levels of debt, a process referred to as deleveraging, which has pulled the momentum of the economy down each time it appeared that a recovery was under way. Remember Bernanke's "Green Shoots" in the Spring of 2009? We have been here before. As of the middle of 2012, we have had at least three "recoveries" since the NBER-declared end of the recession in June 2009. The problem is that even though consumers are repairing the liabilities side of their balance sheets by paying down debt and reducing credit demand, housing prices, effected by continued foreclosures, are still held down, which means that the asset side, especially for median and lower income households, is still not recovering and thus presenting a major impediment to rebuilding their net worth. And, now it looks as if World economic growth is slowing considerably.

And, with no possibility of any active fiscal stimulus getting through the Congress in this Presidential election year, and with the stimulus from the *American Recovery and Reinvestment Act* (ARRA) pretty much wound down, especially critical support to local governments (which, unique to this recovery, are a drag on economic growth), the prospects of any sustained recovery over the 2011-13 forecast horizon seems highly unlikely. Things look even bleaker for 2013. *The Budget Control Act of 2011* could potentially push the economy over a cliff in 2013. The spending cuts scheduled to take effect because of the failure of the so-called "Super-Committee" last November will take us down the same road as the United Kingdom, which has been plunged back into recession as a consequence of Draconian budget austerity measures. And, the temporary Unemployment Insurance extension is set to expire in July 2012. And, as noted above, with the winding down of AARA support to state, and especially local, governments, in the face of collapsing revenues, to balance their budgets, are raising taxes, cutting spending, and laying off workers, all of which, withdraws spending from the economy, and subtracts from, and therefore cancels out, some of the job-growth in the Private Sector, which, in turn, drags down the total monthly-job-growth numbers.

Though the housing bubble and bust did not impact Connecticut to the extent it did other areas of the country, particularly the epicenter regions, such as Miami, Phoenix and Las

Vegas, Connecticut was still affected, and in particular, certain regions of the state, with regard to sub-prime mortgages. However, Connecticut is still significantly exposed to the current crisis due to the large presence of the financial services industry in the state, particularly in Fairfield County. Further, Connecticut has not been immune from the states' budget crises that have intensified going into 2012, as Federal support to the states, particularly for education, public safety, and Medicaid wind down. At the time of writing, three California cities have filed for bankruptcy.

At the beginning of the current recovery, Connecticut's job-growth was relatively stronger than that for the U.S. throughout 2010, but, in 2011, the U.S. and Connecticut traded places and Connecticut's job-growth fell below that of the nation. However, Connecticut seemed to be benefitting from the burst of job-growth in the beginning of 2012. And, though both U.S. and Connecticut job-growth have slowed going into the middle of 2012, Connecticut's job-growth seems to be holding up better than that for the U.S.

The following passage from the forward to last year's outlook seems just as relevant to this year's forward:

Maybe even more than the previous two years (the base period for the current forecast), the next two years, which coincide with this outlook's forecast horizon, are going to be very critical in determining the fate of the Connecticut, U.S., and World economies for decades to come.

That outlook's forecast horizon was 2010-2012. Clearly, the last year of that forecast, the first year of this outlook's forecast horizon, given the upcoming Presidential election, is, in fact, going to be critical for the Connecticut, U.S., and World economies.

Both, the U.S. and Connecticut economic outlooks, which follow, and the critique and recommendations formulated in the Economists' Panel process set the assumptions for the Connecticut Short-term Employment Forecasts.

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EXECUTIVE SUMMARY: Current Conditions and Outlook for the Connecticut Economy 2011-13

Prepared by Manisha Srivastava, Economist, CT Dept. of Labor

Drag Forces on the Economy vs. the Economy's "Arab Spring"

There are a number of drag forces acting on the economy, including the \$16.4 trillion collapse in net worth of U.S. households between 2007Q2 and 2009Q1. The decline in net worth has created what is known as a *balance sheet recession*. Balance sheet recessions are steeper, last longer than non-balance sheet recessions, and are followed by weaker recoveries. Another drag force on the economy is the winding down of stimulus from the *American Recovery and Reinvestment Act* (ARRA), which can be seen through the loss 586,000 government jobs between June 2009 and March 2012.

On a positive front, the U.S. and Connecticut economies had what could be dubbed their "Arab Spring" over the final months of 2011 and in the beginning of 2012. In the first quarter of 2012, Connecticut added 7,000 net new nonfarm jobs, the most since the 12,367 in 2010Q2. Conversely, there are signs that the economy's "Arab Spring" is losing momentum; real GDP slowed to a 1.9% pace in 2012Q1, and between December 2011 to May 2012 administration and support, a sector that generally drives growth over Post-Cold War cycles, shed 800 jobs.

The 2012 Benchmark

Starting in March 2011, the monthly statewide and major Labor Market Area (LMA) nonfarm job estimates were taken over by the U.S. Bureau of Labor Statistics. The move introduced greater variability in the month-to-month estimates of jobs counts. As was stated in the *Connecticut Labor Situation*, caution should be used in interpreting any single month's estimates. The data are best interpreted to identify trends and cycles over several months.



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The 2012 benchmark revealed Connecticut's recession lasted 23 months, rather than 22 months as previously estimated. Job losses due to the recession were slightly reduced to -117,500 from -119,000. According to the 2012 benchmark, Connecticut has gained 17,400 jobs between December 2009 and December 2011, 5,200 fewer than previously estimated. Likewise, the State's job deficit increased from 84,900 to 88,700.

Impact of the Panic/Recession on Connecticut's Regions

Even though Connecticut is a small state, the impact of the recent financial panic and recession was not uniform across the State's sub-state regions. The U.S. entered the recession in January 2008; Connecticut's nonfarm employment peaked two months later in March 2008. Hartford and New Haven entered the recession at the same time as the state. Bridgeport-Stamford and Danbury, which together make up Fairfield County, went into recession in 2007 primarily due to their large financial services sector, as well as construction and manufacturing. Waterbury, however, went into the recession first in December 2006. This implies that Waterbury may be reflecting a structural change in its economy, in addition to the effects of the recession.

The U.S., Connecticut, and all of Connecticut's LMA's, save Norwich-New London, turned the corner in early 2010. Norwich-New London did not turn around until April 2012, and even that is tenuous. Factors affecting the length of the Norwich-New London LMA's recession are related to the pharmaceutical industry and the decline in casino traffic over the recession and struggling recovery. The recession lasted between 23 to 25 months for the U.S., Connecticut, and the majority of Connecticut's LMA's. In Bridgeport-Stamford the recession lasted 31 months, and Norwich-New London was in recession the longest at 47 months (and possibly counting).

To gauge the relative steepness of each area's recession and the relative strength of its recovery, given differences in duration, the compounded growth rate of the job losses over the recession and job gains is considered. Danbury had the steepest recession, shedding jobs at a compounded, annualized rate of 4.61%, followed by Connecticut (statewide) at -3.64%. The mildest recession, though the longest, was in Norwich-New



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London, which lost jobs at a compounded, annualized rate of 2.50%. The U.S. lost jobs at an annualized rate of 3.11%. Given that its recovery has only been for one month, at the time of writing, the rate of recovery for the Norwich-New London LMA translates into a compounded, annualized rate of 17.61%. For areas with an extended recovery (i.e., more than one month), Danbury is the strongest at a 2.94% annualized rate. The rate of recovery for Connecticut, statewide, is the weakest at 0.97% on a compounded, annualized basis.

Current Connecticut Economic Conditions: Spring 2012

Economic signals are analyzed to assess the current state of the Connecticut economy and to gauge where it might be going. The signals sent by the Connecticut economy are categorized by major macroeconomic functions and activities in the form of macroeconomic indicators. The indicators assessed reflect levels and changes in aggregate economic activity including growth and output. Further, the contribution of major sectors, resources (natural and produced), and activities to the levels and growth in Aggregate Demand and Aggregate Supply in the Connecticut economy are considered, as well as the implications for the current state of the economy (at the time of writing), and its likely trajectory over the forecast horizon.

Indicators of Growth and Output: State GDP

Though State GDP is only available on an annual basis, with the release of 2011 data, a relatively current assessment for the current cycle can be made. To compare Connecticut's performance, the State's growth in real GDP is compared to its past performance, particularly over the current business cycle, and to other reference areas (the U.S., New England, and the Tri-State Region around New York City).

Connecticut grew at a rate of 2.77% between 2006 and 2007. The other compared areas all grew by less than 2%. However, Connecticut's contractions in GDP of 3.06% over 2007-08 and 5.31% over 2008-09 were much steeper than those experienced by the U.S., New England, or the Tri-State Region. With recovery from the panic and recession, Connecticut's GDP growth grew by just under 3% in 2009-2010, while growth in real



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GDP for the U.S., N.E., and the Tri-State Region exceeded 3%. With the supply chain disruptions due to the Japanese earthquake and tsunami, the clown show over the debt ceiling, and the re-intensification of the Eurozone Crisis, U.S. and world economic growth slowed in 2011. Connecticut's GDP growth, at 1.99%, was stronger than that for the U.S., New England, or the Tri-State Region. In fact, the Tri-State Region's GDP growth was quite flat at 0.79%.

Productivity, the output per worker, or its change, the job growth for a given change in real GDP, shows that the additional real GDP (output) from adding one more Covered Wage and Salary (CWS) worker was much higher for Connecticut over the 2003-07 expansion period than for the U.S., Massachusetts, New York, or New Jersey. During the panic/recession of 2007-2010, Connecticut's real GDP, or output, had to decline four times more than U.S. output before its economy eliminated a CWS job. The fact that Connecticut's percent decline in employment exceeded the U.S. implies this was the result of a steep contraction in real GDP. The level of output added to Connecticut's economy per additional CWS job over the 2010-2011 recovery period fell compared to the 2003-07 expansionary period. This was one and two-thirds larger than the decline for the U.S.

The flip-side of output-per-worker is the number of workers required to produce a \$ billion of output and is referred to as the *Employment Requirements Matrix*. The more capital intensive the production process is (i.e., the higher the Capital-Labor Ratio), the fewer the number of CWS workers, or the lower the employment requirements, to produce \$ billion of output (real GDP). Over the 2003-2007 expansionary years, Connecticut required 2,470 workers for each additional \$billion of real GDP; in comparison the U.S. required 5,970, New York required 2,848, and New Jersey required 3,234 extra CWS workers to produced an additional \$billion in output. While the U.S. economy shed 32,932 CWS jobs for every \$billion decline in real GDP, over the 2007-10 panic/recession years, Connecticut's economy only eliminated 7,922 CWS jobs, one-quarter as much.



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Even with the massive purge of jobs over the crisis/recession period (2007-10), the argument for so-called structural change driving the current, weak job growth does not seem to be supported by the employment requirements during the 2010-2011 recovery period. The number of CWS workers to produce an additional \$billion of real GDP over the 2010-11 recovery period has actually increased compared to the 2003-07 expansionary period. Consequently, the persistently high unemployment rate is being driven by insufficient demand.

Indicators of Growth and Output: Real Earnings by Industry

Real Earnings by Industry is used as a proxy for output (i.e. GDP) at the state and regional level in order to get a more frequent and up-to-date estimate of output. Starting from 2005Q1, Connecticut's real earnings by industry peaked in 2008Q1 at \$137.2 billion, bottomed out in 2010Q2 at \$130.9 billion, and has since grown slowly reaching \$133.8 billion in 2012Q1. Following the recession, Connecticut's YTY growth rate in real earnings by industry peaked at 2.96% in 2011Q1. Since then, the YTY growth rate in Connecticut's real industry earnings has been rapidly decelerating over the last four quarters of available data. And, in 2012Q1, the YTY growth rate turned negative: earnings declined by 0.76%.

To get a sense of the relative impact the recent panic/recession and current struggling recovery has had on Connecticut's industry earnings, the State economy's performance is compared to that of the U.S., New England, and the Tri-State Region. Connecticut's growth in real earnings by industry over the current recovery has been the slowest, compared to the tri-state, the U.S., and to New England. Looking at the compounded, annualized growth rates for each area shows that Connecticut's real earnings by industry contracted at a much slower rate than the other areas, and that Connecticut's recovery has been weaker. Furthermore, the duration of Connecticut's decline in earnings was longer, and its recovery in real industry earnings has been shorter.



Indicators of Growth and Output: Connecticut Manufacturing Production Index

The Connecticut Manufacturing Production Index (CMPI) produced by the Office of Research of the Connecticut Department of Labor shows that after strong growth over the 2004-2008 expansion years, the CMPI plunged 33.66% over 28 months. This decline is steeper and longer than the one that occurred with the onset of Connecticut's 2000-2003 recession, in which the CMPI contracted by 22.59% over 22 months.

The compounded, annualized CMPI rate shows that the rate of decline, though shorter, was steeper over the 2000-2003 recession. However, the length of the decline was four times longer (28 months) over the 2008-2010 recession, compared to the 2000-2003 recession (7 months). Finally, the data shows the current state of manufacturing output in Connecticut is neither growing nor contracting, but rather in a holding pattern.

Indicators of Aggregate Demand: Income and Spending (Household Sector)

The most widely available income data available at the state, regional, and local levels is the State and Local Quarterly Personal Income (QPI) series produced and published by the U.S. BEA. First income, specifically residence-based income, will be considered, followed by Personal Income minus Transfer Payments (PI-Transfers) and then Disposable Personal Income (DPI). The declines in CT QPI, and its residence-based components, especially when adjusted for differences in duration, have been much steeper than the rate of recovery. Transfer payments put a floor under the fall in CT QPI. Over the 2008Q1-2009Q3 six-quarter period in which CT QPI declined, Transfer Payments increased by 22.55%. The support from transfer payments is even more pronounced if transfer payments are subtracted from QPI to yield PI-Transfers. Transfer Payments serve as automatic stabilizers to cushion the decline in income, and therefore in spending in the economy, to lessen the severity of an economic downturn.

Residence earnings did not decline as steeply as PI-Transfers. However, they have recovered more slowly than PI-Transfers. Dividends, Interest, and Rent (DIR) have made outsized contributions to the growth in PI-Transfers, both to the decline over the recession and the gains over the recovery.



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Looking at real DPI, the key to consumers' spending power, shows that during the recent recession Connecticut's growth rate in real per capita DPI began to decelerate rapidly, and then plunged by 4.88% in 2009. Compared to the U.S., New England, and the Tri-State Region, CT real per capita DPI had the steepest decline over the recent recession. Further, by 2011, two years after the low point, CT's index for real per capita DPI had only recovered to 95.74, compared to 98.79 for New England, 98.18 for the U.S., and 98.17 for the Tri-State area.

Since the BEA's estimates of state-level DPI for 2012 will not be out until June 2013, two possible reference points for trying to infer how consumer spending has performed in Connecticut over the first one-half of 2012, and where it might be going the last half of the year is data on Connecticut sales and use tax revenue, and the recent trends in U.S. Personal Income, Its Disposition, and retail sales.

After declining from June 2008 to October 2010, the 12 month-moving-average (MMA) of Connecticut sales and use tax revenue turned up and has been increasing through April 2012. Furthermore, the year-to-year (YTY) growth rate in the 12MMA of Connecticut sales tax revenue has been strong in 2012. However, there are signs the economy's "Arab Spring" may be coming to an end. U.S. retail sales were down in April and May, and down in June as well YTY. Three straight months of MTM declines in Retail Sales does not bode well for where the economy is heading. This definitely reinforces other indicators, such as the jobs data, that seem to be pointing in the direction of a slowing economy.

The U.S. real per capita DPI indicates the long deceleration starting in October 2010, and then contraction in YTY growth rate had been reversed in February 2012. The month-to-month (MTM) growth rate in real U.S. per capita DPI has been weak and in an up-and-down fashion. However, the MTM growth rate in May 2012, at 0.29%, was the strongest MTM growth rate since May 2010.



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Indicators of Aggregate Supply: Labor (Human Resource Utilization)

The one set of indicators available in great detail, and on a timely and high-frequency basis, at the state, regional, and local levels, are indicators of labor market conditions. Therefore, the assessment of indicators of Aggregate Supply at the state level will focus on the state and local labor market, discussed under the heading of human resource utilization.

Connecticut nonfarm employment grew by 6,767 jobs in 2012Q1, which is the strongest QTQ growth over the current recovery since 2010Q2. Even stronger, both nationally and at the state level, has been the growth in Private Sector jobs. Save the burst in job growth in 2010Q2, Private Sector job growth has outperformed total nonfarm employment over the entire recovery. Further, the Private Sector actually added 7,600 jobs in 2012Q1, compared to the 6,767 overall. Unique to this recovery, instead of leading, or at least reinforcing the growth in Private Sector jobs, Government has significantly subtracted from job growth.

With the surge in job growth coming into 2012, the 3MMA shows accelerating job growth from January through March. However, following the trend in job growth, at the national level, the 3MMA in Connecticut nonfarm employment contracted by 233 in April, and then by 1,767 in May. This, along with the behavior of Connecticut's real industry earnings, real per capita DPI, and other indicators appear to be sending signals that the State, as well as the national economy, is slowing after a burst of activity at the beginning of the year.

Turning now to what drove the burst in job growth activity at the beginning of 2012, the major contributor to job growth over the recovery has been the non-financial, private-services sector, the largest sector. Within the Non-Financial, Private-Services Sector, Health Care and Social Assistance, Education, and Retail Trade accounted for 7,266 jobs, or 87%, of the 8,367 jobs created. Unlike past recoveries, Connecticut's Goods Producing Sector, led by the Manufacturing Sector's renaissance, actually added jobs over the first year of recovery. Then the Goods-Producing sector slipped, and as of 2012Q1 is only



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slightly above its 2010Q1 level. Financial services employment increased slightly over the first four quarters of the current recovery, however the trajectory has been downward since. By 2012Q1, financial services employment was nearly 2% below its level in 2010Q1. The Government Sector has fared the worst over this recovery, both nationally and at the state, and especially the local, levels. Government employment was down 3.61% from its level in 2010Q1.

Connecticut's Comparative Job Performance

Connecticut's job growth was stronger than that of the U.S., New England., or the Tri-State Region over the first one and one-half years of the current recovery. Then, Connecticut traded places with the U.S. and the Tri-State Region. After July 2011, U.S. job growth passed up Connecticut, and, in November, so did the job growth of the Tri-State Region. New England's job growth began to flatten after May 2010, and then it declined after April 2011. By August 2011, New England had nearly given back all the jobs it had gained back in the recovery, up to that point. Since April 2011, New England's job growth performance has fallen below that of Connecticut, the U.S., and the Tri-State Region.

The Dynamics of Job Growth

The Business Employment Dynamics (BED) Program of the U.S. Bureau of Labor Statistics (BLS) measures the gross number of jobs created and the gross number of jobs destroyed, by establishments (worksites) over each quarter. The difference between the number of jobs created and the number of jobs destroyed is the net change in jobs. It is this net change that is reported each month when the nonfarm employment report is released.

According to BED data, the steepest decline in the rate of jobs created per 100 destroyed was in 2009Q1, four quarters before the trough in the last recession. Interestingly, the strongest surge in the job creation rate was in 2010Q2 in the early stages of the current recovery. The gap between the job creation rate and the job destruction rate, and its



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persistence, was the largest and lasted longer over the recent recession than over Connecticut's previous two post-Cold War recessions.

Unemployment, Residence Employment, and the Labor Force

Connecticut's lowest Unemployment Rate (UR), starting from January 2006, was 4.32% in April 2006. Being a lagging indicator, Connecticut's UR peaked eight months after the trough in the State's recession. By May 2012, the last period of available data, Connecticut's UR (7.83%) had fallen below that of both the Tri-State Region (8.70%) and the U.S. (8.21%), however was above New England's UR (6.81%).

After the recession and recovery, Connecticut's labor force was 5.58% larger than it was in January 2006. Connecticut's labor force continued to grow throughout the entire NBER-defined recession period, as well as the over the entire recovery period, save a brief stall in the last half of 2009. The growth in Connecticut's labor force over the recovery surpassed that of the U.S., New England, and the Tri-State Region.

One clue to Connecticut's relatively strong labor force growth may be in the behavior of household employment from the Current Population Survey (CPS). The household (HH) employment, labor force, and UR come from a survey of the State's households and are therefore residence-based measures. Nonfarm (NF) employment is drawn from a survey of the State's business establishments (worksites), and is therefore based on geographic location. For a small state like Connecticut, located close to major job centers, there can be a significant difference in the HH versus the NF employment series. Comparing the decline and recovery of Connecticut's HH employment to the U.S., New England, and the Tri-State Region finds that Connecticut had the weakest recovery, save the Tri-State Region. However, Connecticut also had the shallowest decline. Consequently, Connecticut's HH employment had virtually completely recovered by May 2012, only 0.10% below its level at the peak of the last expansion, compared to Connecticut's NF employment which was only at 95% of its pre-recession, peak level. Since residence employment includes those who reside in Connecticut, but commute to a job out of state, the answer may lie in relatively stronger job growth in these destinations.



Where do we go from Here? The Outlook for 2012-2013 and Beyond

Continued growth is expected over the forecast period, but growth in the annual average level of jobs is projected to decelerate over the 2011-2013 forecast horizon with 10,000 to 11,000 jobs added in 2012 and then slowing to just over 3,000 added in 2013. That would result in 14,000 net jobs on an annual basis over the 2011-2013 two-year forecast horizon. On a quarterly basis, the forecast calls for the State's economy to add another 22,000 jobs over the eight-quarter 2011Q4-2013Q4 forecast period. The 2011Q4-2012Q4 segment of the 2011Q4-2013Q4 forecast period should account for a larger share of the job growth as the forecast expects job growth to slow over the 2012Q4-2013Q4 segment of the forecast period.

It is expected that the Private, Non-Financial Services Sector will be the only major sector that will add jobs over the forecast period. Non-Financial Services is expected to add 28,500 net new jobs over the 2011Q4-2013Q4 forecast horizon. The Government (-1,376), Goods Producing (-1,718), and Financial Services (-3,242) sectors are all expected to subtract jobs from the economy between 2011Q4 and 2013Q4.

Within Non-Financial Services, two sectors that lost jobs over the 2009Q4-2011Q4 base period are expected to add jobs over the forecast period: the Construction (+1,633) and Arts and Entertainment (+370) sectors. Seven sectors that had job losses over the base period are also expected to subtract jobs from the State's economy over the forecast period. Manufacturing, though experiencing a renaissance over the current recovery—especially in durable goods—is expected to shed jobs again, especially over the last half of the forecast period: 2012Q4 to 2013Q4. The Utilities (-457), Information (-1,215), the entire Financial Services Sector, Mining (-34), and Government sectors, especially local government (-1,376), are expected to eliminate jobs over the forecast period.

Ten sectors added jobs over the base period and are also expected to add jobs over the forecast period. Leading the way is the Health Care and Social Assistance (HCSA) sector, mostly driven by the aging baby boom generation, which is expected to add



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11,674 jobs between 2011Q4 and 2013Q4. The next most significant contribution is the 4,029 jobs that Administration and Support and Waste Management (Admin-Support) is projected to add over the forecast horizon. This sector's growth is driven by temporary workers (employment services, NAICS 56130), which accounts for between one-quarter to one-third of Admin-Support employment, but can account for most, or even all, of the sector's job growth, as the economy has moved more toward the use of contingent workers. Accommodation and food services is expected to add another 3,434 jobs over the 2011Q4-2013Q4 forecast period. This growth has been, and is expected to be, dominated by NAICS 722, food services, particularly eating and drinking places. Professional, Scientific, Technical Services (Prof-Tech) is projected to add another 3,027 jobs over the forecast period. Job growth, as well as decline, over the phases of the cycle in the Prof-Tech sector have been driven by the cyclical behavior of computer systems and design employment (NAICS 5415), as well as legal (NAICS 5411) and management consulting (NAICS 5416). Educational Services, mostly private sector, is expected to add 2,922 jobs between 2011Q4 and 2013Q4. Wholesale trade (+1,199) and retail trade (+1,028) are also projected to add more than 1,000 jobs each over the forecast period. Retail has been particularly driven by the resurgence of consumer durables sales over the current recovery, particularly in the last half of 2011 and the first quarter of 2012. Consumer durables, in turn, have been driven by employment increases in NAICS 4411, new car dealers. In Connecticut's surge in early 2010, NAICS 4451, grocery, had been strong, but employment growth turned negative going into 2011 as Shaw's pulled out of the State.

Risks to the Forecast

There are significant downside risks to the forecast. That is, risks that could render the forecast overly optimistic. As noted in the opening to this article, foreclosures, distressed sales, and underwater mortgage-holders, as well as high unemployment, are all keeping the housing sector from recovering from the popping of the bubble. Consumer debt is still high, and student loan debt may be the next financial crisis. Depressed asset values and high debt loads mean that as households and non-incorporated businesses continue to rebuild their net worth, it will act as a continued drag on the economy making it



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vulnerable to slipping back into recession. With talk of fiscal austerity winning the day, and no new fiscal stimulus on the horizon, growth will proceed in fits-and-starts, but overall, it will remain weak. The Eurozone Crisis could, of course, finally plunge the world back into financial crisis as it has been threatening to do for months now.

The second half of the forecast period, 2012Q4-2013Q4, is the most uncertain part of the forecast. In addition to the uncertainty of the political landscape until after the November elections, unless Congress kicks the proverbial can down the road, *The Budget Control Act of 2011* could potentially push the economy over a cliff in 2013.¹ The spending cuts scheduled to take effect because of the failure of the so-called “Super-Committee” last November will take us down the same road as the United Kingdom, which has been plunged back into recession as a consequence of draconian budget austerity measures.

On the positive side, gasoline prices have been declining for about three weeks at the time of writing. This acts as a progressive cut, which can stimulate the economy. Private sector job creation has been slow, but steadily growing, even as government, especially local government, has been a drag on the economy. Finally, the auto industry has experienced a resurgence over the current recovery (at least, up to the time of writing).

¹ Congressional Budget Office, *Estimated Impact of Automatic Budget Enforcement Procedures Specified in the Budget Control Act* (September 12, 2011)



I. INTRODUCTION: Drag Forces on the Economy vs. the Economy's "Arab Spring"

Drag is the aerodynamic force that opposes an aircraft's motion through the air.² If for our analogy we cast the aircraft as the economy, then the *drag force* on the economy is the \$16.4 trillion collapse in net worth of U.S. households between 2007Q2 and 2009Q1. As of the fourth quarter of 2011, U.S. household net worth was still down \$8.4 trillion from its peak. Further, the net worth of non-incorporated businesses was still down \$2 trillion from its peak, also in 2007Q2.³ As noted in *The Outlook to 2012Q4*, the recent downturn was no "ordinary" recession, and that this is not a "normal" recovery. This recovery has followed the first U.S. systemic banking panic since the 1930's, the first collapse of a shadow banking system since 1907⁴, and the first succession of collapses in asset bubbles in housing and the stock market, in conjunction with unsustainable levels of household debt since the 1920's.⁵ This wiped out the net worth a significant number of households, as well as unincorporated businesses, leaving in its wake what has been called a *Balance Sheet Recession*.⁶ The Great Depression was a balance sheet recession, as was the recession that followed the collapse of Japan's real estate bubble in 1989. Balance sheet recessions are steeper and last longer than non-balance sheet recessions, and they are followed by weaker recoveries.⁷ This is because rebuilding net worth is a long slog. Further, since for middle income and working class families, their home is their most important, or only asset, fixing housing is critical to repairing households' balance sheets.

Another drag force on the economy is the winding down of the stimulus from the *American Recovery and Reinvestment Act (ARRA)*. As a consequence, the recovery,

² National Aeronautics and Space Administration, *What is Drag?* <http://www.grc.nasa.gov/WWW/K-12/airplane/drag1.html> Accessed on May 8, 2012.

³ Board of Governors of the Federal Reserve, FLOW-OF-FUNDS, 2011Q4.

⁴ Bruner, ROBERT F. and Sean D. Carr, *THE PANIC OF 1907: Lessons Learned from the Market's Perfect Storm* (2007) John Wiley & Sons: New York

⁵ White, Eugene N., *The Great American Real Estate Bubble of the 1920s: Causes and Consequences* (October 2008) National Bureau of Economic Research: Cambridge, Ma.

⁶ Koo, Richard C., *THE HOLY GRAIL OF MACROECONOMICS: Lessons from Japan's Great Recession* (2009) John Wiley & Sons: New York

⁷ Kennedy, Daniel, W., *THE UPS-AND-DOWNS OF RECOVERING FROM A BALANCE-SHEET RECESSION: The Outlook to 2012Q4* (May 2011) Office of Research, Connecticut Labor Department: Wethersfield



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which began officially in June 2009, has proceeded in fits-and-starts, particularly with the winding down of the ARRA stimulus. This is reflected especially in the loss of 586,000 government jobs between June 2009 and March 2012. Of these, 492,000, or 84%, of those lost jobs were local government as support for maintaining employment levels of teachers and public safety workers was withdrawn. Compare this to the 309,000 government jobs added over the first 34 months of recovery from the 2001 recession, and the 659,000 government jobs added coming out of the 1990-91 recession. Further, austerity seems to have won the day, both in the U.S. and Europe, although, more so in Europe—so far. Recent elections results may change that.

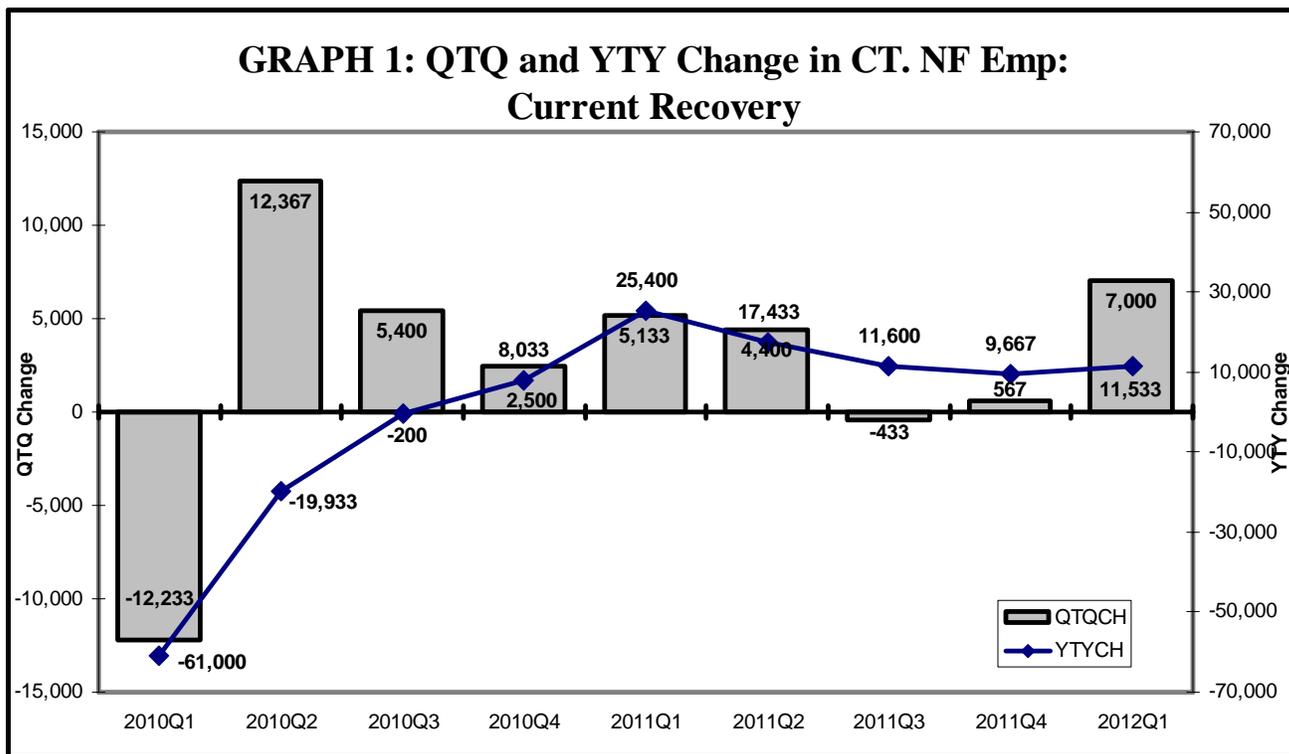
THE ECONOMY’S “ARAB SPRING”

Whether due to the record warm winter, which wreaked havoc with the seasonal factors for the nonfarm employment numbers, or more fundamental factors, like the burst of growth in net worth in 2012Q1, the strongest QTQ growth rate since 2004Q4⁸, the U.S. and Connecticut economies had what could be dubbed their “Arab Spring” over the final months of 2011 and into the beginning of 2012. Concerns about how real the momentum was surfaced as the growth rate in real GDP slowed to a 1.9% pace on 2012Q1.⁹ On a less volatile quarterly basis, the strong growth in Connecticut’s nonfarm jobs can clearly be seen in Graph 1. In the first quarter of 2012, Connecticut added 7,000 net, new nonfarm jobs, the most since the 12,367 in 2010Q2. Though revisions were upward, when the month-to-month (MTM) change in Connecticut’s nonfarm employment for the first five months of 2012 is tracked, along with the MTM change in the three-month moving average (3MMA) in Graph 2-A, it is apparent that the MTM change in the 3MMA declines after February, and then turns negative in April and May. The same MTM changes are tracked for U.S. nonfarm jobs in Graph 2-B. Though the MTM change in the U.S. 3MMA does not turn negative, as it does for Connecticut, there is clearly a rapid deceleration in job growth, again after February, as job growth, in the 3MMA, decelerates from 260,000 in February to under 100,000 by May.

⁸ See the discussion on Household Balance Sheets in Part I, Section C, Chapter II-CURRENT CONDITIONS, in Volume 1 of this outlook.

⁹ U.S. Bureau of Economic Analysis, GROSS DOMESTIC PRODUCT: FIRST QUARTER 2012 (THIRD ESTIMATE), CORPORATE PROFITS: FIRST QUARTER 2012 (REVISED ESTIMATE) (June 28, 2012)



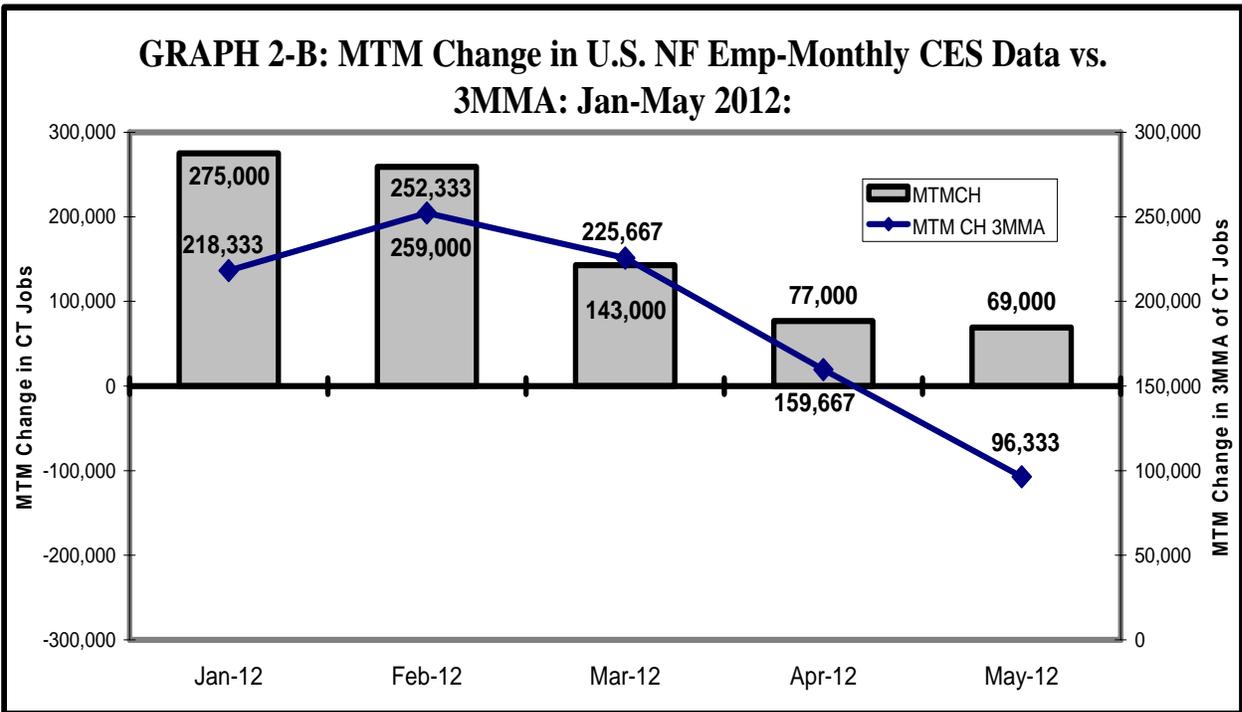
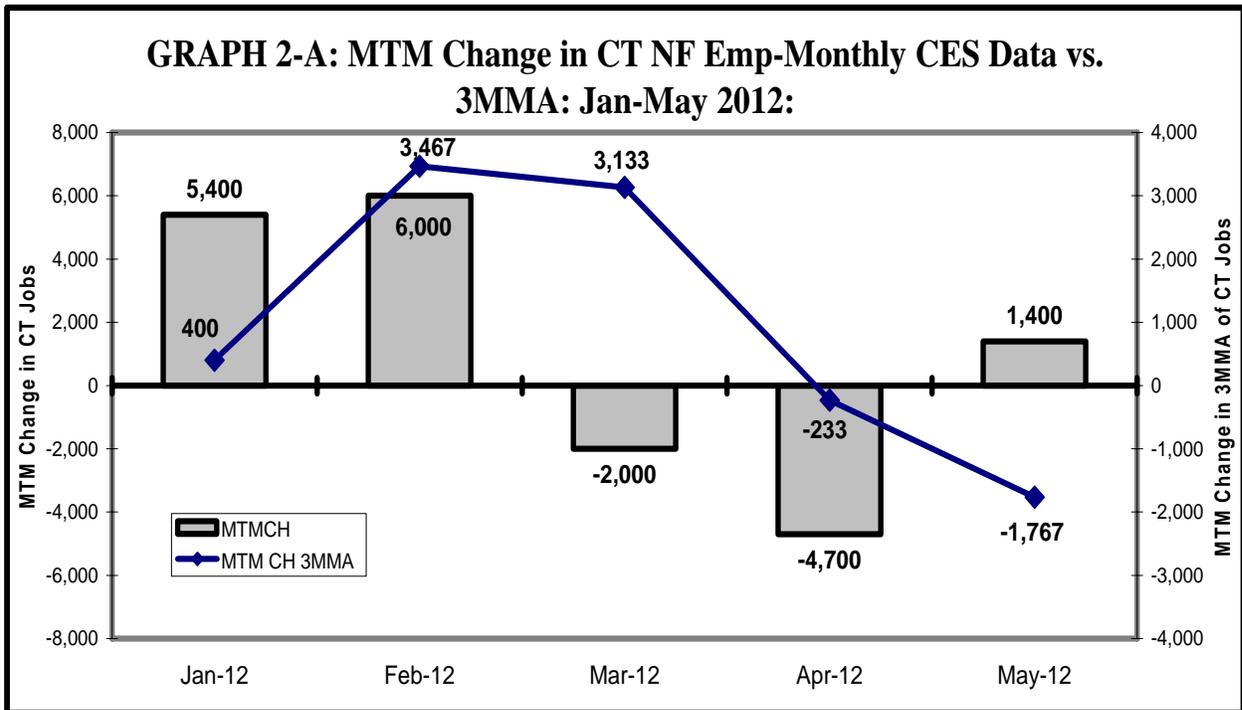


SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.

Graph 3 digs down a little to uncover what exactly might have driven the first-quarter growth. On a monthly basis, between December and May, Connecticut added 6,100 net, new jobs. Private, non-financial services added 4,400 jobs, followed by the goods producing sector which added another 1,900 jobs. Both the financial services sector (-200) and the government sector (-400), subtracted jobs from the Connecticut economy between December 2011 and May 2012. Graphs 4A and 4B provide further detail on the industries driving the growth in the goods and non-financial services sectors.

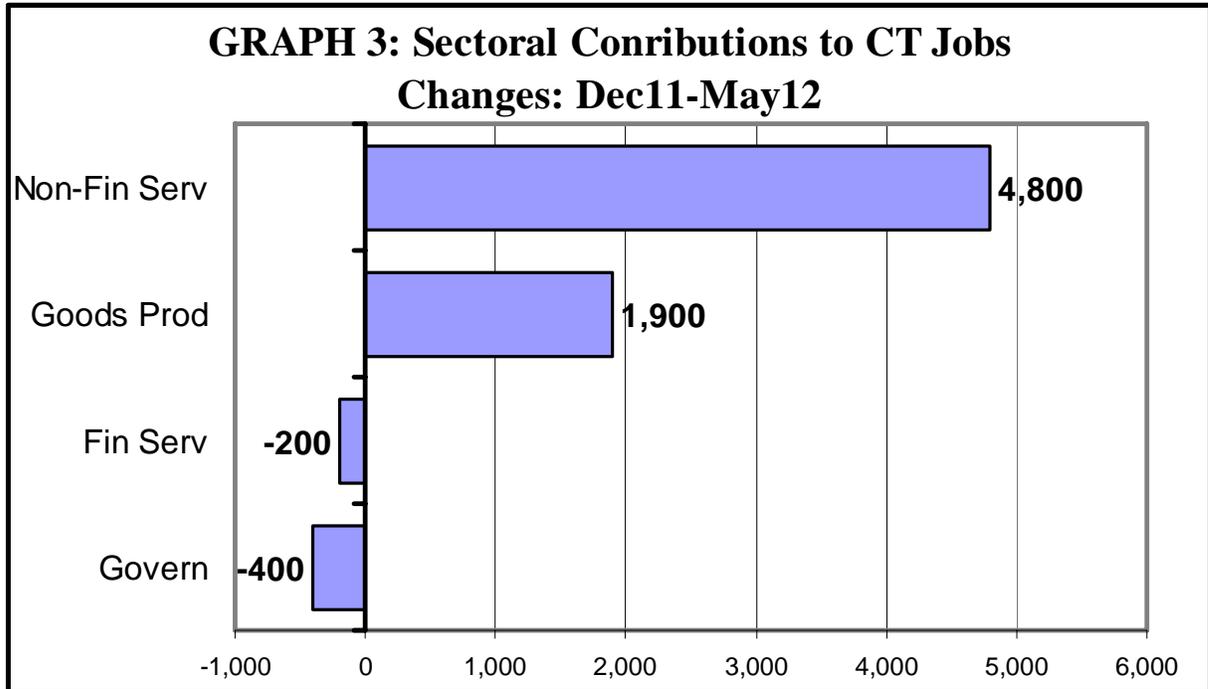


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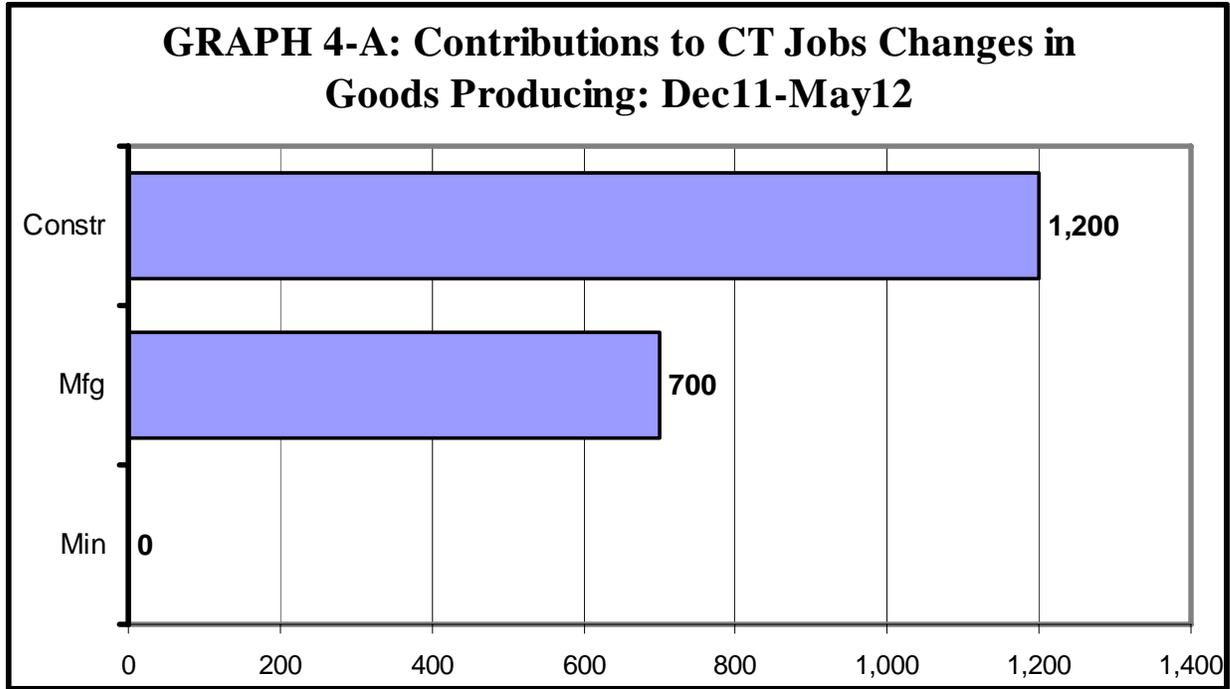
SOURCE: U.S. BLS, CTDOL-Research, and author's calculations



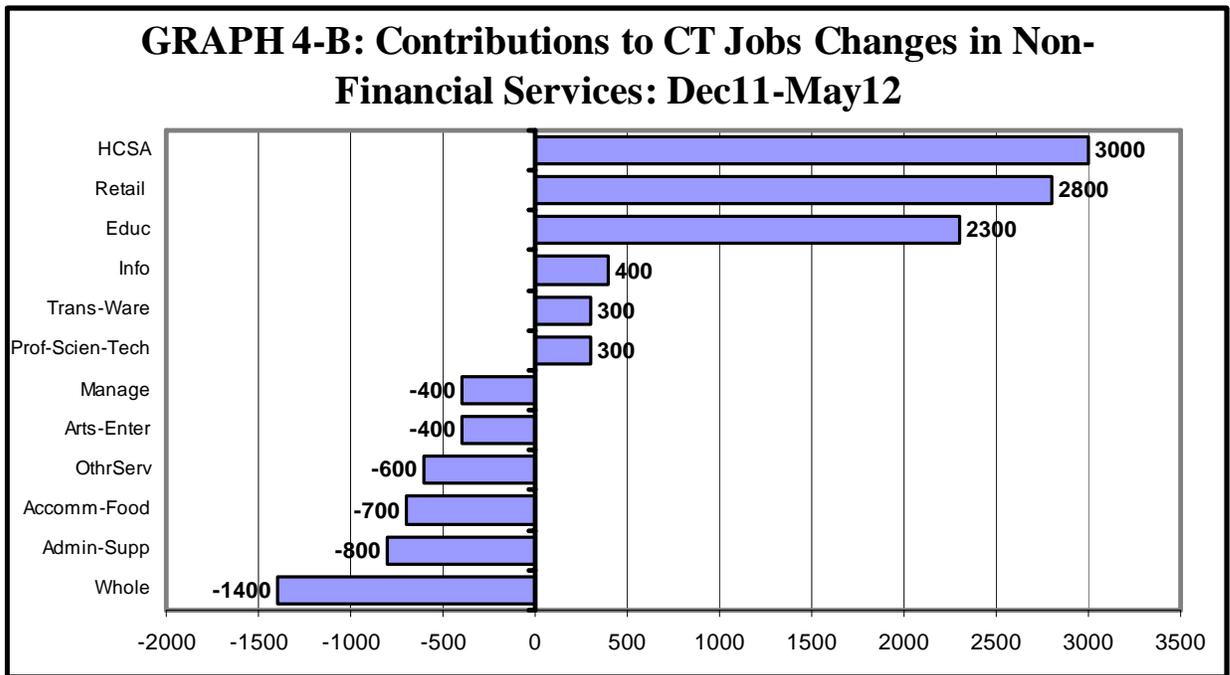


SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.

Graph 4A breaks out the goods producing sector into its three component industries: mining and logging, construction, and manufacturing in order to identify the industries that contributed to this sector's 1,900 net, new jobs over the first five months of 2012. Both manufacturing and construction have had had some unexpected strength, and especially in 2012. Contrary to previous recoveries, certainly in the post-Cold War era, is the manufacturing sector's adding, rather than shedding jobs. Between December 2011 and May 2012, there were 700 net, new jobs created in manufacturing (see discussion above). Also, after taking the brunt, along with Manufacturing over the recent panic and recession, Construction has been showing some life, and between December 2011 and May 2012, 1,200 net, new construction jobs were added to Connecticut's economy. Mining, a small sector in Connecticut's economy, added no net, new jobs over the first five months of 2012.



SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.



SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.



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Graph 3B breaks out the non-financial services sector into its component industries to identify those that made significant contributions to the 4,800 net, new jobs added by the largest major sector in the economy between December 2011 and May 2012. Six two-digit industries within this major sector added a total of 9,100 net, new jobs over the first five months of 2012, and six industries subtracted 4,300, for a net gain of 4,800 new jobs added between December 2011 and May 2012. Three of the six industries with net job gains each added more than 2,000 jobs over the first five months of 2012. It is the trend-driven health care and social assistance sector (HCSA) that dominated growth in the non-financial services sector adding 3,000 jobs. Both nationally and in Connecticut, demographics are pushing the growth of this sector over all phases of the business cycle. Retail added 2,800 jobs, dominated by motor vehicles and parts, and particularly new car dealers (see discussion on manufacturing and the auto industry above). General merchandise and building materials also significantly contributed to the growth in retail jobs. Education, while continuing to grow, had slowed for a while, but, over the first five months of 2012, regained its momentum and added 2,300 jobs. In a reversal, information added 400 net, new jobs over the first five months of 2012, and transportation and warehousing and professional and scientific each added 300 jobs.

Reversing a recent trend, wholesale trade led the non-financial services sector in subtracting jobs, eliminating 1,400 jobs between December 2011 and May 2012. Administrative and support, another reversal, shed 800 jobs. Since most of the growth in this sector over the post-Cold War cycles, especially over the current cycle, has been driven by temporary help, this could be another signal that the economy's "Arab Spring" is over and that the drag forces discussed in the opening paragraph of this introduction may be reasserting themselves. Accommodation and food services lost 700 jobs over the first five months of 2012, and arts and entertainment had a net loss of 400. These two sectors make up the larger leisure and hospitality sector, which had started off the current recovery in the first half of 2010 with very strong growth, another sign of the possible softening of the economy's momentum. Other services shed 600 jobs, and management of companies and enterprises lost 400 jobs.



II. THE 2012 BENCHMARK

On April 18, 2011, with the release of the March 2011, Connecticut nonfarm jobs data, the following announcement appeared in the *Connecticut Labor Situation*:

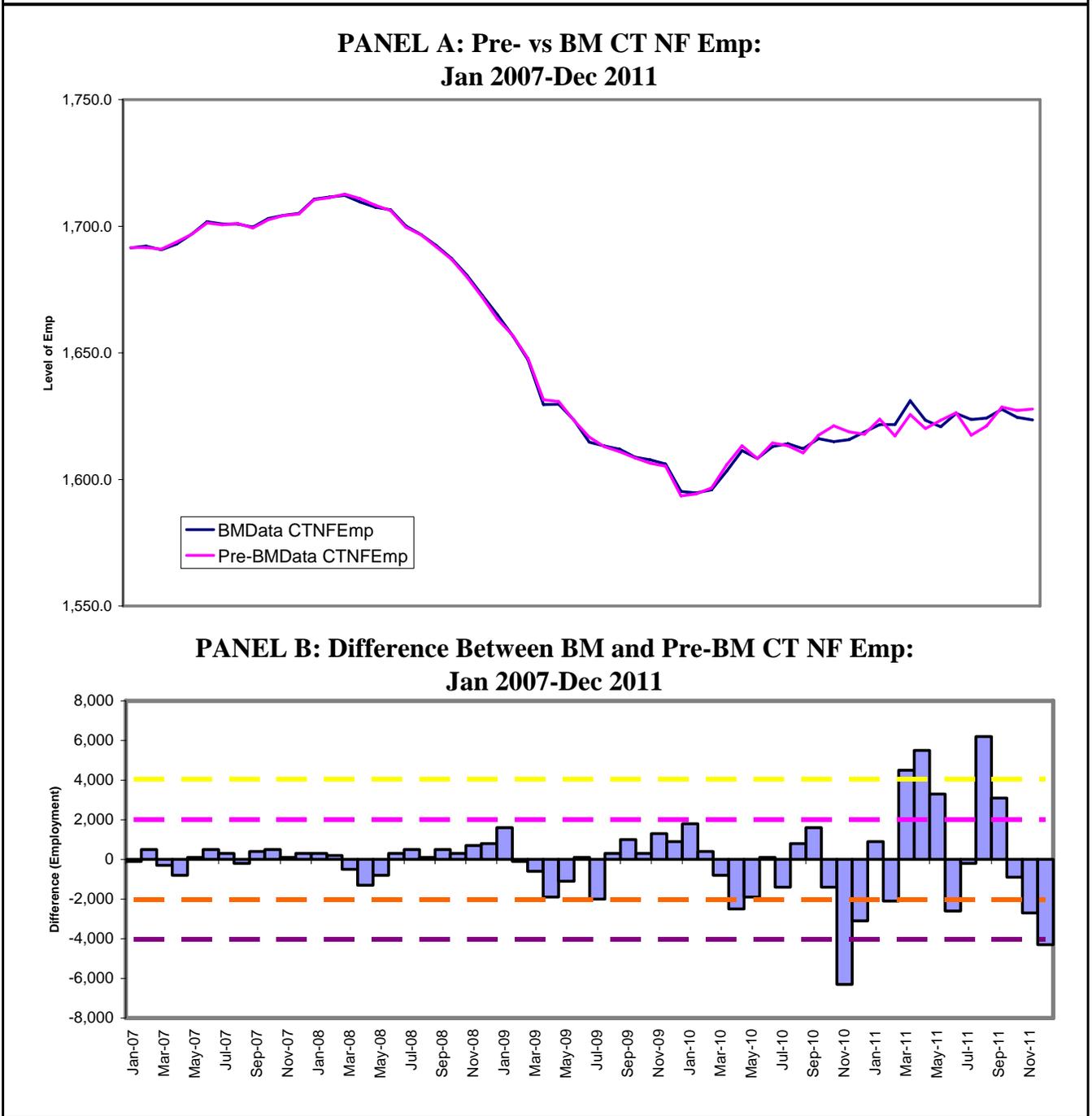
Starting with March, 2011, our monthly statewide and major LMA nonfarm job estimates have been taken over by the US Department of Labor Bureau of Labor Statistics. This is the final phase of transition in this program, which began in 2008. As a result of changes in the estimation procedures, you are likely to see more variability in month-to-month estimates of job counts. Caution should be used in interpreting any single month's estimate. The data are best interpreted to identify trends and cycles over several months and quarters¹⁰

In particular, the passage “As a result of changes in the estimation procedures, you are likely to see more variability in month-to-month estimates of job counts” in the citation above is clearly visible in the pre- and post-benchmarked data from the benchmark (BM)-2012 Connecticut nonfarm employment data presented in Graph 5. Panel A tracks the level of both the pre- and post-benchmarked Connecticut nonfarm employment from January 2007 to December 2011. Note the pre- and post-BM'd levels of nonfarm data began to significantly diverge toward the end of 2010, but particularly into 2011. This divergence is highlighted in Panel B, which tracks the difference between the pre- and post-2012 BM'd Establishment Survey data. Panel B is a Shuhart-type control chart in which the differences are plotted against two warning tracks: the inner track represents one Standard Deviation (SD) from the mean, and the outer track represents 2 SD's from the mean. As is readily apparent, the size of the differences increases dramatically after the Establishment Survey is taken over by U.S. BLS. It is only after the centralization of the survey that the difference between the pre- and post-BM'd data exceed 2 SD's from the mean (i.e., go beyond the outer warning track). This is the visual manifestation of the increase in the volatility in the month-to-month estimates of the job counts noted in the above citation from the *Connecticut Labor Situation*.

¹⁰ Office of Research, CONNECICUT LABOR SITUATION (April 18, 2011) Connecticut Department of Labor: Wethersfield, p. 4.



GRAPH 5: Differences Between the 2012 BM-ed CT NF Data and the Pre-BM-ed Series
(SOURCE: CT DOL-Research and author's calculations.)



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As a consequence of the 2012 benchmark, in lieu of a larger difference between the pre- and post-BM'd data, the job changes by two-digit NAICS sector were significantly larger for the 2012 BM round. Table 1 shows the pre- and post-BM job changes, by two-digit NAICS sector for the December 2009-December 2012 period, which covers that part of the current recovery that also coincides with the benchmarked period. The second column from the left shows the pre-BM changes, the third column shows the post-BM job changes, and the last column presents the difference between the two (pre-BM – BM). Note that some of the differences are quite substantial. The largest downward revision, and the largest absolute value in the difference between pre- and post-BM job changes was for public administration (government), which had a pre-BM change of -2,900 jobs between December 2009 and December 2011, and a post-BM change of -8,200 jobs, a difference of -5,300. The lowest difference was zero, for mining and construction. That is their pre- and post-BM job changes were identical (i.e., their revisions were zero).

Manufacturing went from gaining 400 jobs over the 24-month period to actually losing 800 jobs, a pre-/post-BM difference of -1,200. Retail trade had a significant reduction in its gains: a pre-BM gain of +4,700 was reduced to a post-BM gain of +3,000, a pre-/post-BM difference of -1,700. The losses in finance and insurance were reduced from -3,900 jobs to -2,100 jobs, a difference of +1,800. Transportation and warehousing had their job gains boosted up by an order of magnitude, going from a pre-BM gain of 200, to a post-BM gain of 2,000. Professional, technical, and scientific (Prof-Tech) and management of companies and enterprises (Manage) both had losses revised to gains. Pre-BM, Prof-Tech lost 600 jobs. After the 2012 BM, Prof-Tech had job gains of 1,600, a difference of +2,200, and the second largest upward revision of any two-digit NAICS sector. Manage also went from losing jobs to gaining jobs. Pre-BM data showed Manage losing 400 jobs between December 2009 and December 2011. After the 2012 BM, it was revealed that Manage actually had gained 1,000 jobs, an upward revision of 1,400 jobs.



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**TABLE 1: Change in CT Employ by NAICS Sector Before and After
2012 BM-Dec 2009-Dec 2011 (SOURCE: CT DOL-Research)**

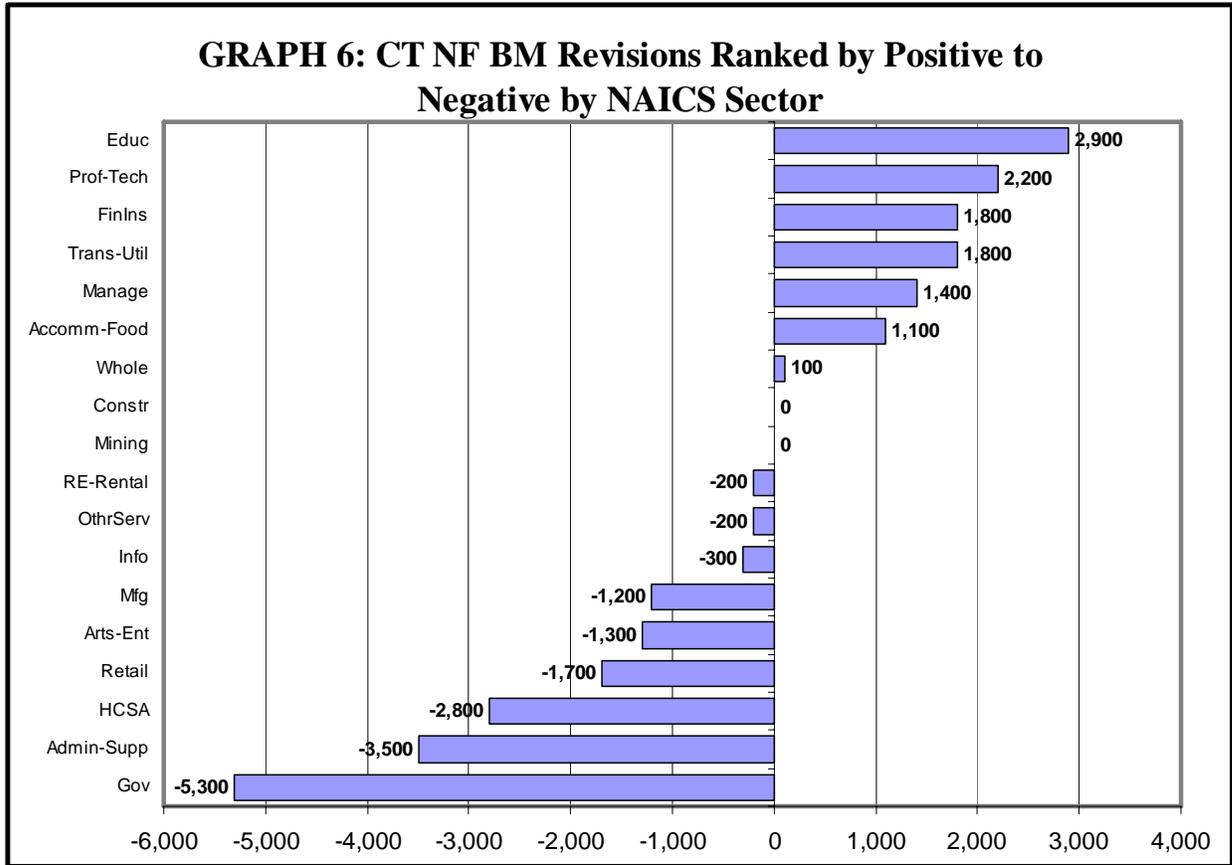
	Pre-BM	BM'd Data	BM -- Pre-BM DIFFERENCE
Sum of Sectors (Tot NF Emp)	22,600	17,400	-5,200
NAICS Sectors			
MINING	-100	-100	0
CONSTRUCTION	-3,000	-3,000	0
MANUFACTURING	400	-800	-1,200
Wholesale Trade	1,400	1,500	100
Retail Trade	4,700	3,000	-1,700
Transportation and Utilities	200	2,000	1,800
Information	-200	-500	-300
Finance and Insurance	-3,900	-2,100	1,800
Real Estate and Rental and Leasing	-300	-500	-200
Professional, Scientific, and Technical Services	-600	1,600	2,200
Management of Companies and Enterprises	-400	1,000	1,400
Admin and Support/Waste Manage/Remediation	9,300	5,800	-3,500
Educational Services	700	3,600	2,900
Health Care and Social Assistance	12,400	9,600	-2,800
Arts, Entertainment, and Recreation	2,200	900	-1,300
Accommodation and Food Services	3,400	4,500	1,100
Other Services (except Public Administration)	-700	-900	-200
Public Administration	-2,900	-8,200	-5,300

Education had the largest upward revision as a result of the 2012 BM. Pre-BM showed that the education sector had added 700 jobs over the 24 months between December 2009 and December 2011. However, the 2012 BM showed that Education actually added five times as many jobs: + 3,600, an upward revision of 2,900 (and second-largest revision in absolute value).

Pre-BM data showed that Connecticut had gained 22,600 nonfarm jobs between December 2009 and December 2011. However, the 2012 benchmark revealed that, in fact, the State had gained 17,400 jobs, or 5,200 fewer than the Pre-BM's data showed.

Graph 6 ranks the two-digit NAICS sectors by the size of their 2012 BM revision, from the highest upward revision to the lowest (greatest in absolute value) downward revision.





SOURCE: CT DOL and author’s calculations.

CONNECTICUT’S RECESSION/RECOVERY AND THE 2012 BM

As can be seen from Table 2, each benchmark, since the recovery began, has added a month to Connecticut’s 2008-10 recession length. The 2010 BM put the recession’s length at 21 months with a loss of 103,400 jobs. The 2011 BM then increased that recession length to 22 months, and upped the job losses to 119,200. Finally, the 2012 BM tacked on one more month to the recession’s duration bringing it up to 23 months. However, the job-losses were reduced somewhat to -117,500.

As a consequence of the lengthening of the recession by one month with each successive BM, the length of the recovery has been shortened by one month with each successive BM. The 2010 BM showed the current recovery started in December 2009, making it 24 months in length. The 2011 BM reduced that to 23 months, with recovery in January 2010. The 2012 BM moved it up to February making the current recovery 22 months.



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TABLE 2: CT Recession Characteristics-2010, 2011, and 2012 BM's

	<u>2012 BM CT NF Emp</u> <u>2008-10 RECESSION</u>	<u>2011 BM CT NF Emp</u> <u>2008-10 RECESSION</u>	<u>2010 BM CT NF Emp</u> <u>2008-10 RECESSION</u>
LENGTH	23 Months	22 Months	21 Months
JOBS LOST	-117,500	-119,200	-103,400
	<u>2012 BM CT NF Emp</u> <u>2010 RECOVERY</u>	<u>2011 BM CT NF Emp</u> <u>2010 RECOVERY</u>	<u>2010 BM CT NF Emp</u> <u>2009 RECOVERY</u>
LENGTH	22 Months	23 Months	24 Months
JOBS REGAINED (to Dec 2011)	28,800	34,300	N.A.
Job Deficit	-88,700	-84,900	N.A.

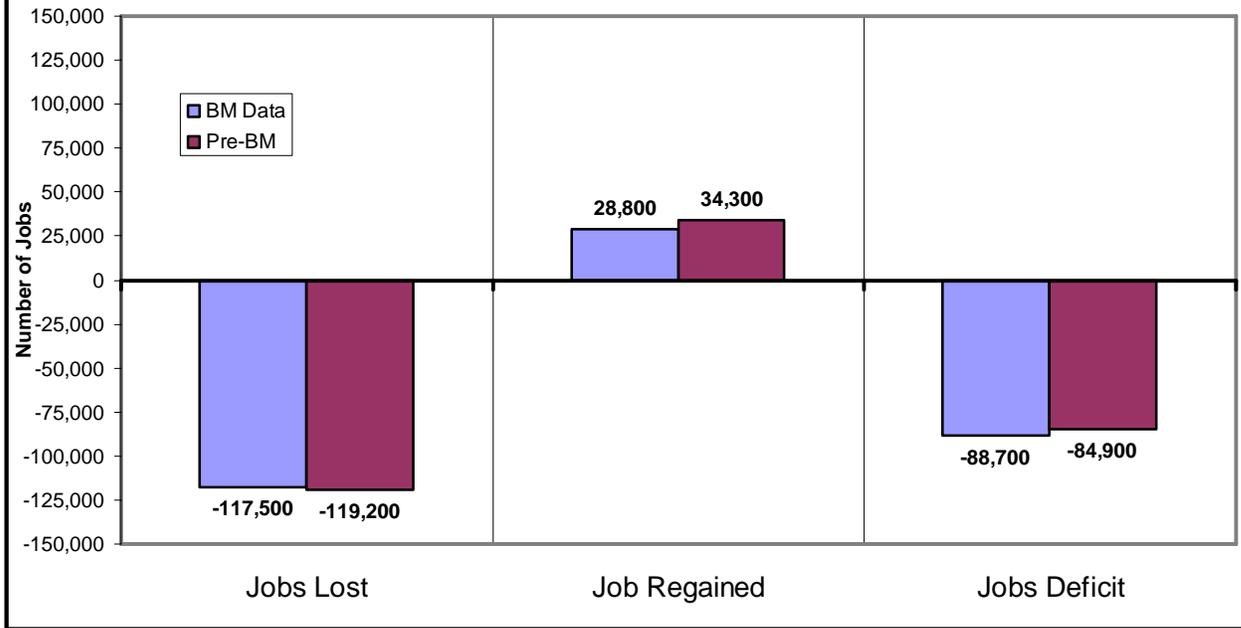
SOURCE: CTDOL-Reearsh and author's calculations.

The jobs recovered over the current recovery have also been revised downward. Measuring jobs gained as of December 2011 (which would leave out the 2010 BM), the 2011 BM showed that Connecticut's economy had recovered 34,300 of the jobs lost over the previous recession, and was therefore still down 84,900 jobs compared to the peak of the previous expansion. However, the 2012 BM revealed that the current recovery is actually weaker than first indicated. It showed that the State's economy actually gained back 28,800 jobs, as of December 2011, and was actually still down by 88,700 jobs compared to the previous peak.

Graph 7 summarizes the pre- and post-2012 BM recession job losses, jobs regained (as of December 2011), and the jobs deficit. As noted above, the 2012 BM reduced the job-losses over the recession somewhat, but then also reduced the number of job regained, as of December 2011. This, in turn, increased the size of the State's jobs deficit, compared to the peak of the previous expansion (March 2008), as of December 2011.



GRAPH 7: CT. Jobs Lost, Regained, and Deficit-BM vs. Pre-BM Series: Jan 2008-Dec 2011 (SOURCE: CT DOL-Research)



III. IMPACT OF THE PANIC/RECESSION ON CONNECTICUT'S REGIONS

Even though Connecticut is a small state, the impact of the recent financial panic and recession was not uniform across the State's sub-state regions. This is, of course, because even though Connecticut is a geographically small state, its sizable regional economies cross state lines. Part of the Norwich-New London MSA/LMA is in Rhode Island, Hartford and Springfield are "joined at the hip" and Fairfield County, which includes the Bridgeport-Stamford and Danbury LMA's is part of the New York CMSA. And, in fact, Fairfield County joined with Westchester County to successfully obtain a Workforce Innovation in Regional Economic Development (WIRED) Grant¹¹ as two contiguous cross-state counties that function as one economy. In fact, they were held up as a model for other cross-state areas functioning as one economy. So, the differential impacts of the recession/recovery on Connecticut's sub-state regions should come as no surprise.

This clearly comes through in Table 3, which depicts the cycle-phase durations for Connecticut's MSA-based LMA's over the recent recession and current recovery.

	RECESSION PHASE		RECESSION	RECOVERY
	PEAK	TROUGH	LENGTH (Months)	LENGTH (Months)
USNFEmp*	Jan-08	Feb-10	25	27
CTNFEmp	Mar-08	Feb-10	23	27
BrdgStamEm	Jul-07	Feb-10	31	27
DanNFEmp	Dec-07	Jan-10	25	27
HartNFEmp	Mar-08	Feb-10	23	27
NHNFEmp	Mar-08	Feb-10	25	27
NL-NorEmp	May-08	Apr-12	47	1
WaterEmp	Dec-06	Feb-10	38	27

*Based on the U.S. Emp. Cycle, not the NBER-defined cycle.

SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.

¹¹ Fairfield County Business Journal, *Workplace Inc. Wins Training Funds* (February 8, 2010) <<http://news-business.vlex.com/vid/workplace-inc-wins-training-funds-75794110>> Accessed on July 5, 2012



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For comparison, Table 3 also includes the U.S. and Connecticut, statewide. While the National Bureau of Economic Research (NBER) defined the U.S. recession as beginning in December 2007, the peak date in Table 3 is based on the peak level of U.S. nonfarm employment in the last expansion, which was in January 2008. This makes the U.S. cycle designations consistent with the state and local definitions, which are based on the peaks and troughs of the level of nonfarm employment.

Connecticut, Hartford, and New Haven all went into recession (based on the peak in the nonfarm employment series), in March 2008, two months after U.S. nonfarm employment peaked. This is a first in the post-Cold War period for Connecticut, as Connecticut's economy went into recession before the U.S. in both the 1989-92 and 2000-03 recessions. On the other hand, Bridgeport-Stamford and Danbury, which together make up Fairfield County, went into recession in 2007: Bridgeport-Stamford in July and Danbury in December, both before the U.S. and Connecticut, statewide. Fairfield County, of course, has a large financial services sector, which, along with Construction and Manufacturing, began shedding jobs early in the cycle as the Housing Bubble, popped, brining down the financial system along with it. However, it was Waterbury that went into recession first. Nonfarm jobs in the Waterbury LMA peaked in December 2006. This implies that Waterbury may be reflecting a structural change in its economy, in addition to the effects of the recession.

The U.S., Connecticut, and the LMA's, save Danbury and Norwich-New London, all turned the corner, in terms of nonfarm jobs, in February 2010. The Danbury LMA turned around one month earlier in January, and Norwich-New London did not turn around until April 2012, and even that is tenuous. The release of May's data may show that, in fact, Norwich-New London is still in recession. Factors affecting the length of the Norwich-New London LMA's recession are related to the pharmaceutical industry and the decline in casino traffic to the tribal nations over the recession and struggling recovery.

The U.S., and the Danbury and New Haven LMA's spent 25 months in recession (based on the behavior of nonfarm employment). The recession for Connecticut and the Hartford



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LMA was two months shorter at 23 months. Bridgeport-Stamford, or Lower Fairfield County spent 31 months in recession, and Waterbury was in recession for 38 months. The longest LMA in recession was Norwich-New London, at 47 months, and as noted above, the June data may show that, in fact, Norwich-New London may still be in recession as of May 2012. And, as presented in Table 3, all LMA's (save Norwich-New London), Connecticut, and the U.S. have been in a jobs recovery for 27 months, as of May 2012, the latest period of available data at the time of writing.

Table 4 presents the job losses and gains over the current cycle, including recession and recovery, for the same areas depicted in Graph 3. The left side of the table shows the areas job performance over the recent recession, and the right side shows the job performance over the current recovery. The second column from the left shows the level of nonfarm employment at the peak of the previous expansion. The third column from the left shows the level of nonfarm employment at the trough of the recession. The fourth column from the left shows the number of jobs lost over the recession, and the fifth column shows the percent of jobs lost. The sixth column shows the rate of job loss. That is, the compounded, annualized rate of decline. This allows the intensity of job-loss over the recession to be compared across areas even though recession durations are different.

The right half of the table provides comparable statistics for the recovery part of the cycle. The sixth column, from the right, shows the level of nonfarm employment, as of May 2012, the last period of available data for the State and sub-state regions. The fifth column, from the right, shows the rate of job recovery, as of May 2012, based on the level of employment at the previous peak. The fourth column, from the right, shows the level of jobs recovered since the trough of the recession, and the third column shows the percent of jobs gained. The second column shows the compounded, annualized growth rate to measure the strength of the job growth over the recovery, and the last column on the right shows the percent of jobs recovered, based on the level at the expansion's peak.



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TABLE 4: Job-Growth Performance-Current Cycle (as of May 2012)

	RECESSION PHASE		JOBS LOST	% JOBS LOST	Comp Ann RATE	RECOVERY PHASE		JOBS GAINED	% JOBS GAINED	Comp Ann RATE	% Jobs Recovered
	PEAK	TROUGH				by May12	Rec Rate				
USNFEmp*	138,023	129,244	-8,779.0	-6.36	-3.11	133,009	42.9	3,765.0	2.91	1.28	42.89
CTNFEmp	1,712.2	1,594.7	-117.5	-6.86	-3.64	1,629.6	29.7	34.9	2.19	0.97	29.70
BrdgStamEm	422.0	392.0	-30.0	-7.11	-2.81	401.1	30.3	9.1	2.32	1.03	30.33
DanNFEmp	70.5	63.9	-6.6	-9.36	-4.61	68.2	65.2	4.3	6.73	2.94	65.15
HartNFEmp	561.2	528.0	-33.2	-5.92	-3.13	541.6	41.0	13.6	2.58	1.14	40.96
NHNFEmp	279.9	262.5	-17.4	-6.22	-3.03	268.5	34.5	6.0	2.29	1.01	34.48
NL-NorEmp	137.9	124.9	-13.0	-9.43	-2.50	126.6	13.1	1.7	1.36	17.61	13.08
WaterEmp	69.0	61.4	-7.6	-11.01	-3.62	64.3	38.2	2.9	4.72	2.07	38.16

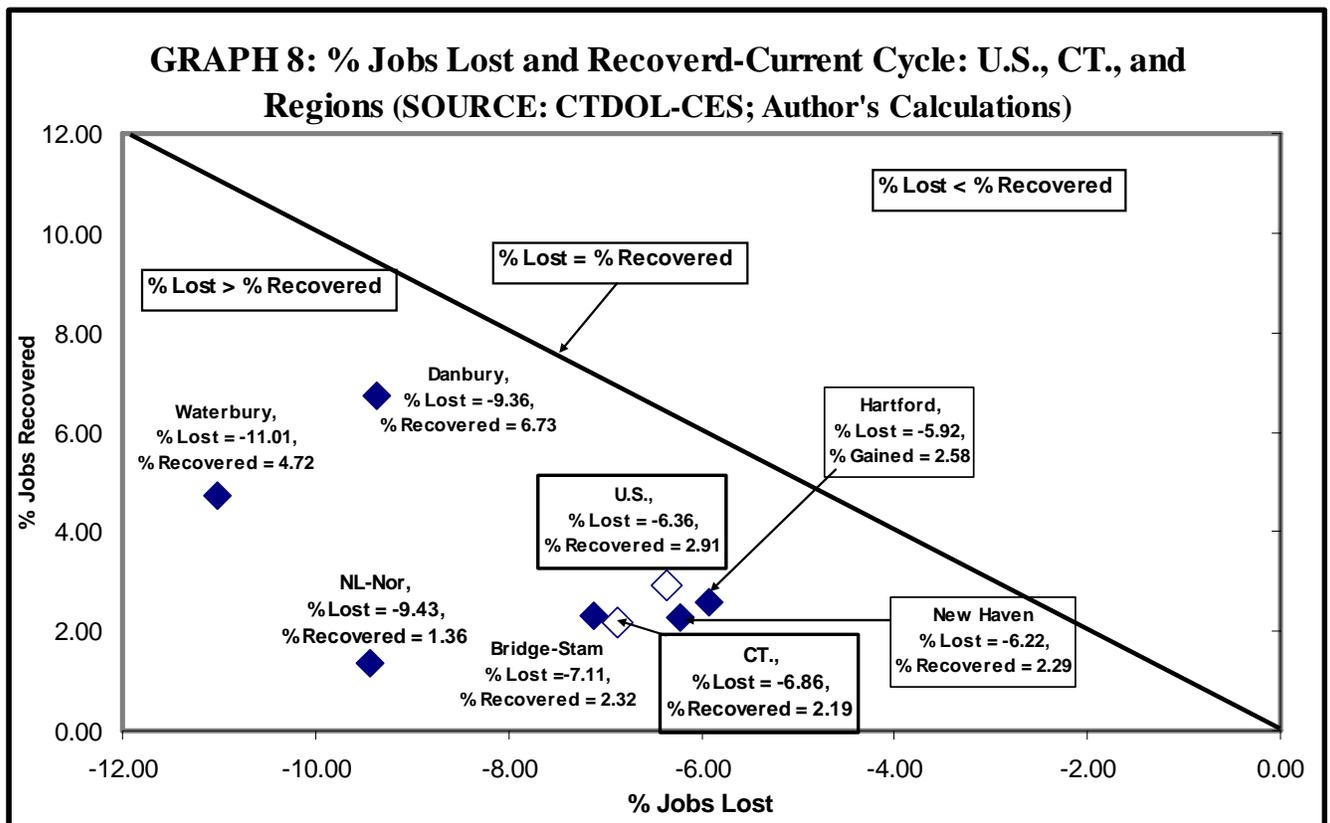
*The U.S. turning points are based on the Employment Cycle in order to conform to the state and regional definitions of the cycle.

**Number of jobs gained back per 100 lost..



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Graph 8 summarizes some of the information in Table 4 in visual form. Specifically, Graph 8 measures the percent decline in jobs over the recession on the horizontal scale, and the vertical scale measures the percent jobs gained in the recovery up to May 2012. The closer to the left vertical axis an area is along the horizontal axis, the steeper the percent-decline in jobs over the recession. The higher the area is along the vertical axis, the stronger the percent-gain in jobs over the recovery up to May 2012.



SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.

The 45-degree reference line represents instances where the percent decline in jobs over the recession exactly equals the percent gain in jobs over the recovery. Above the line, the percent jobs gained exceeds the percent lost, below that, the percent lost exceeds the percent gained. Note that in no instance in Graph 8, is an area on, or above the 45-degree reference line. For the U.S., Connecticut, and the LMA's, their points lie below the 45-degree line. Thus, in all cases, the percent jobs lost over the recession exceeds the percent jobs regained over the recovery up to May 2012. .



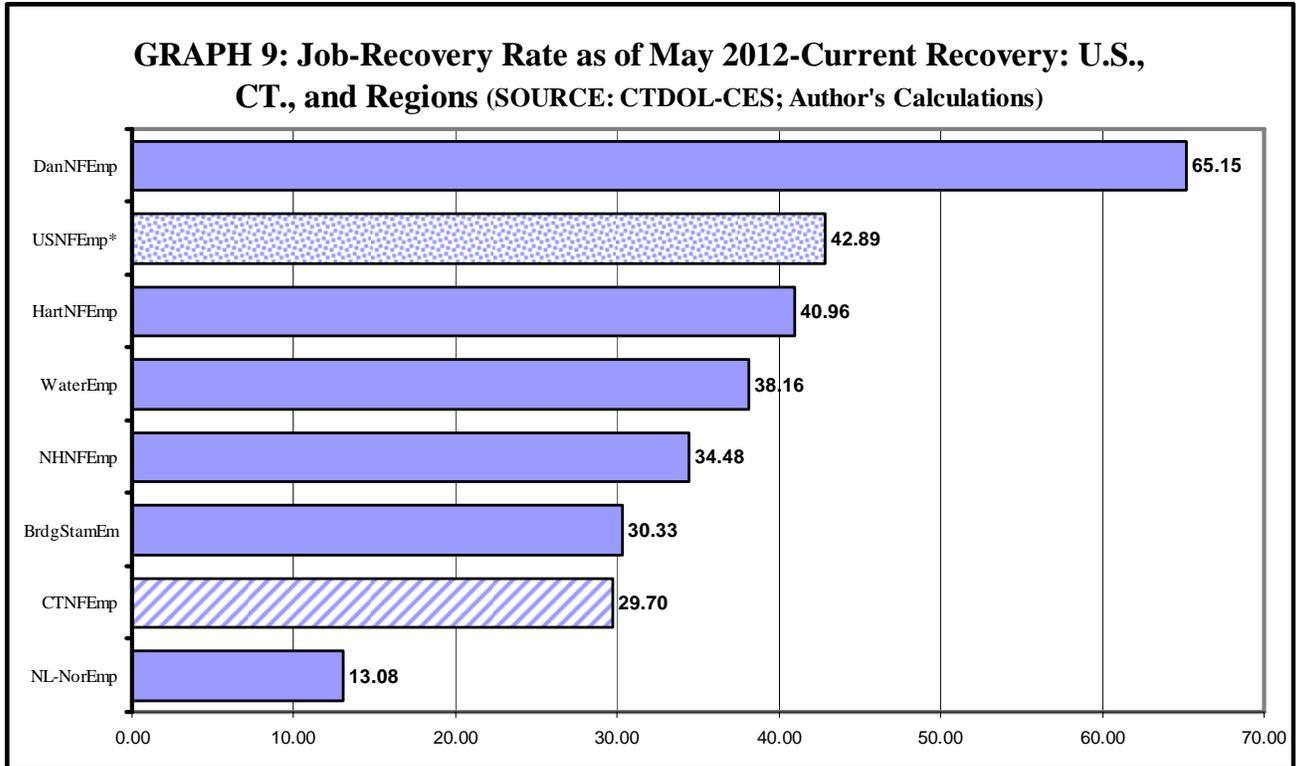
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The steepest job losses over the previous recession are the 11.01% decline for the Waterbury LMA, and the 9.43% decline for the Norwich-New London LMA. Danbury also had a steep decline of 9.36%. These areas had steeper declines than Connecticut (-6.86%), and Connecticut's relative job losses were steeper than that for the U.S. (-6.36%). The strongest relative jobs recovery has been in the Danbury LMA, where nonfarm jobs have increased by 6.73% since the trough of the recession. This is stronger than the recoveries in the other LMA's, or Connecticut, or the U.S. The next strongest relative recovery is Waterbury (+4.72%), which had the steepest relative decline of any area depicted in Graph 8. The Norwich-New London LMA has only grown by 1.36% since its trough, but then again, as noted above, that recovery has only been for one month.

As noted above, to gauge the relative steepness of each area's recession and the relative strength of its recovery, given differences in duration, the compounded growth rate of the job losses over the recession, and job gains is presented in Table 4. Based on this, Danbury had the steepest recession, shedding jobs at a compounded, annualized rate of 4.61%, followed by Connecticut (statewide) at -3.64%, and Waterbury at -3.62%. The mildest recession, though the longest, was in Norwich-New London, which lost jobs at a compounded, annualized rate of 2.50%. The U.S. lost jobs at an annualized rate of 3.11%. Given that its recovery has only been for one month, at the time of writing, the rate of recovery for the Norwich-New London LMA translates into a compounded, annualized rate of 17.61%. The strongest growth rate of any area with an extended recovery (i.e., more than one month) in Table 4 is Danbury, whose growth rate over the recovery has been at a 2.94% annualized rate. Waterbury's recovery in jobs has also been at a rate that exceeds 2% on a compounded, annualized basis. The rate of recovery for Connecticut, statewide, is the weakest at 0.97% on a compounded, annualized basis. Bridgeport-Stamford and New Haven are also recovering jobs at just over a 1% rate on an annualized basis.

The consequent relative recovery of jobs lost in the recession over the current recovery, up to May 2012, are summarized in Graph 9.





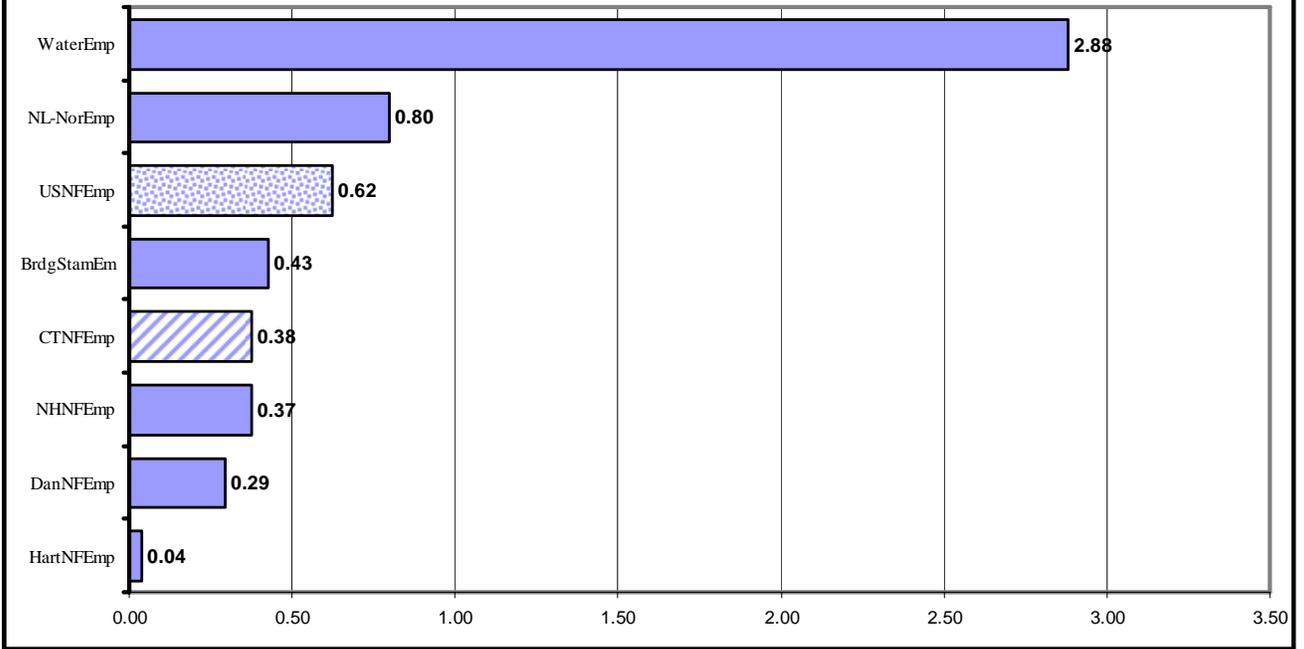
Due to its strong job growth over the recovery, as of May 2012, the Danbury LMA has recovered 65.15% of the jobs that it lost over the previous recession. The U.S. has recovered 42.89% of its jobs, but Connecticut has only recovered 29.70% of the jobs it lost in the last recession. As of May 2012, Norwich-New London, because of how short its recovery was, had only recovered 13.08% of the jobs lost over the previous recession.

Graphs 10 and 11 isolated the first five months of 2012, or the “Arab Spring” part of the current recovery to see which areas are performing strongly and which are experiencing weak recoveries. After a steep and long decline, Waterbury has been experiencing a strong comeback, especially over the first five months of 2012. As depicted in Graph 10, the Waterbury LMA’s nonfarm jobs grew by 2.88% between December 2011 and May 2012. This is more than three times the growth rate of the next-fastest growing LMA, New London (which has also rebounded from a long slump), added jobs at a rate of 0.80% over the first five months of 2012. This was four times the growth rate of the U.S. (+0.62%), and six times that of Connecticut’s nonfarm job growth (+0.39%). On the other hand, Hartford’s job growth stalled, adding jobs at an anemic rate of 0.04%.

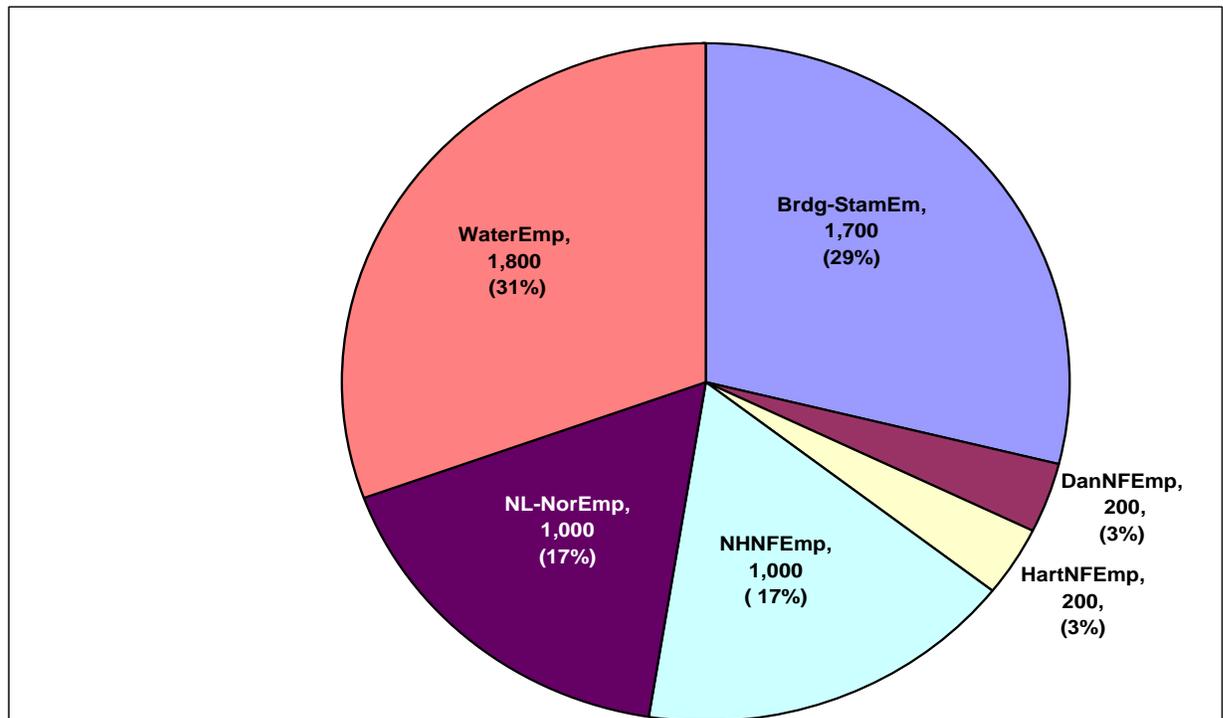


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**GRAPH 10: Job Growth-Rate in 2012--Dec 2011-May 2012: U.S., CT.
and Regional Economies (SOURCE: CTDOL-CES; Author's Calculations)**



GRAPH 11: Regional Contributions to CT Job-Growth-Dec 2011 to May 2012



SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.



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Graph 11 shows the contributions that the State's major regional economies made to the 6,100 jobs added to Connecticut's economy between December 2011 and May 2012. Again, reflecting the strong comeback from its steep recession, and highlighted in the above discussion, Waterbury's job growth has contributed 1,800 or 31% of the 6,100 jobs added to the State's economy over the first five months of 2012. Bridgeport-Stamford (Lower Fairfield County) contributed 1,700, or 29% of Connecticut's new jobs added between December 2011 and May 2012. Also making a strong comeback, and discussed above, is the New London-Norwich LMA, which contributed 1,000 jobs, and accounted for 17% of the State's job growth, and the New Haven LMA also contributed 1,000 new jobs, and accounted for another 17% of Connecticut's new jobs over the first five months of 2012. The two LMA's left behind in the economy's "Arab Spring" were Hartford and Danbury, each adding only 200 jobs, or 3% each, to the total job growth in Connecticut between December 2011 and May 2012.



IV. CURRENT CT ECONOMIC CONDITIONS: Spring 2012

This chapter is the Connecticut outlook's counterpart to Chapter II-U.S. ECONOMIC CONDITIONS: Spring 2012, in *Current Conditions and Outlook for the U.S. and Connecticut Economies: 2011-2013 VOLUME I: U.S. OUTLOOK*.¹² The approach employed in Volume 1 of this outlook to assess the current conditions in the U.S. economy, which provided a vehicle for organizing our thoughts about interpreting the set of signals sent from the economy, is used here to assess the current state of the Connecticut economy in the spring of 2012, and to gauge where it might be going. In following that framework, this section turns to reading the signals that economy is sending us. These *Signals*, known as, *Economic Indicators*, are sent from their *Source*, the economy, to *Receptors*, those of us observing the economy, participating in the economy, or more likely, both. Following the same framework as that for gauging the economic conditions in 2012 for the U.S. economy, the signals sent by the Connecticut economy are categorized by major macroeconomic functions and activities in the form of macroeconomic indicators. The indicators assessed reflect the levels and changes in aggregate economic activity including growth and output, and the contribution of major sectors, resources (natural and produced), and activities to the levels and growth in aggregate demand and aggregate supply in the Connecticut economy, and the implications for the current state of the economy (at the time of writing), and its likely trajectory over the forecast horizon.

Sections A and B assess the current state of the Connecticut economy by looking at the economic indicators from the flow standpoint.¹³ Section A looks at the major indicators of aggregate economic activity: Growth and Output. Section B assesses the indicators of aggregate demand and aggregate supply.

¹² See Kennedy, Daniel W., *Current Conditions and Outlook for the U.S. and Connecticut Economies: 2011-2013 VOLUME I: U.S. OUTLOOK* (June 2012) Connecticut Department of Labor-Office of Research: Wethersfield, Chapter II-U.S. ECONOMIC CONDITIONS: Spring 2012

¹³ Since the Fed's Flow-of-Funds data is available only at the national level, only flow-based signals will be assessed here, which implies that there can be no analysis of sectoral balance sheets (a *stock* concept) at the state and regional levels.



A. INDICATORS OF GROWTH AND OUTPUT

This section focuses on the indicators of Connecticut's growth and output. Unlike U.S. Gross Domestic Product (GDP), which is defined as the dollar-value of all current-period production of goods and services, state and local level GDP is not produced at the quarterly frequency. State and local level GDP is only available on an annual basis. But, a proxy for state and regional output, at the state and regional level, and available at the quarterly frequency, is *Earnings by Place of Work* from the quarterly State Personal Income series.¹⁴ However, like for the U.S., GDP/earnings by place of work are not the only measure of growth and output for Connecticut's economy. As noted in Volume 1 of this outlook, GDP measures the goods and services produced over a given period, to meet *Final Demand*, but leaves out production to meet *Intermediate Demand* (i.e., industry goods and services produced for other industries, including themselves, who use this purchased output as inputs into the production of goods and services for final demand). Whereas, as noted in Volume 1, Industrial Production is calculated on a Gross Output (GO) basis that includes the intermediate inputs of purchased goods and services used in the production of final output. More specifically, in the analysis in Volume 1, the Manufacturing Industrial Production Index (IPI) was used rather than the Total IPI, in order to control for weather, and other factors that might distort the signals the economy is sending about the underlying level of manufacturing output. The Connecticut counterpart to the U.S. Manufacturing IPI, produced by the Federal Reserve Board, is the Connecticut Manufacturing Production Index (CMPI) produced by the Office of Research of the Connecticut Department of Labor.

i. State GDP (Annual only, unless converted to Quarterly)

¹⁴ See Brown, Robert L., *Overview of the Bureau of Economic Analysis: Regional Accounts at the BEA*, PPT Presentation at Monitoring Mississippi: Data & Tools for Understanding Our State and Local Economies, Jackson, Mississippi on April 3, 2008.



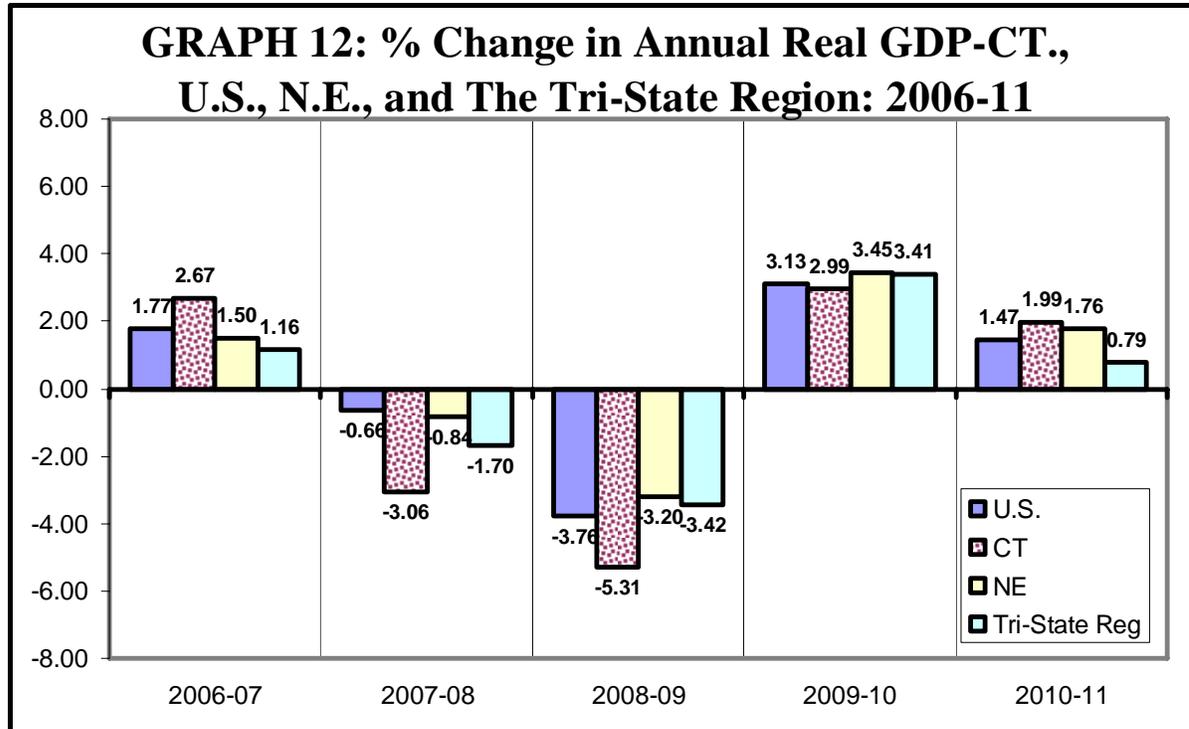
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Since GDP, at the sub-national level, is only available on an annual basis, an attempt at gauging a more current assessment of the level of Connecticut's economic output (output in 2012) will be put off until sub-parts ii and iii in the discussions of real earnings by industry and the CMPI. Though State GDP is only available on an annual basis, with the release of data for 2011¹⁵, a relatively current assessment of the performance of Connecticut's GDP over the current cycle can be made. To compare Connecticut's performance, the State's growth in real GDP is compared to its past performance, particularly over the current business cycle, and to other reference areas. In addition to the U.S., there are actually two sets of states that can serve as references for gauging Connecticut's economic growth performance. Connecticut is actually part of two regions: New England, and the Tri-State Region around New York City. And, in fact while seven of Connecticut's eight counties are in the Boston Federal Reserve District, Fairfield County is in the New York Federal Reserve District, so the State is split between two Federal Reserve districts, reflecting its two regional identities.

Graph 12 compares the percent growth in Connecticut's annual, real GDP to that of the U.S., New England (N.E.), and the Tri-State Region from 2006, the last year of expansion before the recent panic/recession, to 2011, the last period of available data released by the U.S. BEA in June 2012. The last expansion year of the early 2000's, Connecticut's annual constant-dollar (real) GDP-growth outpaced the U.S., N.E., and the Tri-State Region by a significant amount. Connecticut grew at a rate of 2.77% between 2006 and 2007. The other compared areas all grew by less than 2%: the U.S. grew by 1.77%, N.E. by 1.50%, and the Tri-State Region only grew by 1.16%. However, Connecticut's contractions in GDP of 3.06% over 2007-08 and 5.31% over 2008-09 were much steeper than those experienced by the U.S., N.E., or the Tri-State Region. In fact, Connecticut's decline in GDP, over the 2008-09 period was the steepest contraction of any area over the years shown in Graph 12.

¹⁵ U.S. Bureau of Economic Analysis, WIDESPREAD ECONOMIC GROWTH ACROSS STATES IN 2011 (June 5, 2012)



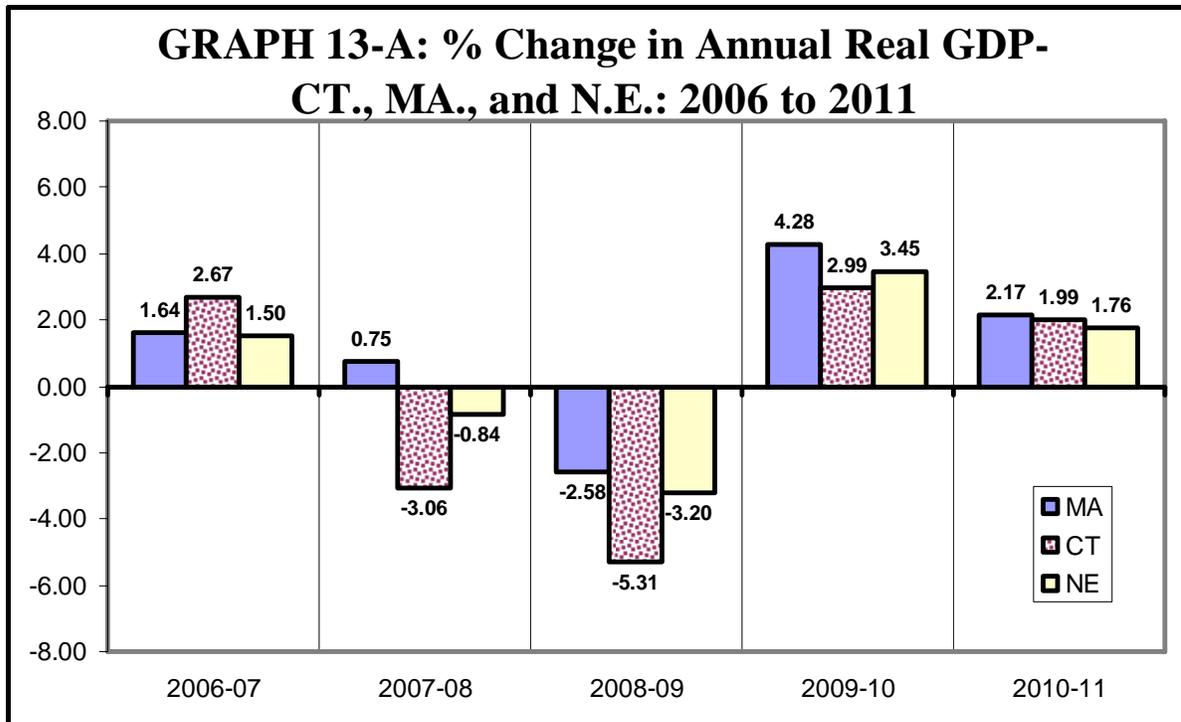


SOURCE: U.S. BEA and author's calculations.

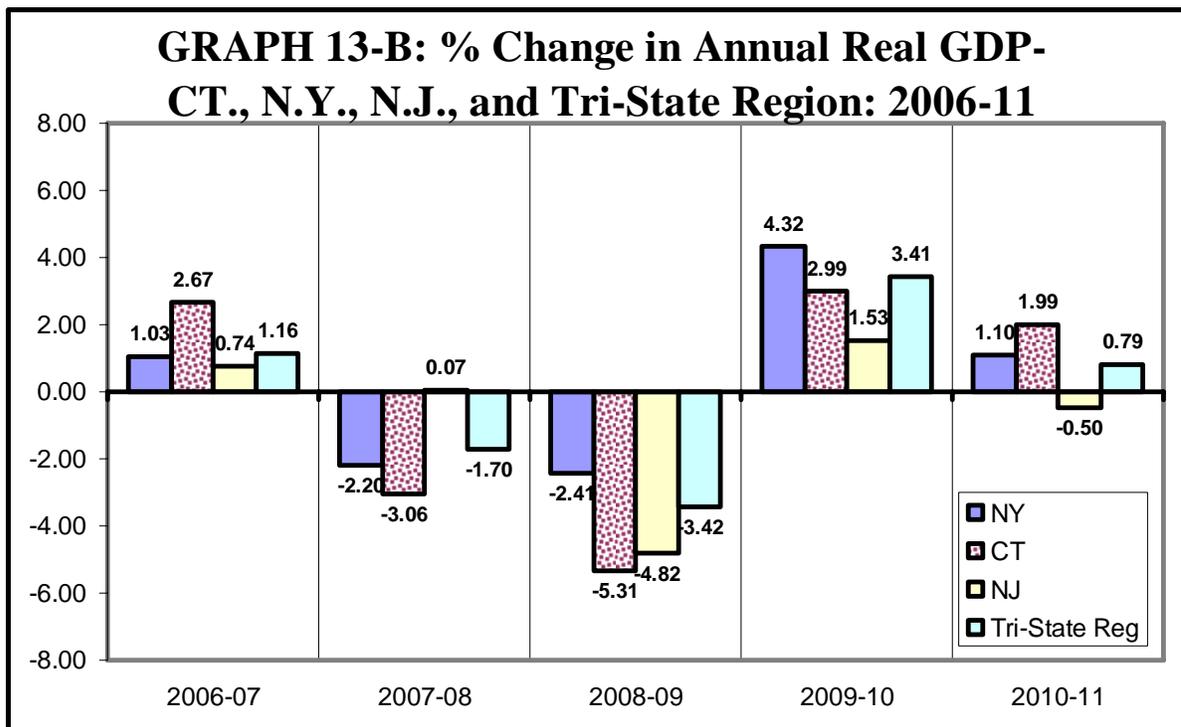
With recovery from the panic and recession, Connecticut's GDP growth grew by, just under, 3% in 2009-10, while the growth in real GDP for the U.S., N.E., and the Tri-State Region exceeded 3%. With the supply-chain disruptions due to the Japanese earthquake and tsunami, the clown show over the debt ceiling, and the re-intensification of the Eurozone Crisis, U.S. and World economic growth slowed in 2011. Consequently, real GDP growth decelerated for all areas compared in Graph 12 from 2010 to 2011. However, even though it was down one percentage-point from 2009-10, Connecticut's GDP growth, at 1.99%, was stronger than that for the U.S., N.E., or the Tri-State Region. In fact, the Tri-State Region's GDP growth was quite flat at 0.79%.

Graphs 13-A and 13-B compare Connecticut's GDP growth to the two relevant regions, and the major state economies within each region. Graph 13-A compares Connecticut's GDP growth to N.E. and the region's largest economy: Massachusetts. Graph 13-B compares Connecticut's GDP growth to the tri-state region and the two other component economies: New York and New Jersey.





SOURCE: U.S. BEA and author's calculations.



SOURCE: U.S. BEA and author's calculations.



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From Graph 13-A, not only did Connecticut grow faster than New England between 2006 and 2007, but it also grew faster than N.E.'s largest economy. Connecticut's 2.67% growth rate in real GDP was a percentage-point stronger than the 1.64% in Massachusetts's real GDP. The region grew by 1.50%. However, the Massachusetts economy continued to grow, albeit slowly, at 0.75%, the first recession year (2007-08), Meanwhile, Connecticut's economy contracted by 3.06%, with the region's economy experiencing a slight decline of 0.84%. The year, in which the effects of the panic/recession were the most severe, 2008-09, as shown in Graph 12, Connecticut's economy contracted severely, annual GDP declined by 5.31%, and while the Massachusetts economy also contracted, it was at only one-half the rate of Connecticut, at -2.58%. The New England region's economy contracted at a rate of 3.20% between 2008 and 2009. The first recovery year, 2009-10, the Massachusetts economy experienced a strong rebound, with annual, real GDP growing at a 4.28% rate. Connecticut's economy rebounded, but not as strongly, growing by 2.99%, while the New England region's economy grew by 3.45%. As noted above, with the supply-chain disruptions due to the Japanese earthquake and tsunami, the clown show over the debt ceiling, and the re-intensification of the Eurozone Crisis, U.S. and World economic growth slowed in 2011. As a consequence, the growth rate in Massachusetts's GDP was only half what it was the year before (+2.17%), Connecticut's GDP, growth rate slipped by a percentage-point to 1.99%, and the N.E. region's growth rate slipped by one-half to 1.76%.

As illustrated in Graph 13-B, Connecticut's economic performance over the 2006-07 period, when compared to that of the Tri-State region, is similar to its performance, when compared to the New England region. Connecticut's real GDP growth was two and one-half-times stronger than that of New York (which grew by 1.03%), more than three times stronger than New Jersey (+0.74%), and two and one-times stronger than the Tri-State Region (+1.16%). But, again, Connecticut was much more severely impacted by the panic/recession than New York, New Jersey, or the Tri-State Region. However, New Jersey's contraction in GDP was not too far behind Connecticut's at -4.82%.



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Again, in the first recovery year, Connecticut's real GDP growth also lagged behind the Tri-State region, which grew at a 3.41% rate, as it did the New England region. New York grew the strongest in the Tri-State Region over the 2009-10 Period. New York's real GDP surged by 4.32%. However, New Jersey's real GDP growth lagged behind Connecticut, New York and the region, growing only by 1.53%. In fact, what stands out in Graph 13-B is New Jersey's weak growth, compared to New York, Connecticut, and the Tri-State Region throughout the five years of data presented. And, in fact, New Jersey's economy contracted by 0.50% over 2010-11. While, as noted above, the U.S. and World economies were severely effected by the events of 2011, and this slowing is reflected in the much lower growth-rates for Connecticut, and the other areas compared in Graph 12, and graphs 13-A and 13-B, nevertheless, of the areas compared, New Jersey is the only area where GDP actually declined. Further, the decline in growth, in 2011, was much steeper for the Tri-State Region than it was for the New England region. While the growth rate in New England's real GDP slowed from 3.45%, over 2009-10, to 1.76%, over 2010-11, the Tri-State Region's growth rate slowed from 3.41% (2009-10) to 0.79% (2010-11), one-fourth the growth rate of the previous year.

Not only changes in productivity, but the productivity, or the flip side of that, the *Employment-Requirements Matrix*, determine the job growth for a given change in real GDP. These factors are explored in Table 5 and Graph 14. In Panel A of Table 5, the change output, or real GDP per Covered Wage and Salary (CWS).¹⁶ Job over the 2003-04 expansion period, the 2007-10 panic/recession period, and the 2010-11 part of the recovery for which there is available data. Panel B is the "flip side" of Panel A. It is the number of CWS workers required to produce \$ billion of output (i.e., real GDP). It is the *Employment Requirements*. That is, holding output constant (at \$ billion of real GDP), what is the employment requirement. The more capital intensive the production process is (i.e., the higher the Capital-Labor Ratio), the fewer the number of workers, or the lower the employment requirements, to produce \$ billion of output (real GDP).

¹⁶ Covered Wage and Salary jobs are those jobs recorded in the Unemployment Insurance (UI) Tax Database known as the Quarterly Census of Employment and Wages (QCEW). All employers, subject to the UI Tax laws (i.e., hire at least one person to work for them) must report the number of persons and their Wage and Salary to the state employment security agency. It also serves as the frame from which the Establishment Survey is drawn for the Nonfarm Employment sample.



TABLE 5: CT Productivity Compared to the U.S. and Surrounding States			
PANEL A: Change in Real GDP/CWS Job			
	CH2003-07	CH2007-10	CH2010-11
U.S.	167,503	30,366	125,898
CT.	404,784	126,237	236,209
N.Y.	351,169	20,246	106,239
MA*.	209,118	-92,079	190,983
N.J.**	309,262	68,208	-93,406
*Real GDP increased, but MA still shed workers. **NJ's GDP declined, but it still added workers.			
PANEL B: Change in CWS Jobs / \$Billion Change in Real GDP			
	CH2003-07	CH2007-10	CH2010-11
U.S.	5,970	32,932	7,943
CT.	2,470	7,922	4,234
N.Y.	2,848	49,393	9,413
MA.	4,782	-10,860	5,236
N.J.	3,234	14,661	-10,706
*Real GDP increased, but MA still shed workers. **NJ's GDP declined, but it still added workers.			

SOURCE: U.S. BEA and author's calculations.

As is clear from the second column (from the left), in Panel A in Table 5, the change, or in this case, the additional real GDP (output) from adding one more CWS worker was much higher for Connecticut over the 2003-07 expansion period, than for the U.S., Massachusetts, New York, or New Jersey. Each new CWS worker added \$404,784 of real GDP to the State's economy, more than twice the rate of the \$167,503 added by an additional U.S. CWS worker. Connecticut's added output per additional CWS worker was also double that of Massachusetts, which was \$209,118. Connecticut's additional worker also added more than New York's additional worker (\$351,169), or New Jersey (\$309,262). Of course, the flip side of that is that Connecticut's output had to grow by



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\$404,784, over the 2003-07 expansion years before it added a CWS worker. For that same increase in real GDP, over the 2003-07 expansion years, the U.S. economy added 2.42 CWS workers, Massachusetts added 1.94 CWS workers, New Jersey added 1.31 CWS workers, and New York added 1.15 CWS workers.

Moving on to the third column (from the left), which covers the panic/recession years (2007-10), requires some explanation. The positive numbers in the third column do not imply that real GDP grew over the panic/recession. If the numerator and denominator of a ratio both have negative signs, then dividing one into the other produces a result with a positive sign. Since, real GDP declined (a negatively-signed numerator), and CWS employment also declined (a negatively-signed denominator), the result is *positive*. Thus, for Connecticut, for every \$126,327 decline in real GDP, the State's economy eliminated one CWS job. And, this was the case, except for Massachusetts. The value for Massachusetts is the only negative value in Column Three. This is because, as real GDP grew over the recession years (see Graph 13-A), the Massachusetts economy still eliminated jobs. Thus, as Massachusetts real GDP continued to grow over the 2007-10 period (a positively-signed numerator), Massachusetts CWS employment declined (a negatively-signed denominator), the result produced a negatively-signed value (i.e., \$-92,079 for Massachusetts). That is, the numerator and denominator had opposite signs. This means that for every \$92,079 increase in real GDP, over the 2007-10 recession years, the Massachusetts economy actually eliminated one CWS job!

Also of note in column three, Panel A, of Table 5, is that Connecticut's real GDP, or output, had to decline four times more than U.S. output (\$30,366), before its economy eliminated a CWS job. And, the State's output had to decline six times more than the decline in New York's output (\$20,246) before eliminating a CWS job. Put another way, while a \$126,237 in real GDP, over the 2007-10 panic/recession years, resulted in Connecticut's economy eliminating one CWS job, the U.S. economy eliminated 4.16 CWS jobs, New York eliminated CWS 6.24 jobs, New Jersey eliminated CWS 1.85 jobs, and, as noted above, Massachusetts eliminated one CWS job for every \$92,079 increase in real GDP. Thus, the fact that Connecticut's percent decline in employment exceeded



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the U.S. implies that this was the result of a steep contraction in real GDP, as illustrated in Graph 12 and Graphs 13-A and 13-B.

The last column, first from the right, shows the change in real GDP per CWS job added over the recovery years of available data. The first thing to note is the reduction in the change in real GDP per added CWS job. The level of output added, to Connecticut's economy, per additional CWS job over the 2010-11 recovery period fell by 41.65% to \$236,209, compared to the 2003-07 expansionary period. This was one and two-thirds larger than the decline for the U.S. (-24.84%). However, Connecticut's decline was not as steep as the 69.75% decline for New York, which added real GDP per additional CWS worker at a rate of \$106,239 over the 2010-11 recovery period, compared to a rate of \$351,169 over the 2003-07 expansionary period. The rate for Massachusetts was relatively small. The added output per added CWS job, at \$190,983, was only 8.67% below the rate over the 2003-07 expansionary period. Over the 2010-11 recovery period, New Jersey presents the opposite case of Massachusetts over the 2007-10 recession years. The value for New Jersey is negative because, while Massachusetts subtracted jobs, as real GDP grew over the recession, New Jersey added jobs, as real GDP continued to contract over the 2010-11 recovery years. Thus for every \$93,406 decline in output, New Jersey *added* a CWS job!

The other side of the coin to Panel A, in Table 5, is Panel B, which shows the *Employment Requirements*. That is, for every \$billion in additional real GDP, how many workers are required to produce that output. Beginning with the second column from the left (Panel B, Table 5), which shows the employment requirements to produce an additional \$billion in real GDP over the 2003-07 expansionary years. As explained above, the employment requirements approach is tantamount to holding the scale, or output effect, constant, and looking at the capital-to-labor ratio (i.e., the factor-input combination). The more capital intensive the production process, the fewer workers will be required to produce a given level of output (in this case, that level of output is \$billion). Since Connecticut's output-per-worker in Panel A, in Table 5, is, by far, the highest of those compared in Table 5, it follows that, the flip side, would imply that



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Connecticut requires the fewest number of CWS workers to produce \$billion of real GDP. And, in fact, over the 2003-07 expansionary years, Connecticut required 2,470 workers for each additional \$billion of real GDP. Over this same period, the U.S. economy required 5,970 additional CWS workers, or 2.4 times as many workers, to produce the additional \$billion in output. New York's employment requirements were close to Connecticut's, requiring an additional 2,848 additional CWS workers to produce an additional \$billion in real GDP, over the 2003-07 expansionary period. New Jersey required an extra 3,234 CWS workers to produce an additional \$billion in output, and Massachusetts required twice as much as Connecticut at 4,782.

Column Three, from the left, shows the number of CWS jobs lost per \$billion decline in real GDP over the 2007-10 panic/recession years. While the U.S. economy shed 32,932 CWS jobs for every \$billion decline in real GDP, over the 2007-10 panic/recession years, Connecticut's economy only eliminated 7,922 CWS jobs, one-quarter as much. Again, as noted above, what translated into steeper job losses for Connecticut, compared to the U.S., was the much steeper decline in real GDP for Connecticut, compared to the U.S. over the panic/recession (see Graph 12). New York, on the other hand, eliminated 49,393 CWS jobs for every \$billion decline in output over the panic/recession. This was seven times the job destruction rate, compared to Connecticut as a consequence of the economic crisis and recession. While New Jersey shed 14,661 CWS jobs for every \$billion in lost real GDP between 2007 and 2010, as noted above, Massachusetts actually added to real GDP over the 2007-10 panic/recessionary years. However, for every \$billion that Massachusetts added to real GDP over the 2007-10 period, it eliminated 10,860 CWS jobs, hence, the negative sign for the value in the third column in Panel B.

Even with the massive purge of jobs over the crisis/recession period (2007-10), the argument for the so-called structural change driving the current, weak job growth does not seem to be supported by the data in the last column (first column from the right) in Panel B of Table 5. The number of CWS workers to produce an additional \$billion of real GDP over the 2010-11 recovery period has actually increased compared to the 2003-07 expansionary period. If the Capital-to-Labor Ratio has actually declined, that is, more of



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the labor-input is used to produce a given level of output, holding output constant (at \$billion), then what is suppressing employment growth is not the substitution effect (i.e., substituting capital for labor), but, instead, it is the *output*, or *scale* effect that is suppressing job growth. That is, the problem is the *top line*. It is the top line that reflects the level of sales revenue from selling your good or service. And, ultimately, without the top line, there is no other line, including the bottom line. Or, as Christina Romer wanted to title her testimony before the Senate in April 2010: “Its Aggregate Demand stupid!”¹⁷ That is, the heart of the problem is *insufficient aggregate demand*. If there are not enough customers, either walking through the door, visiting the business’s website, or both, then there is little, or no, revenues coming through the door, which is reflected in there being no movement on the top line, which, in turn, translates into no scale, or output effect. In the final analysis, if the increase in the demand for the good or service is strong enough, which boosts the scale of output significantly then more factor-inputs, including labor, will be required to produce the increased output, regardless of the substitution effect (economists call this *Derived Demand*). Consequently, the persistently high unemployment rate is being driven by insufficient demand.

This seems to be evident in the first column, from the right, in Panel B, Table 5. Over the 2010-11 recovery period Connecticut’s economy required an extra 4,234 CWS workers to produce an additional \$billion in real GDP. That is 1.7 times as many additional CWS workers as Connecticut needed to produce an extra \$billion in output over the 2003-07 expansionary years. New York needed 9,413 CWS workers for every \$billion increase in real GDP over the 2010-11 recovery period. This was three times the number of CWS workers it needed to produce an additional \$billion of output over the 2003-07 expansionary years. The U.S. required 7,943 more CWS workers to produce an additional \$billion in real GDP over the 2010-11 recovery period, which was 2,000 more CWS workers than it needed to add \$billion to real GDP over the 2003-07 expansionary period. On the other hand, the employment requirements for Massachusetts did not change much over the 2010-11 period, compared to the 2003-07 period: 5,236 more CWS workers to produce an additional \$billion in real GDP over 2010-11, compared to 4,782 over 2003-

¹⁷ Romer, Christina,

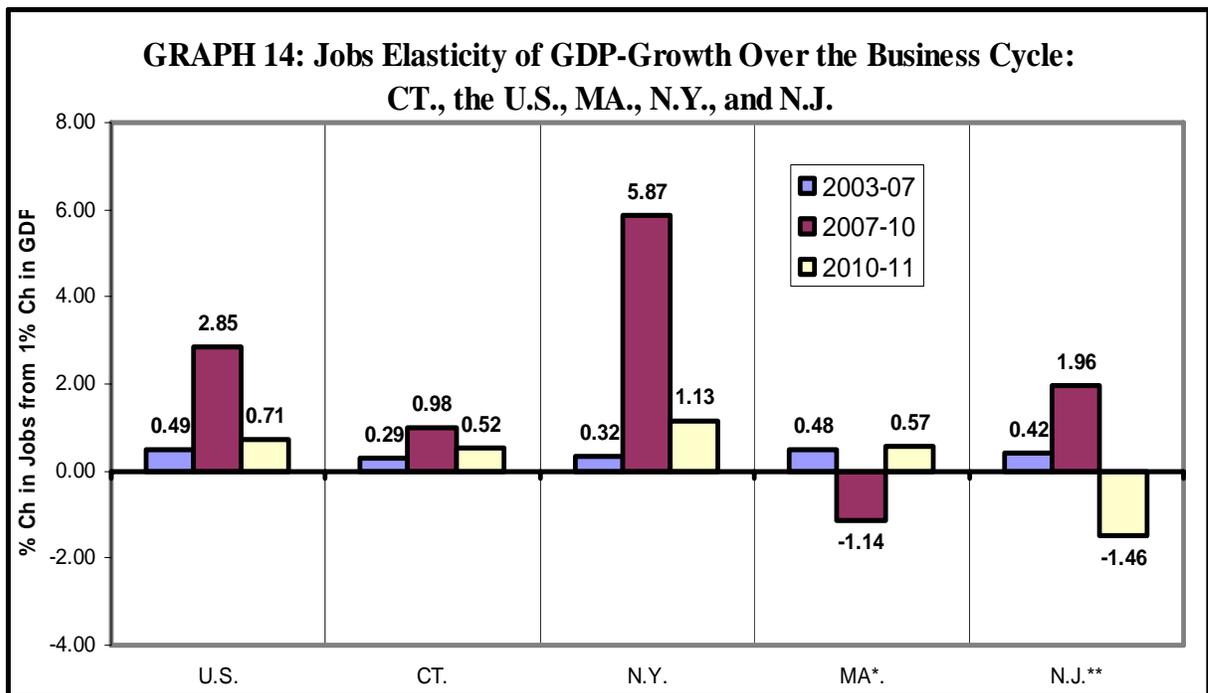


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07. Again, as noted in the discussion of Panel A, New Jersey was the anomaly here. Though New Jersey’s real GDP declined over the 2010-11 recovery years, it nevertheless, continued to add jobs, hence, the negative sign on its value in the first column (from the right), in Panel B, Table 5. While New Jersey added 3,234 new CWS jobs for every \$billion addition to real GDP over the 2003-07 expansionary period, it actually *added* 10,706 CWS workers for every \$billion *contraction* in real GDP over the 2010-11 recovery years.

The final part of the discussion on real GDP centers on the *CWS Jobs Elasticity of Real GDP-Growth*. The elasticity is defined as the ratio of percent changes. Thus, the jobs elasticity would be defined as:

$$JobsElasticity = \frac{\% \Delta Jobs}{\% \Delta GDP} \quad (1.)$$



SOURCE: U.S. BEA and author’s calculations.



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As would be expected from the above discussion, Connecticut has the lowest job elasticities. That is, for a percent change in real GDP, Connecticut has the lowest percent change in CWS jobs. Over the 2003-07 expansion period, for a 1% increase in real GDP, Connecticut's CWS jobs grew by 0.29%, compared to 0.49% for the U.S., 0.48% for Massachusetts, 0.42% for New Jersey, and 0.32% for New York, which was closer to Connecticut in its jobs elasticity.

For the discussion over the 2007-10 panic/recession years, again keep in mind that the positive elasticity values do not imply that jobs were created. They, in fact, declined, but as discussed above, with negative values in both the numerator and denominator, the result produces a positive sign. With that qualification, the first thing to note is that the jobs elasticity coefficients for all but Connecticut were elastic. That is for a 1% decline in real GDP, there was a greater than 1% decline in CWS jobs. For Connecticut, the elasticity was close to one making it close to unitary-elastic. For the U.S., over the panic/recession years (2007-10), for every 1% decline in real GDP, CWS employment contracted by 2.85%. However, even this large relative decline in jobs for the U.S. was doubled by the 5.87% decline in CWS jobs in New York for a 1% decline in real GDP. New Jersey's CWS jobs declined by 1.96% for every 1% decline in real GDP, and Connecticut had the lowest job loss response. For Connecticut, every 1% decline in real GDP brought about a 0.98% decline in CWS jobs. However, as noted in the above discussion, Connecticut's decline in real GDP was much steeper than that for the U.S., which had the net result of making Connecticut's employment losses relatively steeper, even though its jobs-elasticity coefficient was inelastic (though close to unitary-elastic) over the period, compared to the elastic response for the U.S. Finally, as discussed above, Massachusetts's real GDP and CWS employment moved in opposite directions over the panic/recession. For a 1% increase in Massachusetts real GDP, there was a 1.14% decline in CWS employment over the 2007-10 panic/recession years.

Save New York and New Jersey, with the recovery, the elasticity of jobs has once again returned to being inelastic. That is, a 1% change in real GDP generates a less than 1% increase in CWS job growth. However, as noted above, in the discussion of Table 5, even



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though the jobs response, relative to real GDP growth is still inelastic, over the 2010-11 recovery period, the responses are not quite as inelastic, so that there is a little more response in CWS job growth over the 2010-11 recovery period compared to the 2003-07 expansionary period. Thus, Connecticut's elasticity increased to 0.52% increase in CWS jobs due to a 1% increase in real GDP. New Jersey had the largest increase with a 1% decline in real GDP actually resulting in a 1.46% increase in CWS employment. New York's jobs elasticity also went from being inelastic to elastic. Over the 2010-11 recovery period, a 1% increase in real GDP generated a 1.13% increase in CWS jobs. The U.S. also increased its jobs response, though still in the inelastic range. For every 1% increase in real GDP, U.S. CWS employment increased by 0.71%. This again, reinforces the argument above that it is, in fact, insufficient aggregate demand that is a drag on job growth and not "structural changes" (certainly not as a "first cause").

ii. Real Earnings by Industry (A Proxy for Output)

There are two problems with state GDP: the first is that it is annual, and the second is that the last available data is for 2011 so that no information for 2012 is available. A source of higher frequency series that provides more timely information on the State's economy, at least, through the first quarter of 2012 is from the State personal income series which is available on a quarterly basis. From the basic output-income identity we get:

$$\text{OUTPUT} = \text{INCOME}^{18}$$

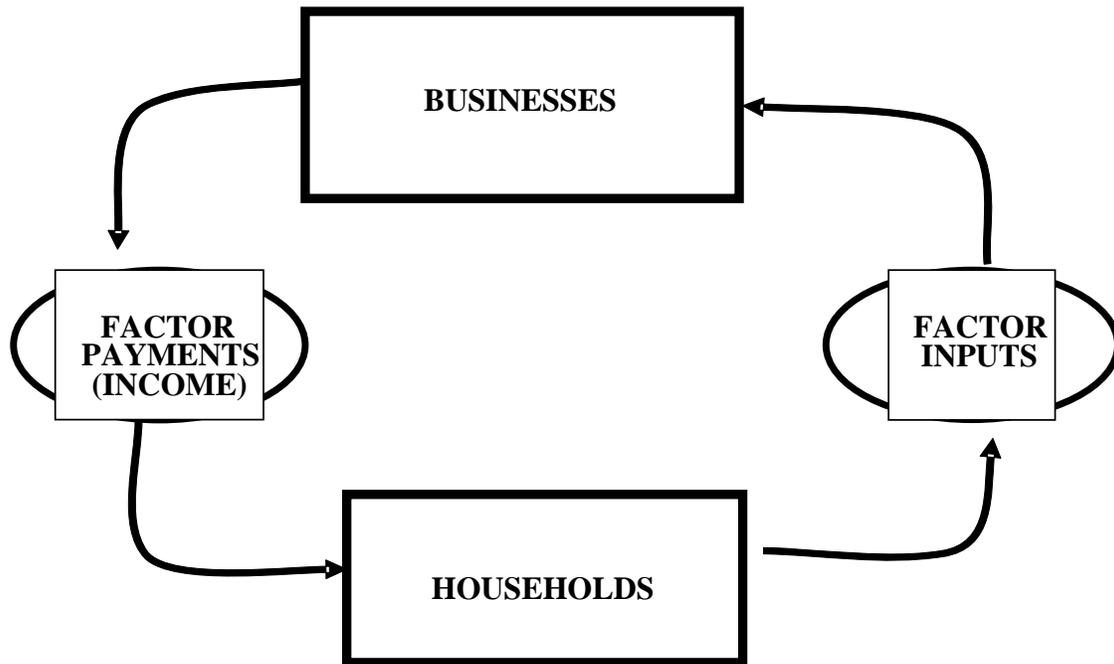
$$\text{Gross Domestic Product (GDP)} = \text{Gross Domestic Income (GDI)}$$

As illustrated in Figure 1, households provide factor-inputs to businesses (land, labor, and capital). Businesses, in turn, use factor-inputs to produce goods and services for sale back to households. Thus, for every dollar of output by businesses, there is one dollar of income received by households in payment for providing the factor-inputs to the production process, and therefore output equals income: two sides of the same coin.

¹⁸ In actuality, they will differ slightly because of the differences in sources and a statistical discrepancy, but also because GDP is recorded on an Accrual Accounting basis, and GDI on a Cash, or Disbursal basis.



FIGURE 1: Circular-Flow of Factor-Inputs and Factor Payments



SOURCE: CTDOL-Research (Figure drawn by author).

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Earnings by Place of Work or, *Earnings by Industry* represent the income earned by industries from selling their goods and services. As such, it is the flip side of the value of those goods and services they have sold. And, as illustrated in Figure 1, this implies that income earned from producing output can be used as a proxy for the value of output produced. And, in fact, earnings by industry is used as a proxy for output (i.e., GDP), at the state and regional level in order to get a more frequent and up-to-date, estimate of output, or GDP.¹⁹

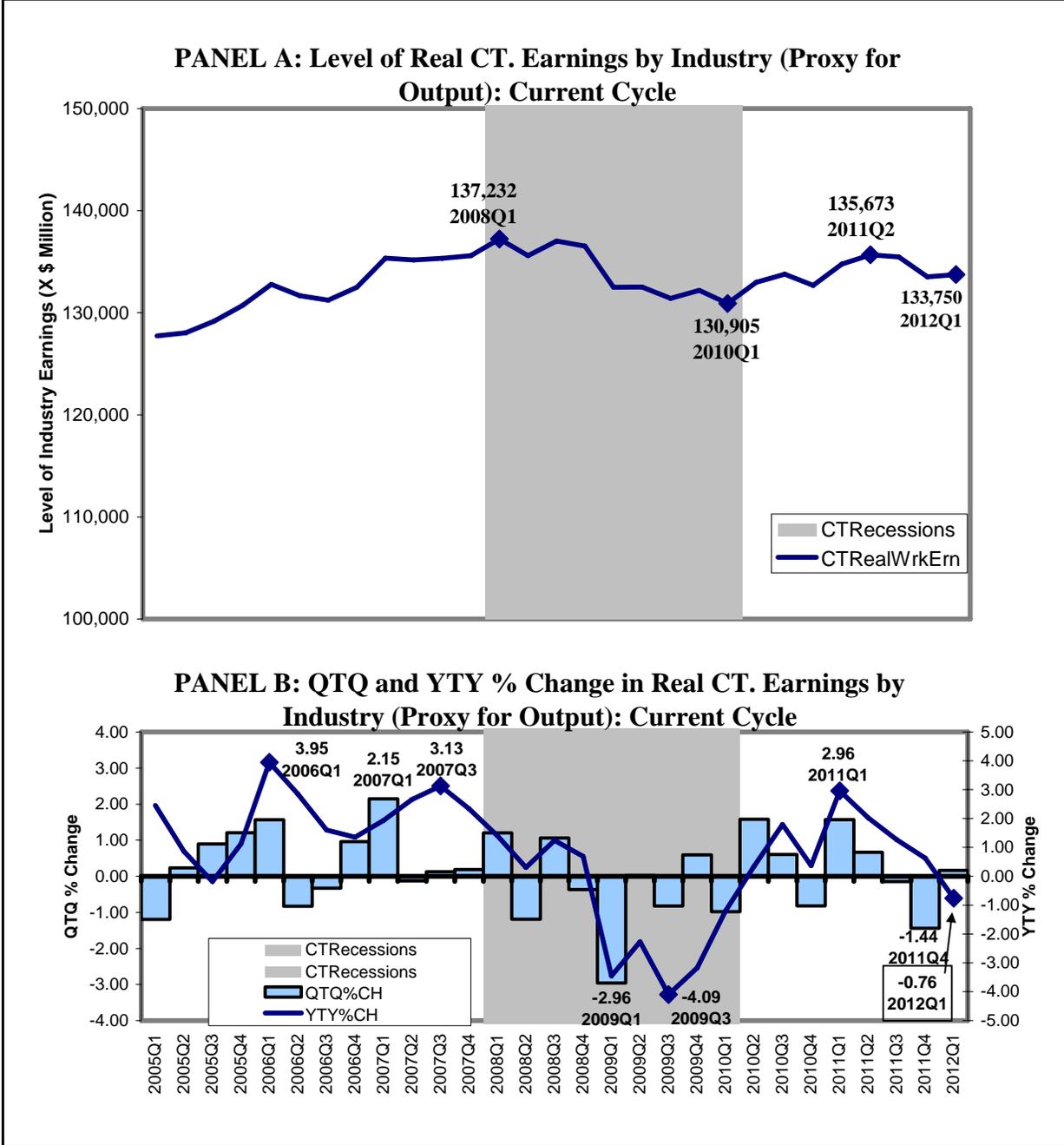
This subsection extends the analysis in the previous subsection on Connecticut State GDP. Using earnings by industry as a proxy for State GDP, this subsection turns to assessing the current and recent performance of Connecticut's output at the higher, quarterly frequency, and at a more up-to-date time frame: the first quarter of 2012. Graph 15 tracks Connecticut's earnings by industry over the current cycle from 2005Q1 to 2012Q1. Panel A depicts the level of earnings by industry, and Panel B shows the QTQ percent change, represented by the bars, and measured on the left vertical scale, and the YTY percent change represented by the line, and measured on the right vertical scale.

To obtain real earnings by industry, current-dollar earnings were deflated by the quantity index for Price Consumption Expenditures (PCE). The quantity index, rather than the price index, was used in order to reflect the use of the earnings series as a proxy for GDP, or output. The milestones in the level of earnings are marked with diamonds, and labeled in Panel A in Graph 15. Beginning in 2005Q1, the peak level of Connecticut's real earnings by industry (hereafter, "Real Industry Earnings"), over the last expansion, was \$137.2 billion in 2008Q1. Over the next eight quarters, or two years, Connecticut's real industry earnings fell by \$6.327 billion, or 4.61%, and bottomed at \$130.9 billion in 2010Q2. From that point on, real industry earnings began growing again, albeit weakly, increasing by \$2.845 billion or, 2.17% by 2012Q1. As of 2012Q1, the latest period of available data, the level of Connecticut's real industry earnings had only recovered to \$133.8 billion, which still left the level earnings down by \$3.482 from their peak in 2008Q1.

¹⁹ Brown (April 3, 2008).



GRAPH 15: CT. Real Earnings by Industry (Proxy for Output): 2005Q1-12Q1



SOURCE: U.S. BEA and author's calculations.

From Panel B, an interesting pattern emerges in the QTQ growth-rate, over the period around the peaking, and then popping, of the national housing bubble. It was the four quarters between 2005Q2 and 2006Q2 that Connecticut's industry earnings grew for four consecutive quarters, and accelerating growth at that. After declining for two quarters,



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industry earnings then had two QTQ bursts of growth, with the highest QTQ growth-rate, over the range of data in Graph 15, of 2.15%, in 2007Q1. The steepest decline in the QTQ growth-rate was during the recession period when real industry earnings declined by 2.96% in 2009Q1. In 2011Q4, earnings declined by 1.44%, on a QTQ basis, and growing at a weak 0.17% in 2012Q1.

The YTY growth-rate in Connecticut's real industry earnings is displaying a worrisome trend. From Panel B, after a YTY, peak growth rate of 3.95% in 2006Q1. Before the onset of recession, there was one more burst of strong YTY growth that culminated in a 3.13% growth rate in 2007Q3. From that point on, the YTY growth-rate rapidly decelerated, turning negative after the fourth quarter of 2008. The steepest YTY decline in real industry earnings was 4.09% in 2009Q3. From that point on, the YTY decline in earnings began to rapidly decelerate, turning positive after 2010Q1. The YTY growth rate accelerated until it peaked at 2.96% in 2011Q1. But, since then, the YTY growth-rate in Connecticut's real industry earnings has been rapidly decelerating over the last four quarters of available data. And, in 2012Q1, the YTY growth rate turned negative: earnings declined by 0.76%. As noted above, and as can be clearly observed in Panel B, of Graph 15, this is the identical pattern that the YTY growth rate in Connecticut's real industry earnings followed before the economy entered the last recession.

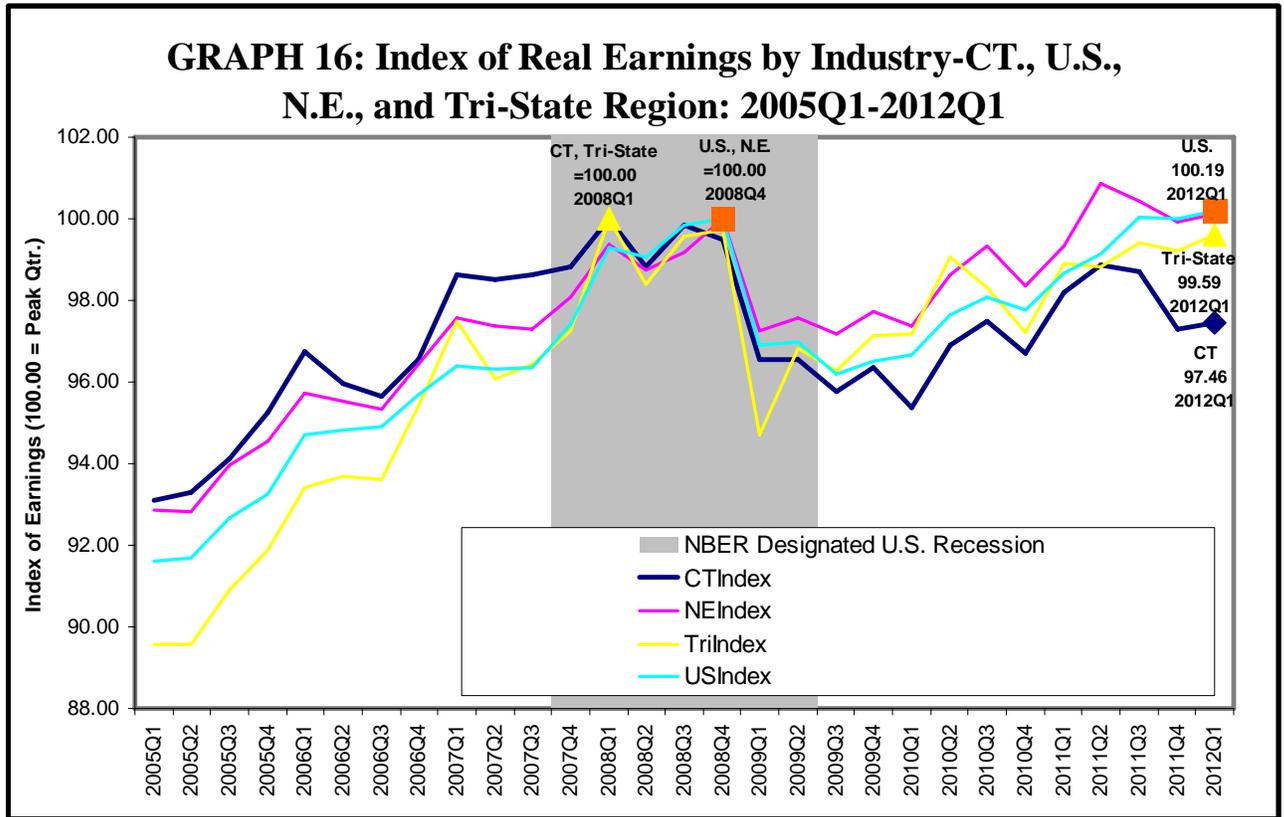
**HOW DOES THE CYCLICAL BEHAVIOR OF CONNECTICUT'S REAL
INDUSTRY EARNINGS COMPARE?**

Following the analysis of Connecticut's GDP performance in the previous subsection, and to get a sense of the relative impact the recent panic/recession, and current, struggling recovery has had on Connecticut's industry earnings, the State economy's performance is compared to that of the U.S. and the two regions compared above. Graph 16 presents an index of real industry earnings in order to compare earnings of different scales. The graph starts with the period 2005Q1, as the housing bubble was beginning to peak, and then pop, and then ends with the latest period of available data: 2012Q1. The index of Connecticut's real industry earnings is compared to indices for the U.S., New England



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(N.E.) and the Tri-State Region (Tri-State). The peak in earnings, over the previous expansion, is where each index series is equal to 100.00.



SOURCE: U.S. BEA and author’s calculations.

The peak in real industry earnings, over the previous expansion, for both Connecticut and the Tri-State Region, around New York City, was in 2008Q1. Both the U.S. and New England had their peaks in earnings three quarters later in 2008Q4, the quarter of the financial panic. What stands out in Graph 16 is the steep, upward slope to the index-series for the Tri-State Region over the 2005Q1-2008Q1 (its peak). In fact, real industry earnings for the Tri-State Region (Tri-State) grew by 11.66%, compared to 7.43% for Connecticut over this same period. Also, Connecticut’s growth in earnings is clearly stronger than that for the U.S. and New England (N.E.). However, as is also apparent, the Tri-State region’s decline in real industry earnings is steeper than that for Connecticut, the U.S., or N.E. And, it is clear that Connecticut’s growth in real industry earnings, over the current recovery, has been the slowest, compared to Tri-State, the U.S., or N.E. Both



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the U.S. and N.E. had index values slightly above 100.00 in 2012Q1, which implies that their level of real industry earnings has returned to their previous peak levels. Not so for Connecticut and the Tri-State Region. Though the Tri-State is close to its previous peak level, with an index value of 99.59, Connecticut's gap is significantly larger. In 2012Q1, Connecticut's index value was 97.46, implying that its real industry earnings level was still 2.54% below its previous peak level.

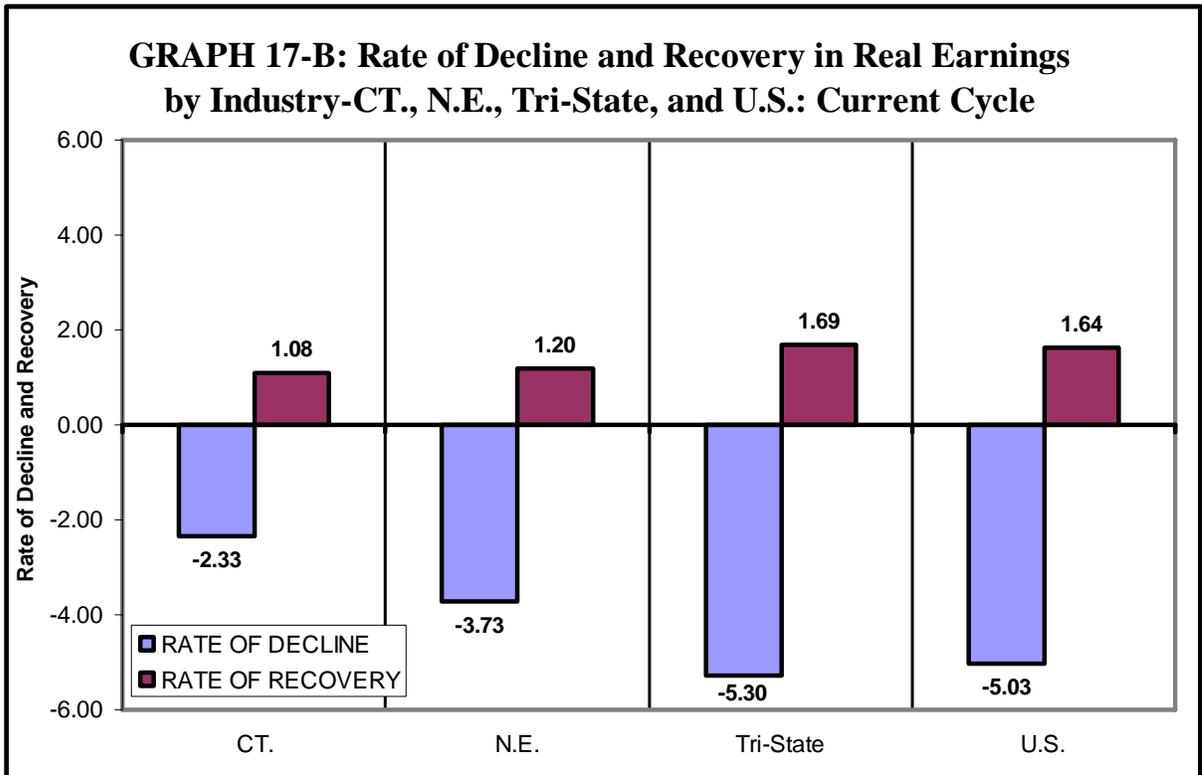
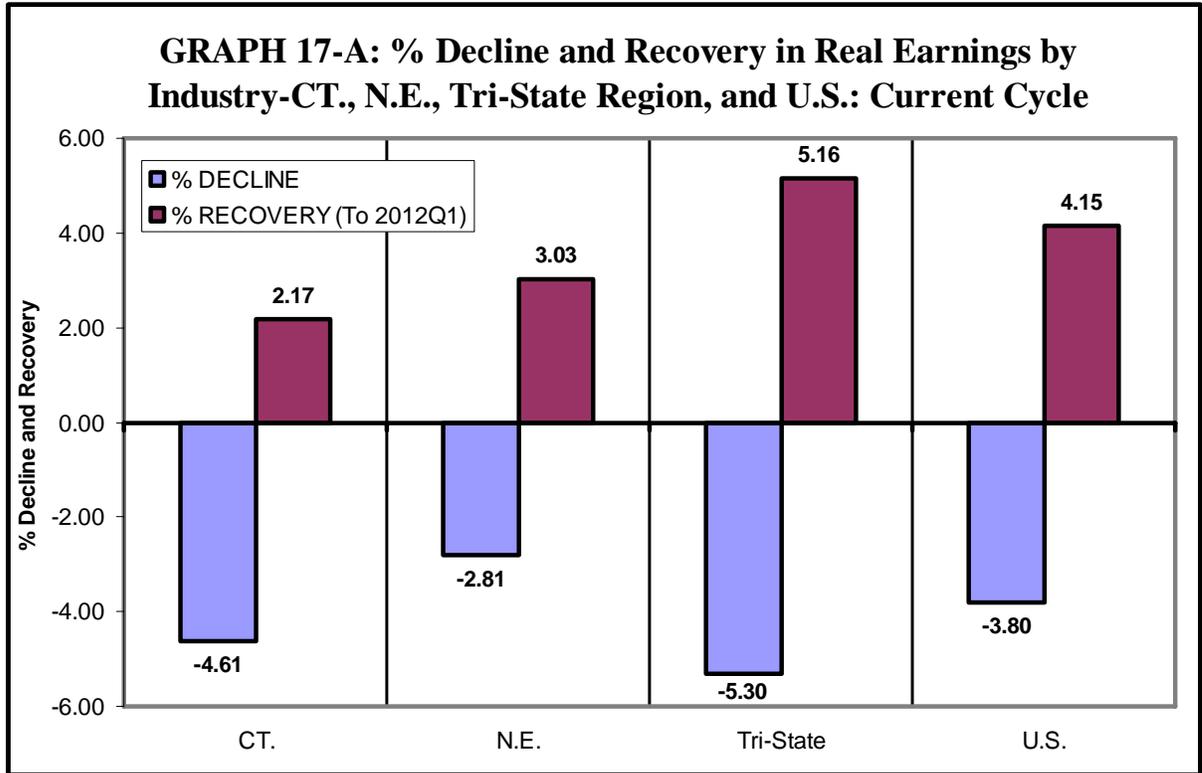
Graphs 17-A and 17-B provide some specifics on the results observed in Graph 16.

Graph 17-A presents the percent decline over the recent recession, and the percent growth over the current recovery, up to 2012Q1, of real industry earnings for Connecticut, New England, the Tri-State Region, and the U.S. As noted above, the Tri-State Region had the steepest decline in real industry earnings over the recent panic/recession, contracting by 5.30%. This was followed by Connecticut. Connecticut's real industry earnings declined by 4.61%. The U.S. had a 3.80% decline in earnings, while New England had the mildest decline, with real industry earnings falling by 2.81%. Reinforcing the results in Graph 16, from Graph 17-A, Connecticut has had the weakest growth in real industry earnings over the recovery period, up to 2012Q1. Earnings have only grown by 2.17%, the slowest of the areas compared in Graph 17-A. This is less than half the growth rate of the Tri-State Region (5.16%) and the U.S. (4.15%). Though New England's earnings growth has also been slow, at 3.03%, it still outpaced Connecticut.

However, as will be shown in Graph 18, not all areas had the same number of periods in which real industry earnings declined. So to get a standardized measure of the severity of the declines, as well as, the strength of the recoveries, across declines and recoveries of different lengths, Graph 17-B presents the compounded, annualized growth rates for each area compared. It turns out, from Graph 17-B, that Connecticut's real industry earnings contracted at a much slower rate than the other areas compared. Connecticut's earnings only contracted at one-half the rate of both the Tri-State Region, which declined at a compounded, annualized rate of 5.30%, and the U.S., which contracted at a 5.03% compounded rate. And, New England too had a more severe decline, with its earnings contracting at a 3.73% annualized rate.



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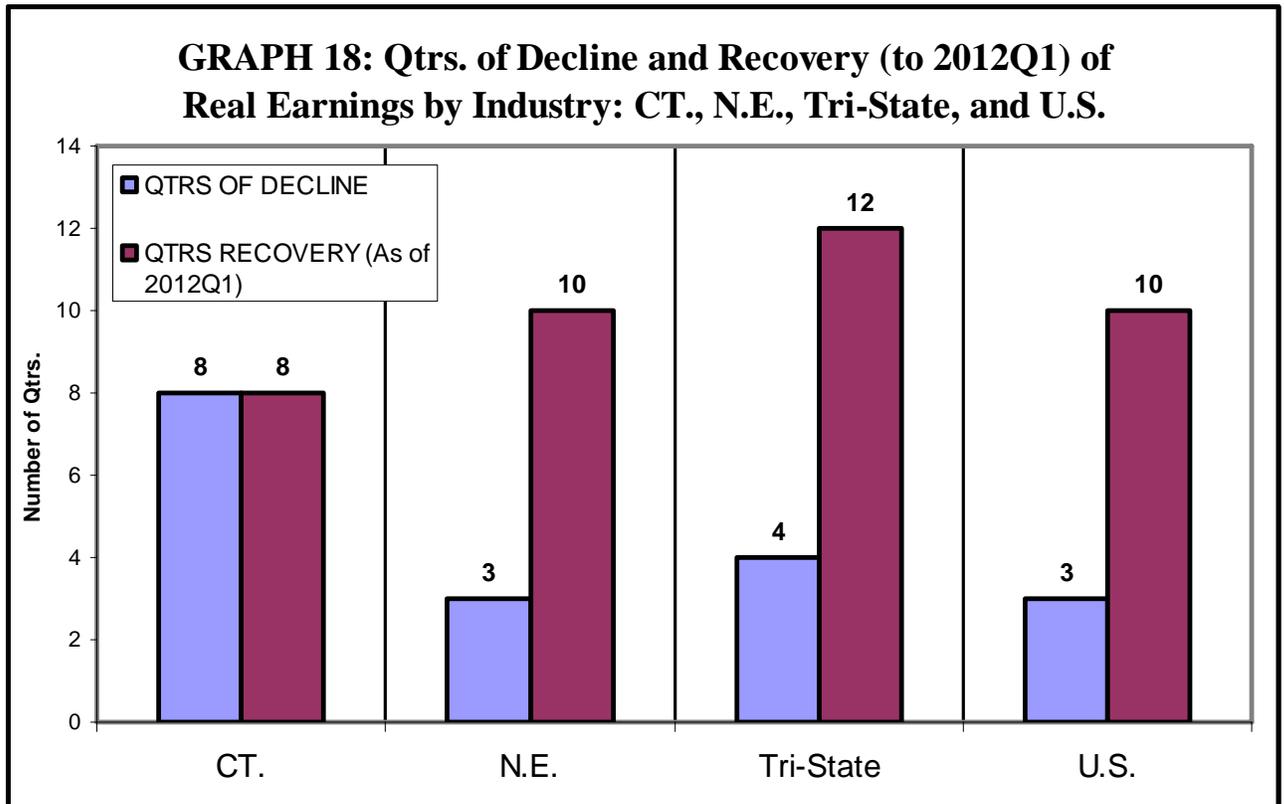


SOURCE: U.S. BEA and author's calculations.



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However, Connecticut's recovery in real industry earnings has been weaker, only growing at a 1.08% compounded, annualized rate, compared to 1.69% for the tri-state region, 1.64% for the U.S., and, though slower than the U.S. and Tri-State, New England still outpaced Connecticut at 1.20%.



SOURCE: U.S. BEA and author's calculations.

Finally, as shown in Graph 18, the duration of Connecticut's decline in earnings was longer, and its recovery in real industry earnings has been shorter. Connecticut's real industry earnings peaked in 2008Q1 and then declined for eight straight quarters, bottoming in 2010Q1. This was twice as long as the four quarters of decline for the Tri-State Region, and more than twice the duration of decline for New England (3 quarters) and the U.S. (3 quarters). And, after a longer decline, Connecticut's recovery in real industry earnings has been shorter than that for other compared areas. While Connecticut's earnings have been growing, albeit slowly, for eight straight quarters, the

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Tri-State region's real industry earnings have been in recovery for 12 quarters, and both New England and the U.S. have been in recovery for 10 quarters.

iii. CT Manufacturing Production Index (CMPI)

As noted in the introduction to Part A, above, GDP measures the goods and services produced over a given period, to meet *final demand*, but leaves out production to meet *intermediate demand* (i.e., industry goods and services produced for other industries, including themselves, who use this purchased output as inputs into the production of goods and services for final demand). As noted in Volume 1, industrial production is calculated on a Gross Output basis. That is, *Gross Output* (GO) includes, not only final demand, or GDP, but also the intermediate inputs used, in conjunction with the primary factors of production [land (natural resources), labor, and capital] to produce the goods and services to meet final demand. Thus, while the discussion of output, whether measured as GDP or industry earnings, was focused on the behavior of produced output to meet final demand in the broad economy. This section turns to focusing on a specific sector, but still an important sector, of the economy, and further, it focuses, not just on final demand, but on Gross Output (GO), that is total output, or the level of the sector's production of intermediate inputs *and* final demand.

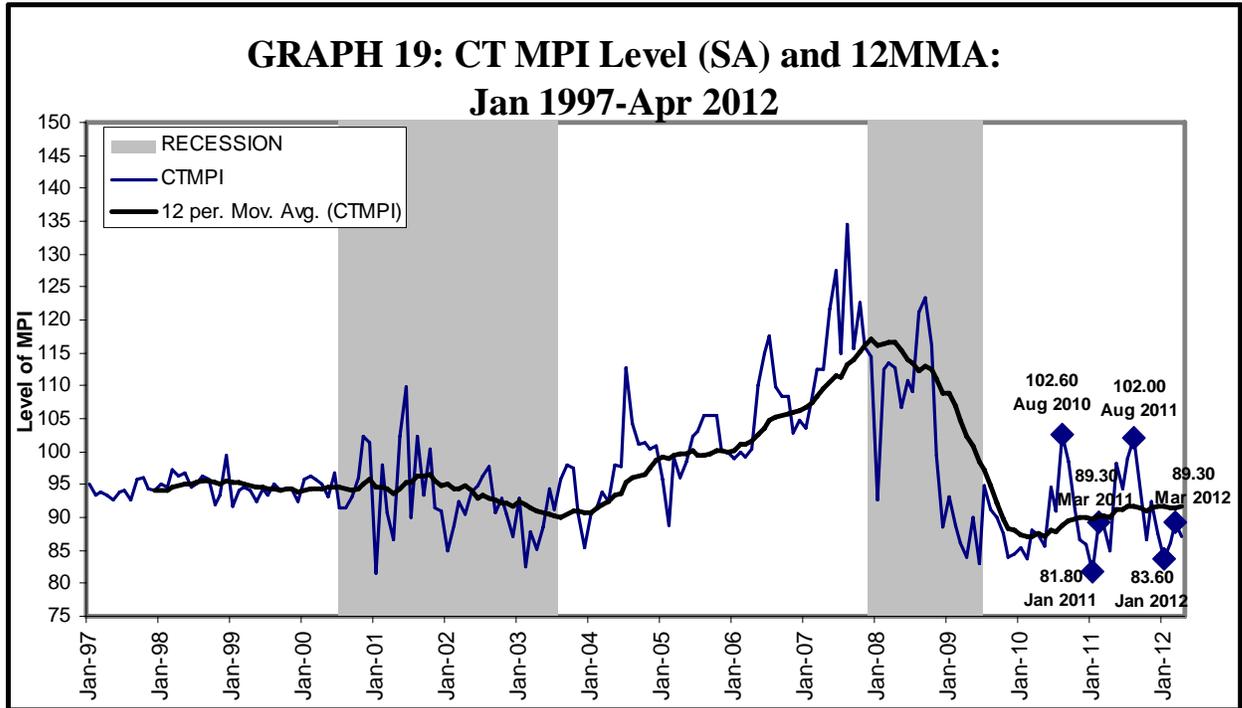
As also noted in the introduction to Part A, in the analysis in Volume 1, the Manufacturing Industrial Production Index (IPI) was used rather than the Total IPI, in order to control for weather, and other factors that might distort the signals the economy is sending about the underlying level of manufacturing output. The Connecticut counterpart to the U.S. Manufacturing IPI, produced by the Federal Reserve Board, is the Connecticut Manufacturing Production Index (CMPI) produced by the Office of Research of the Connecticut Department of Labor. .

Graph 19 tracks the Connecticut Manufacturing Production Index (CMPI), and the 12-month moving average (12-MMA) from Jan 1997 to the last period of available data, at



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the time of writing, April 2012. After strong growth over the 2004-08 expansion years, the CMPI plunged 33.66% over 28 months. As is apparent from Graph 19, this was a steeper and longer decline than the one that occurred with the onset of Connecticut’s 2000-03 recession, in which the CMPI contracted by 22.59% over 22 months.



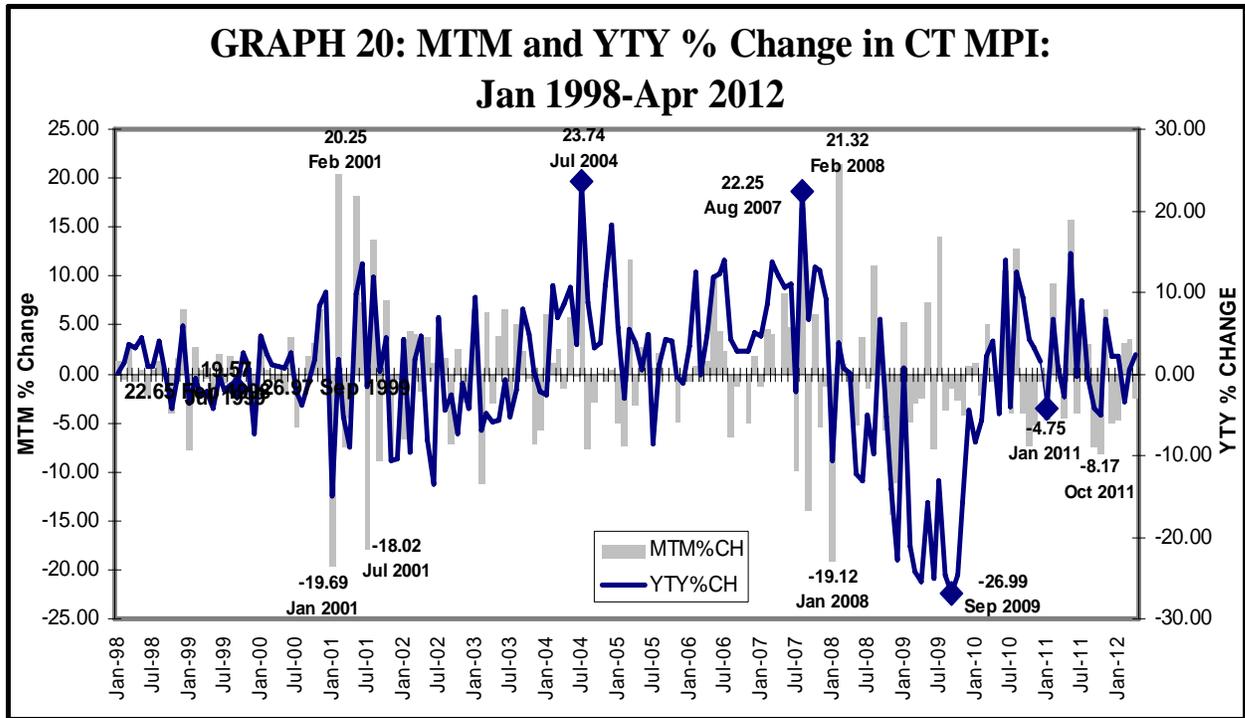
SOURCE: CTDOL-Research.

When putting both declines on a compounded, annualized rate so as not to compare the “apples and oranges” of different length contractions, and to assess the severity of the rates of decline over the two recessions, it actually appears that the rate of decline, though shorter, was steeper over the 2000-03 recession. It turns out that the CMPI contracted at a 35.42% compounded, annualized rate between June 2001 and January 2002, while it contracted at one-half that rate over the 2008-10 Connecticut panic/recession. Between September 2008 the month of the collapse of Lehman Brothers, and January 2011, the CMPI contracted at a compounded, annualized rate of 16.13%. However, the length of the decline was four times longer (28 months) over the 2008-10 recession, compared to the 2000-03 recession (7 months). In addition, the steepest Year-to-Year (YTY) decline was over the 2008-10 recession. This is illustrated in Graph 20, which shows the month-



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to-month (MTM), left vertical scale, and YTY percent change, right vertical scale, in the CMPI from January 1997 to April 2012.



SOURCE: CT DOL-Research and calculations by author.

From Graph 20, the steepest MTM decline was the 19.69% plunge in the CMPI in January 2001, but then the CMPI surged by 20.25% in February. Then it dropped another 18.02% in July. However, with the plunge-one-month, surge-the-next-month, pattern, each extreme basically cancelled out the other. The net result was that the YTY percent-declines never reached the depths they did over the 2008-10 panic/recession. The two strongest YTY growth rates were over the expansion/bubble period when the CMPI jumped 23.74% in July 2004, 22.25% in August 2007.

The MYM growth rate in the CMPI behaved exactly as it did upon entering the 2000-03 recession, as the Connecticut economy went into recession in the first few months of 2008. The 19.12% MTM plunge in January 2008 was followed by a 21.32% MTM surge in the CMPI in February. However, the final three months of 2008 (i.e., the fourth



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quarter) had three consecutive MTM declines in the CMPI, including -14.30% in November and -11.06% in December. Further, in eight of the 12 months of 2009, the CMPI had MTM declines. The result: as the MTM declines began to accumulate, the CMPI had its steepest YTY decline over the entire range of data in Graph 20 in September 2009, when it contracted by 26.99%, on a YTY basis. In fact, in eight of the 28 months of contracting output over the 2008-10 recession, the YTY decline in the CMPI exceeded 20%. Over the 2000-01 recession, the YTY decline in the CMPI exceeded 10% in three of the seven months of declining output, but never reached 15%.

The current state of manufacturing output in Connecticut, as of April 2012, could best be characterized as flat, or in a holding pattern over the last 17 months of data. From December 2010 to April 2012, the last period of available data at the time of writing, the level of the CMPI seems to have been in a very tight holding pattern. The index level has ranged from a low of 89.73 in January 2011 to a high of 91.78 one year later in January 2012. This is a range of 2.04 index points. The more volatile, unfiltered data, also suggests a flat trajectory for Connecticut's manufacturing output over the 17-month period. As presented in Graph 19, the seasonal bump in the CMPI in August is virtually the same for 2010 and 2011, with an index value of around 102 for both years. It is a similar pattern for the seasonal decline in January. Although the index value in January 2012, at 83.60, was slightly higher than the 81.80 value for January 2011, indicating that manufacturing output was 2.2% higher than it was one year earlier. But, the seasonal boost in the CMPI for the month of March was identical at 89.30 in both 2011 and 2012, indicating no change in manufacturing output. In summary, the data seem to be suggesting that the current state of manufacturing output for Connecticut, in the spring of 2012, is flat. That is, manufacturing output is neither growing nor contracting. It seems to be in a holding pattern.



B. INDICATORS OF AGGEGATE DEMAND AND AGGREGATE SUPPLY

This section turns to the signals sent by the economy through the aggregate demand and aggregate supply framework. The economy operates below its potential if the demand for the goods and services produced by the economy falls below the full-capacity level of its ability to produce. This results in what is called a positive *output gap*, that is full-employment GDP minus Actual GDP is greater than zero (i.e., $GDP_{FE} - GDP_{Act} > 0$). If actual GDP, the output of goods and services in the economy, is equal to GDP_{FE} then the output gap is zero, and the economy is operating at full capacity utilization (i.e., full employment). Finally, if the demand for goods and services exceeds the economy's ability to produce, then there is an *inflationary gap*, that is, the output gap is negative, as the excess demand merely drives up prices as the economy's capacity to fill the demand is constrained by insufficient supply. Thus, assessing the state of aggregate demand and aggregate supply, at the time of writing, can reveal important strengths and weaknesses in aggregate economy activity, which, in turn, can relay important information that, in turn, has important implications for the current state of the economy, and its likely trajectory over the forecast horizon.

Table 6 is a modified version of Table 1 in Volume 1-U.S. ECONOMIC OUTLOOK, which summarizes the indicators that are analyzed in assessing the current conditions in the U.S. economy. Since a number of the indicators available to assess the national economy are not available at the state level, Table 6 adds two columns that do not appear in Table 1. The last sub-columns, from the right, under the two major headings, "Aggregate Demand", and "Aggregate Supply" are titled "State Level?" and note whether of not the corresponding indicator is available at the state level. Those available are analyzed in the next two subsections to gauge the current state of Connecticut's economy. Part i looks at the indicators of aggregate demand and Part ii looks at the indicators of aggregate supply.



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TABLE 6: Indicators of Aggregate Demand and Aggregate Supply Conditions Available at the State Level

AGGREGATE DEMAND			AGGREGATE SUPPLY		
COMPONENT/FACTOR	SECTOR/MARKET	STATE LEVEL?	COMPONENT/FACTOR	SECTOR/MARKET	STATE LEVEL?
Consumer Spending	Household Sector	Partially	Capacity/Utilization	Physical Capital Stock	No
Business Activity	Business Sector	Limited	Labor	Human Resources	Yes
Government Spending	Public Sector	Yes	Imports	Foreign Sector	Partially
Export Demand	Foreign Sector	Yes, but Limited	Productivity	Factor Utilization	Limited



i. AGGREGATE DEMAND

This section focuses on the left side of Table 6, the components of Aggregate Demand (AD). Under the “Component/Factor” column (first column from the left), under the “Aggregate Demand” heading, left side of Table 6, the first component of AD listed is “Consumer Spending”. The next column lists the sector driving that component as the “Household Sector”. Finally, the third column from the left, headed “State Level?” indicates whether or not this particular indicator is available at the state level. As noted in the entry for the availability of state-level indicators of consumer spending, this information is partially available. Personal Income, produced and published by the U.S. Bureau of Economic Analysis (BEA), and available at the quarterly frequency, is available at the state level. However, there is no state level counterpart to Personal Consumption Expenditures (PCE), also produced by the U.S. BEA, which is available on a quarterly basis, but only at the national level. To try to “back into” consumer spending, at the state level, Retail Sales-Tax Revenue will be used in lieu of the PCE series. The first indicators of current economic conditions of Connecticut that are assessed are those that gauge the ability of the State’s Households to spend. It is because consumer spending is the largest component of aggregate demand, that it is discussed first. Next, in the U.S. OUTLOOK came an assessment of the most volatile component of aggregate demand, investment demand. However, note that in Table 6, this sector is labeled “Business Activity” rather than “Investment Demand” (as it is in Table 1). This is because there is no state counterpart to the U.S. BEA’s investment demand component of the National Income and Product Accounts (NIPA) at the state level, and therefore, is no regularly produced and published data on business investment demand at the state level. Nevertheless, there is some data available for assessing the current conditions of Connecticut’s business sector. The Business Sector Economic Scorecard, as well as selected component-series is available at the Connecticut Labor Department’s webpage for Labor Market Information (LMI) and provides some data on the State’s business sector, which is discussed in the business activities component of AD below. The third component of aggregate demand, in Table 6, is public sector spending by the government sector. As indicated in Table 6, data on government spending is available at the state

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level government revenues and expenditures for state and local governments are available from the U.S. Census Bureau. And, specifically for Connecticut, government fiscal data are available from the Department of Revenue Services, the Office of Policy and Management, and other agencies of the Executive Branch, the Office of Fiscal Analysis in the Legislature, the New England Economic Indicators (NEEI) website of the Boston Federal Reserve Bank, and non-profit sources such as the Connecticut Council of Municipalities. The fourth and final component, of AD is foreign demand, which is the export sector, that is, foreign demand for domestically-produced goods and services. There is limited data on Connecticut exports available at the Boston Fed's NEEI Website.

1. INCOME AND SPENDING (Household Sector)

Households' consumer demand is based on their ability and willingness to buy. As noted in Volume 1-U.S. OUTLOOK, surveys attempt to capture consumers' willingness to buy through consumer-confidence surveys. There are various opinions as to how well these surveys actually capture consumer confidence, or how much of a relationship actually exists between consumer confidence and their actually going out and spending. Two of the most well-known consumer confidence surveys are those put out by the University of Michigan and the Conference Board. However, these surveys do not capture this information at the state level on a regular basis. Like for the U.S. Outlook, this section focuses on consumers' ability to buy. However, this section, unlike its counterpart in Volume 1, will focus exclusively on various measures of household income and spending patterns from the flow-concept approach, since data on households' balance sheets, from the stock perspective, are not available at the state level. The Federal Reserve's Flow-of-Funds produces data on sectoral balance sheets at the national level only.

The most widely available income data available at the state, regional, and local levels is the State and Local Personal Income series produced and published by the U.S. BEA. This section looks at the Quarterly Personal Income series (QPI) produced by BEA for the U.S., the states, and regions.



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The first support for consumer spending investigated is income, specifically residence-based income, and Personal Income (pi) minus Transfer Payments (PI-Transfers). Then Disposable Personal Income (DPI) is considered.

QPI/Component	2008-10 Panic and Recession						Current Recovery to 2012Q1 (10 Qtrs)		
	PEAK	TROUGH	QTRS	CHANGE	% CHANGE	CompAnnRate	CH to 2012Q1	% CHANGE	CompAnnRate
CT. QPI	2008Q1	2009Q3	6	-15,748	-6.65	-4.48	17,623	9.40	3.66
PI-Trans	2008Q1	2009Q3	6	-18,593	-10.31	-7.00	15,898	9.95	3.87
NetResEarn	2008Q1	2009Q3	6	-9,062	-6.68	-4.50	11,041	8.86	3.46
DIR	2008Q3	2009Q3	4	-9,824	-21.88	-21.88	4,855	13.81	5.31
Transfers	-----	-----	6	5,106	22.55	14.52	1,725	6.22	2.44

SOURCE: U.S. BEA and author's calculations.

Table 7 presents Connecticut's Quarterly Personal Income (QPI) from the residence-based perspective. The data in Table 7 are all current-dollar values. That is, there is no adjustment for changes in prices. There are two major headings: "2008-10 Panic and Recession" and "Current Recovery to 2012Q1 (10 Qtrs.)". Under "2008-10 Panic and Recession", the quarter of each component's peak over the previous expansion is in the first column (from the left), the quarter of the recession trough is in the next column (moving left-to-right), the number of quarters of decline is in the third column. The fourth column, from the left, gives the change, in \$billions, the fifth column provides the percent-change, and the last column under the subheading gives the compounded, annualized rate of change to adjust for differences in the number of quarters of decline. Under the heading "Current Recovery to 2012Q1", the first column, from the left, gives the change in QPI and its component from the trough to 2012Q1. The second column (left-to-right) gives the percent-change over the current recovery, and the last column gives the compounded, annualized rate.

The first thing to note from Table 7 is that the declines in CT QPI, and its residence-based components, especially when adjusted for differences in duration, were much steeper than the rate of recovery. CT QPI declined at an annualized rate of 4.48%, between 2008Q1 and 2009Q3, but has recovered at a slower pace of 3.66%, up to 2012Q1. This result is even more pronounced if Transfer Payments are subtracted from QPI to yield PI-Transfers. This indicates how steep the decline in income would have

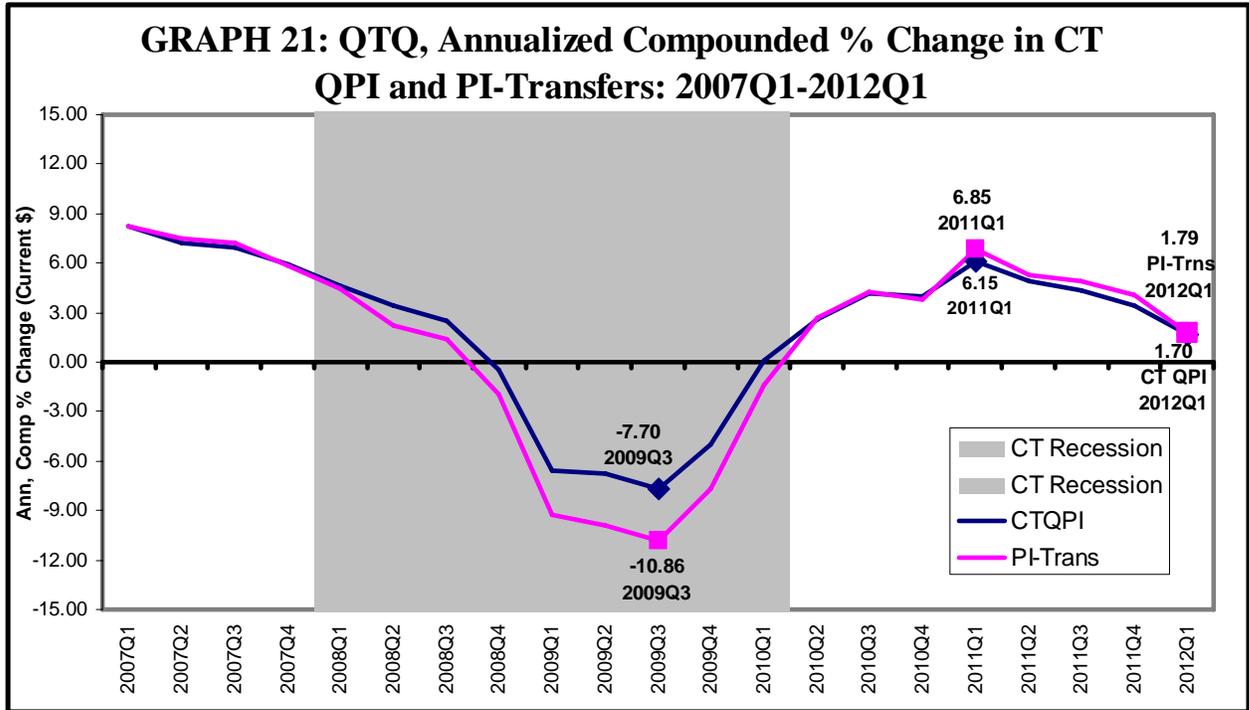


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been over the panic/recession period without the safety net supports of Transfer Payments, which also serve as automatic stabilizers to cushion the decline in income, and therefore, spending in the economy, which serves to lessen the severity of an economic downturn. PI-Transfers declined by \$18.6 billion, or 10.31%, over the six quarters between 2008Q1 and 2009Q3. However, over the 10 quarters of recovery between 2009Q3 and 2012Q1, Connecticut's economy, so far, has only regained \$15.9 billion, or 9.95% of the income lost over the recession. Thus, as of 2012Q1, Connecticut's current-dollar, PI-Transfers is still 2.74% below its peak level of the previous expansion in 2008Q1. This pattern of strong decline, followed by weaker growth for CT PI-Transfers is even more apparent when looking at the annualized, compounded growth rate. PI-Transfers declined at an annualized rate of 7.00% between 2008Q1 and 2009Q3. However, between 2009Q3 and 2012Q1, it has only recovered at a rate of 3.87%.

Also apparent from Table 7 is the floor that Transfer Payments put under the fall in QPI. Over the 2008Q1-2009Q3, six-quarter period in which CT QPI declined, Transfer Payments increased by \$5.1 billion, or 22.55%, which translates into a compounded, annualized growth rate of 14.52%. This growth had slowed considerably as the recovery has slowly proceeded. From 2009Q3 to 2012Q1, Transfer Payments have grown one-third as much, by \$1.7 billion, or 6.22%. This translates into an annualized growth rate of 2.44%, one-seventh the rate over the 2008Q1-2009Q3 recessionary period. The importance of the transfer-payment cushion is illustrated in Graph 21. The largest gap between the quarter-to-quarter (QTQ), compounded, annualized growth-rate in CT QPI and PI-Transfers occurred in 2009Q3, the trough in the contraction in Connecticut's residence-based income over the recent recession. CT QPI contracted at a rate of 7.70%, but PI-Transfers contracted at a rate of 10.86%. Without Transfer Payments, income, and therefore spending, would have dropped even more than they did over the panic/recession period had it not been for the cushion of transfer payments. As the recovery has proceeded, slow as it has been, the gap between the growth rates of CT QPI and PI-Transfers has closed up. In 2012Q1, PI-Transfers actually grew slightly more strongly than CT QPI. PI-Transfers grew by 1.79%, while CT QPI grew by 1.70%, on a compounded, annualized basis.



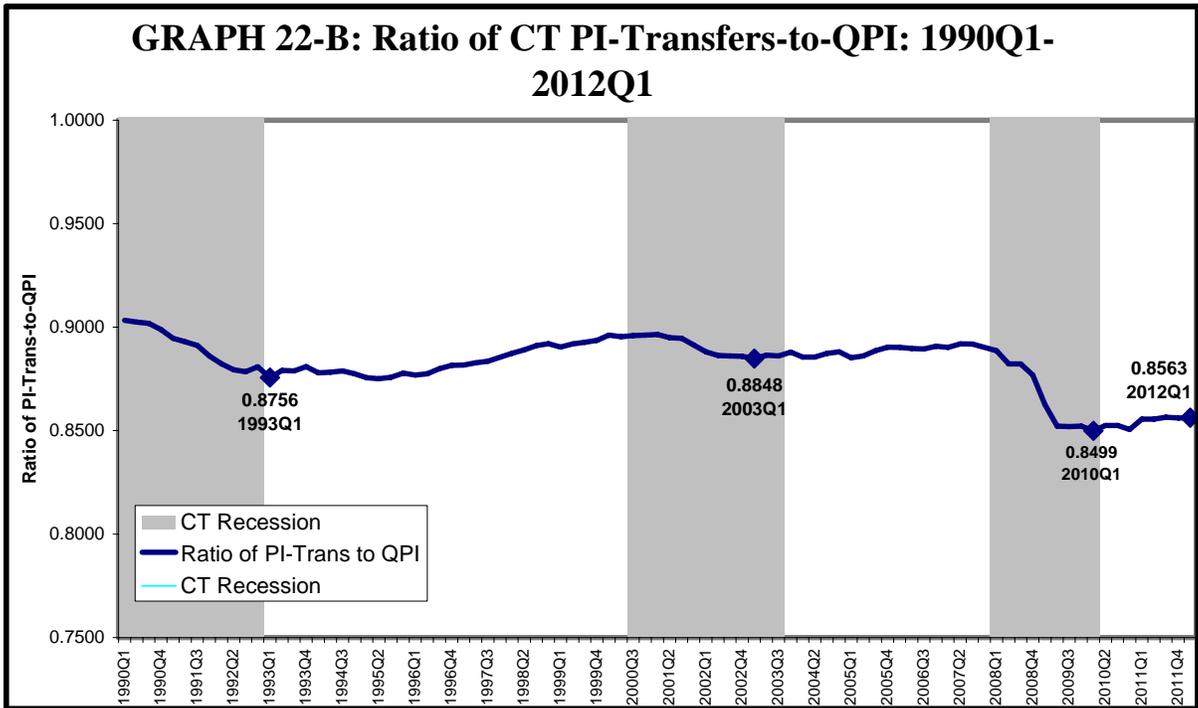
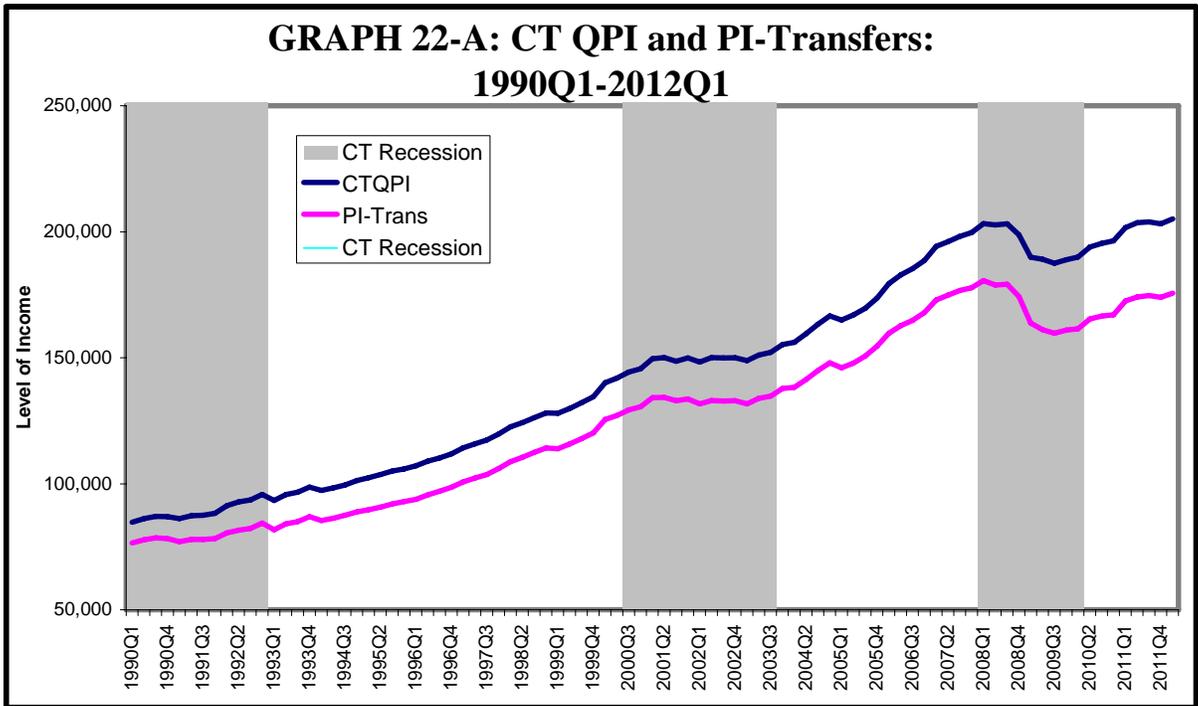


SOURCE: U.S. BEA and author's calculations.

Because of the severity of the recent panic and recession, the support from Transfer Payments, has been much greater compared to past post-Cold War recessions. This is illustrated in Graph 22-A and Graph 22-B. Graph 22-A tracks the levels of CT QPI and CT PI-Transfers from 2009Q1 to 2012Q1. As can be seen, the gap between the two becomes much larger with the onset of the recent financial panic and recession, implying much greater support from Transfer Payments over the business cycle compared to the two previous recessions in the post-Cold War era. However, this could be an optical illusion created by the different scales of the data at the opposite ends of the horizontal scale. That is, current-dollar CT QPI in 2012Q1 was 2.5 times its scale in 1990Q1. To account for this, Graph 22-B plots the ratio of PI-Transfers to CT QPI. And, in fact, the ratio of PI-Transfers to CT QPI has dropped significantly over the current cycle. It declined to 0.8499 in 2012Q1, the lowest value over the entire range of the data. Further, by 2012Q1, it was still only 0.8563, lower than even the recession period values of the 1989-92 or 2000-03 recessions. Thus, transfers were critical to keeping the bottom from falling out of household spending over this cycle.



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SOURCE: U.S. BEA and author's calculations.

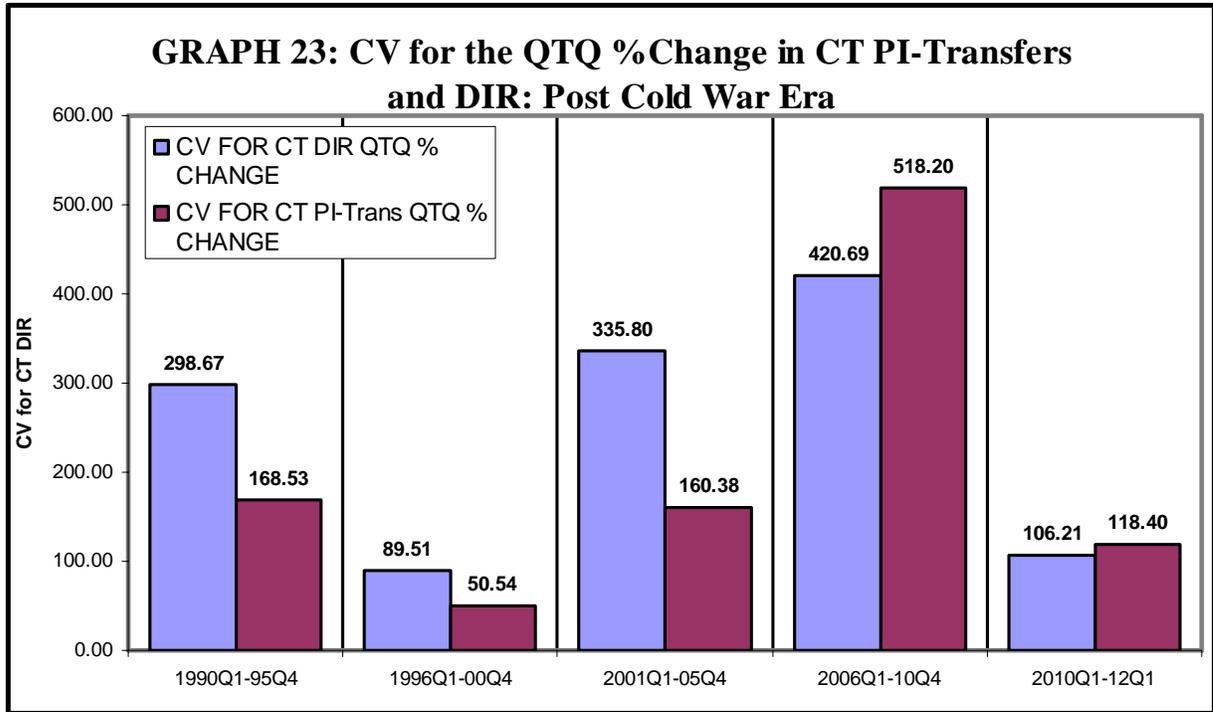


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Slightly less than one-half of the decline in PI-Transfers over the 2008Q1-2009Q3 recession period was Net Earnings by Residence (Residence Earnings), which declined by \$9.1 billion, or 6.68%, which translates into an annualized rate of 4.50%. Thus, residence earnings did not decline as steeply as PI-Transfers. However, it has recovered more slowly than PI-Transfers. Because of its sheer size, residence earnings has accounted for \$11.0 billion of the \$15.9 billion in the growth of PI-Transfers from 2009Q3 to 2012Q1. Nevertheless, it has grown by 8.86%, compared to 9.95% for PI-Transfers. This translates into a 3.46% compounded, annualized growth rate for residence earnings, compared to 3.87% for PI-Transfers.

Dividends, Interest, and Rent (DIR) has made outsized contributions to both, the decline over the recession, and the gains, over the recovery, to the growth in PI-Transfers. Up until the current cycle, DIR has been the most volatile component of residence-based income. As illustrated in Graph 23, that changed over the current cycle. Even though the 1990-95 and 2000-05 periods contained recessions, and the 2006-10 period included the expansion, and then Tech Bubble of the late 90's, the volatility of the QTQ percent change, as measured by the Coefficient of Variation [$CV = (SD/Mean) \times 100$], exceeded that of PI-Transfers until the two post-2005 periods, 2006Q1-2010Q4 and 2010Q1-2012Q1. With the popping of the Housing Bubble, the decline in the stock market, in conjunction with historically-low interest rates with the onset of the financial crisis, the CV for PI-Transfers has exceeded the CV for DIR for the first time in the post-Cold War era. Nevertheless, the CV for DIR, over the 2006Q1-2010Q4 period was higher than for any other period on Graph 23. Though the volatility for both PI-Transfers and DIR has declined significantly over the 2010Q1-2012Q1 recovery period, the volatility of both is now quite similar. This volatility is reflected in the data in Table 7. CT DIR declined by \$9.8 billion, or 21.88% over the four quarters between 2008Q3 and 2009Q3. Being exactly one year, the compounded, annualized rate is the same. Though DIR started to decline two quarters after the rest of CT residence-based income, and declined for four quarters, compared to six, for the rest of the components of residence-based income, its decline was much steeper. However, the recovery in DIR has been the strongest of the residence-based components of Connecticut income.





SOURCE: U.S. BEA and author's calculations.

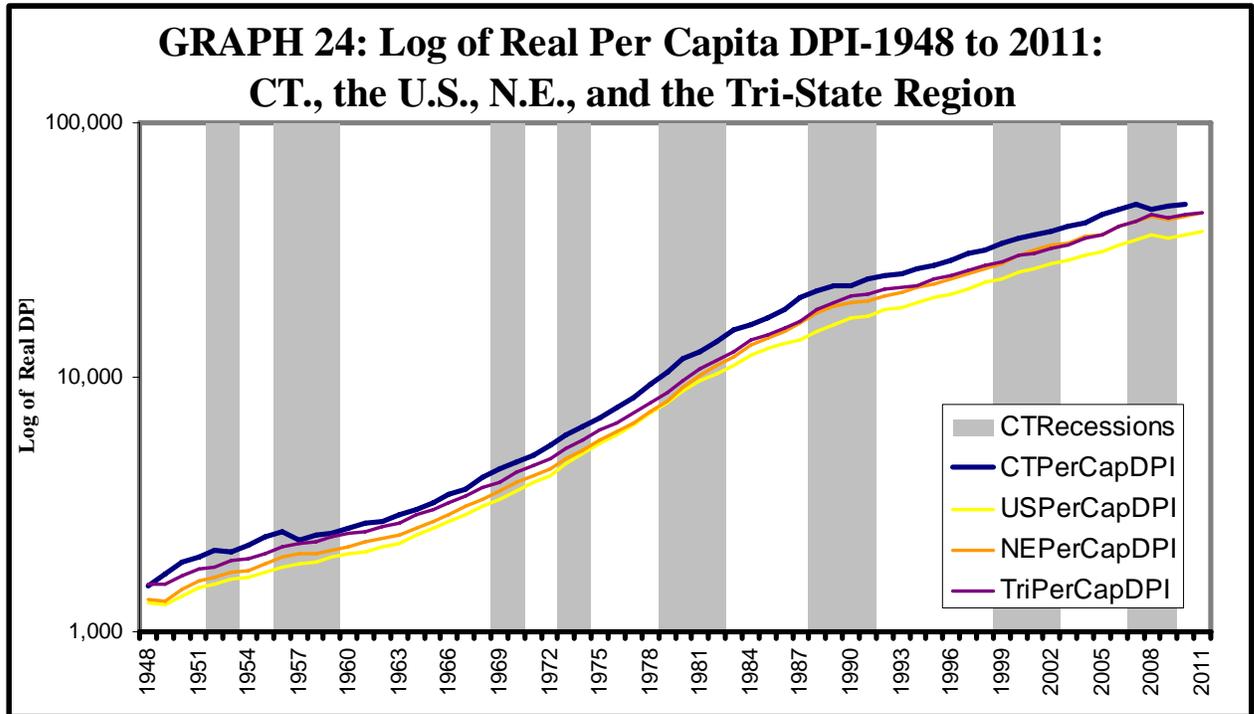
CT DIR has grown by \$4.6 billion, or by 13.81%, over the current recovery. This translates into a 5.31% compounded, annualized growth rate, stronger than the growth rate of any other residence-based component. As of 2012Q1, CT DIR was at \$40.006 billion, or about 88.6% of its peak value in 2008Q3, one quarter before the financial crisis, which means it was still 11.4% below that level.

In the final analysis, the critical factor for consumer spending is *Disposable Personal Income*. Disposable Personal Income (DPI) is defined as:

$$\text{DPI} = \text{Income} - \text{Taxes} + \text{Transfer Payments}$$

In particular, real DPI (adjusted for prices) is the key to consumers' spending power. Graph 24 tracks real per capita DPI for Connecticut (CT), the U.S., New England (N.E.), and the Tri-State region (Tri-State) from 1948 to 2011, with a two-cycle log scale on the vertical axis. DPI at the state and regional level is only available at the annual frequency. At the time of writing, the last release from the U.S. BEA, in June 2012,



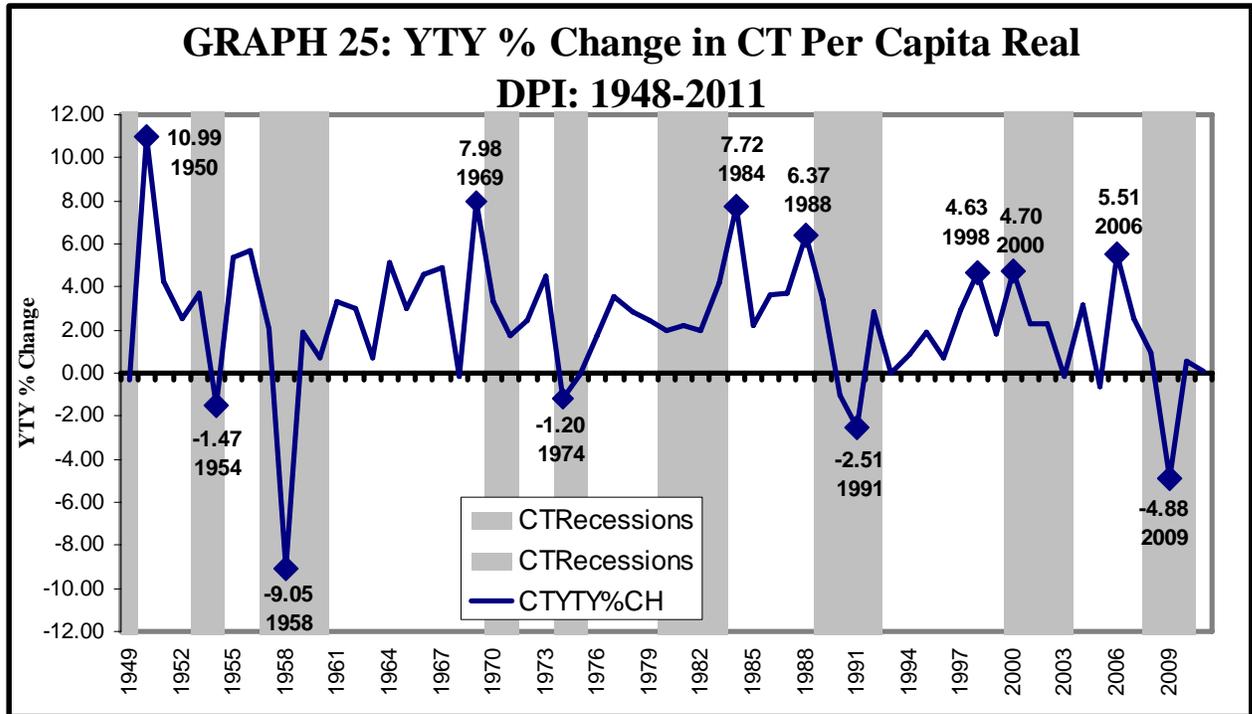


SOURCE: U.S. BEA and author's calculations.

Connecticut's real per capita DPI²⁰ exceeded that of the U.S., N.E. and Tri-State after World War II, given Connecticut's large defense sector in manufacturing, the Korean War boosted its real DPI. However, the State's economy took a hit after the cutbacks in defense spending after the Korean War, and from the effects of the 1957-58 recession. As a result, Connecticut's real DPI fell below that of the Tri-State until the Vietnam War, when again, defense boosted the State's economy and real DPI and it once again passed above the real DPI of Tri-State. However, through this whole period, Connecticut's real per capita DPI never fell below that of N.E. or the U.S. Graph 25 presents some more insight into Connecticut's real per capita DPI over the post-World War II era. The YTY, percent over the period covered in Graph 24 is presented for Connecticut. Some of the points suggested in Graph 24 are accentuated in Graph 25.

²⁰ Real Per Capita DPI was obtained by dividing Current-Dollar Per Capita DPI by the U.S. PCE Price Index.





SOURCE: U.S. BEA and author's calculations.

Reflecting the boost from Korean War spending, noted above, Connecticut's real per capita DPI had its strongest annual growth rate over the entire post-World War II era: CT real per capita DPI jumped 10.99% in 1950.

With the end of the Korean War and the onset of the 1953-54 recession, Connecticut's real per capita DPI contracted by 1.47% in 1954. But, the steepest contraction in CT real per capita DPI came during the 1957-58 recession when it contracted by 9.05%, the steepest decline over the entire post-World War II period, including the recent panic/recession. At this point, CT's real per capita DPI fell below that of the Tri-State region, but remained above that of the U.S. and N.E. The Vietnam War reenergized the State's defense-based economy with per capita DPI surging 7.98% in 1969, the second largest YTY growth rate in the post-World War II period. At that point, CT's real per capita DPI once again, passed above that of the Tri-State region. And, as noted, it had always remained above that of the U.S. and N.E.



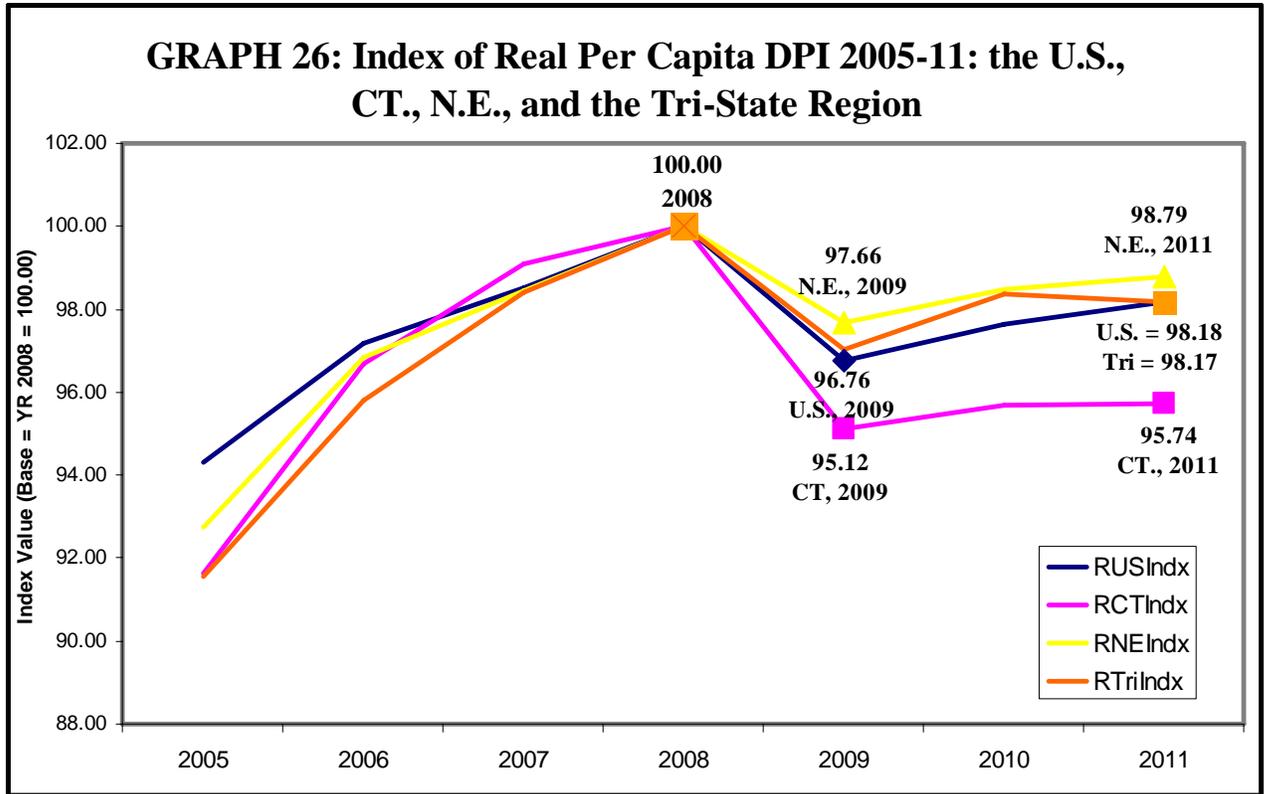
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The last decline until the 1989-92 recession was the 1.20% decline in 1974 following the oil embargo and recession after the Yom Kippur War in October 1973. The 1980's had two surges in CT real per capita DPI, 1984 (+7.72%), driven by the Reagan defense build up, which had a huge impact on Connecticut's growth in the 1980's (again, due to the State economy's large defense sector), and another spurt in 1988 (+6.37%) in the final phase of the 1980's real estate bubble. With the end of the Cold War and cutbacks in defense, the collapse of the real estate bubble, and subsequent restructuring of Hartford's insurance industry, Connecticut's economy went into free-fall. In 1991, real per capita DPI fell 2.51%, the second-largest YTY percent-decline until the recent crisis/recession.

As the financial sector grew in size, both absolutely and relative to the size of the U.S. economy, the financial sector's growth in size and share was even greater for Connecticut. By the late 1990's, with hedge funds growing in numbers and size in Fairfield County, the financial sector (especially the growth in reinsurance in Stamford, and the growth in hedge funds in Greenwich), contributed significantly to the 4.63% growth in real per capita DPI in 1998. With the collapse of especially Long-Term Capital Management (LTCM), which was located in Greenwich, growth decelerated until the surge of 4.70% in 2000 as the Tech Bubble was collapsing. After its peak growth of 5.51% over the early 2000's expansion, in 2006, again, driven by the financial-services sector, followed by the collapse of the Housing Bubble and the financial crisis following the collapse of Lehman Brothers, Connecticut's growth rate in real per capita DPI began to decelerate rapidly, and then plunged by 4.88% in 2009, which now stands as the second-largest decline behind the 9.05% decline in 1958, over the post-World War II Era. Further, the recovery from the recent crisis/recession has been weaker than the recoveries in past cycles. Even the 1958 plunge was followed by a fairly robust rebound.

Graphs 26 and 27 focus on the behavior of Connecticut's real per capita DPI over the current cycle, particularly compared to the U.S., New England (N.E.), and the Tri-State Region (Tri-State).

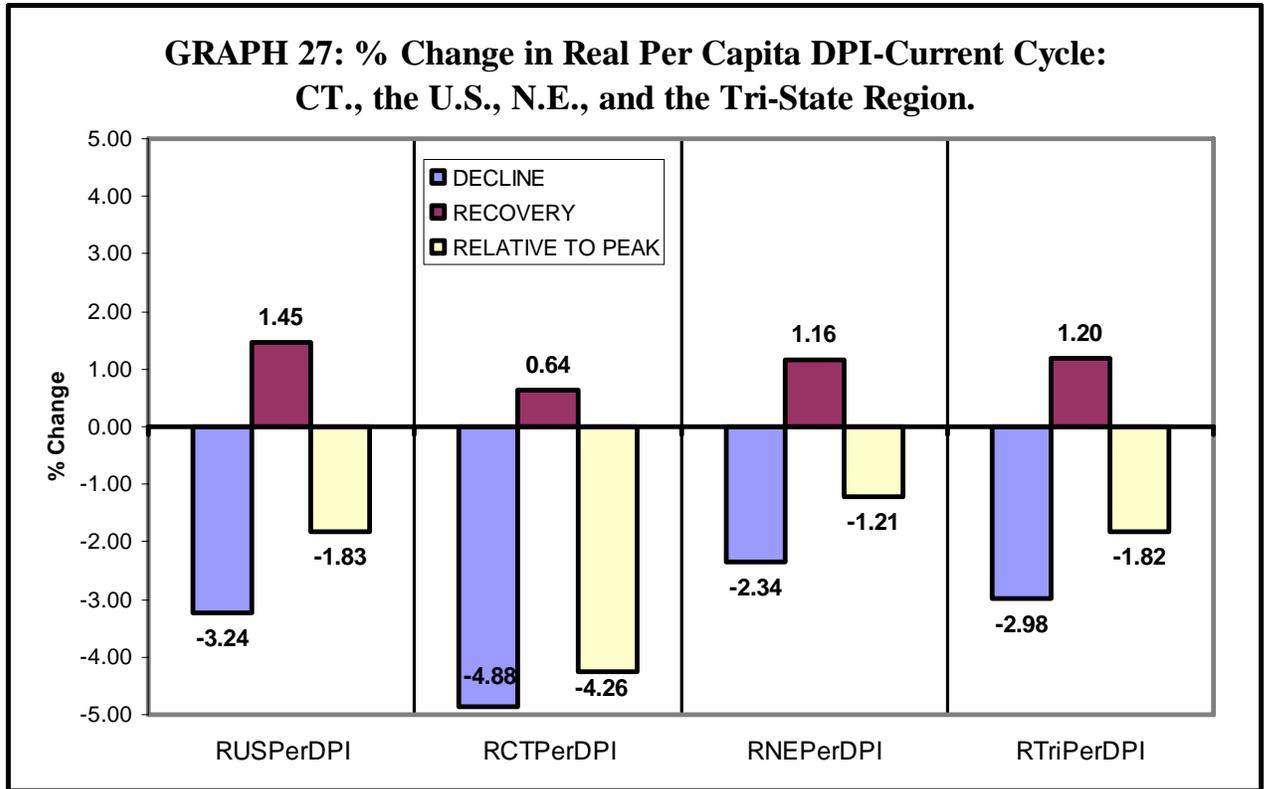




SOURCE: U.S. BEA and author’s calculations.

Graph 26 plots an index of real per capita DPI for a given period to its value in the base year, which in this case is 2008, the year of the Financial Panic. The index value for CT, the U.S., N.E., and Tri-State are tracked from 2005, the year the Housing Bubble began to pop, to 2011, the latest period of available data, at the time of writing. For all index series, 2008, the base year, is equal to 100.00. As is clear on Graph 26, CT real per capita DPI had the steepest decline over this cycle compared to the U.S., N.E., and Tri-State. From 100.00 in 2008, CT’s index value fell to 95.12 in 2009, compared to 97.66 for N.E., 97.02 for Tri-State, and 96.76 for the U.S. Further, by 2011, two years after the low point in the index values, CT’s index for real per capita DPI had only recovered to 95.74, compared to 98.79 for N.E., 98.18 for the U.S., and 98.17 for Tri-State. The resultant percent changes over the stages of the cycle are depicted in Graph 27.



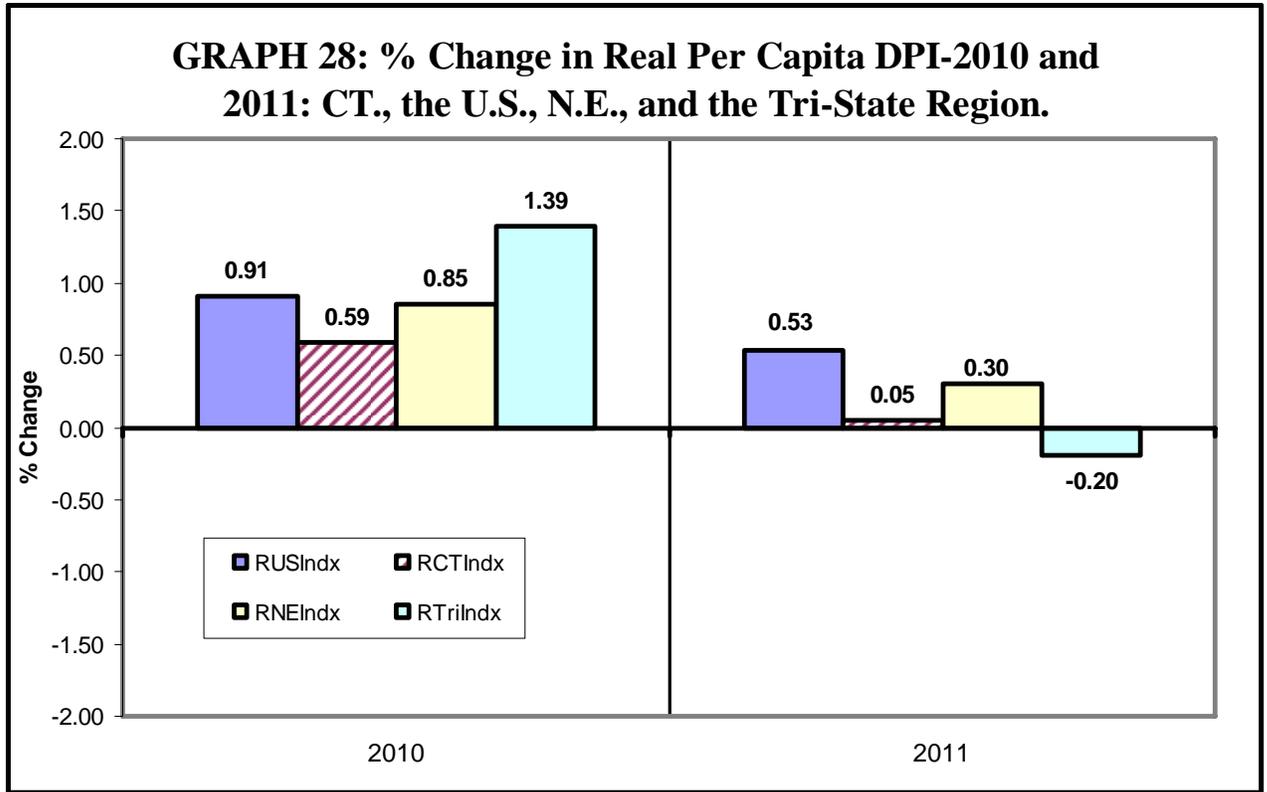


SOURCE: U.S. BEA and author's calculations.

As illustrated in Graph 27, between 2008 and 2009, CT real per capita DPI declined by 4.88%, a much steeper decline than that for the U.S. (-3.24%), N.E. (-2.34%), or Tri-State (-2.98%). Further, not only was the decline in CT's real per capita DPI steeper, but its recovery in real per capita DPI growth has been much weaker. Between 2009 and 2011, CT's real per capita DPI only recovered by 0.64%. Whereas, over the same period, U.S. real per capita DPI grew by 1.45%, Tri-State grew by 1.20%, and N.E. grew by 1.16%. As a consequence, by 2011, CT's real per capita DPI was still 4.26% below its level in 2008, while N.E. was down by only 1.21%, tri-state was down by 1.82%, and the U.S. was down by 1.83%.

As noted above, critical to supporting consumer spending is Disposable Personal Income, that is income, after taxes have been subtracted out, and any transfer receipts added back in. And, Connecticut's per capita DPI declined steeply, and has recovered weakly over the current cycle.



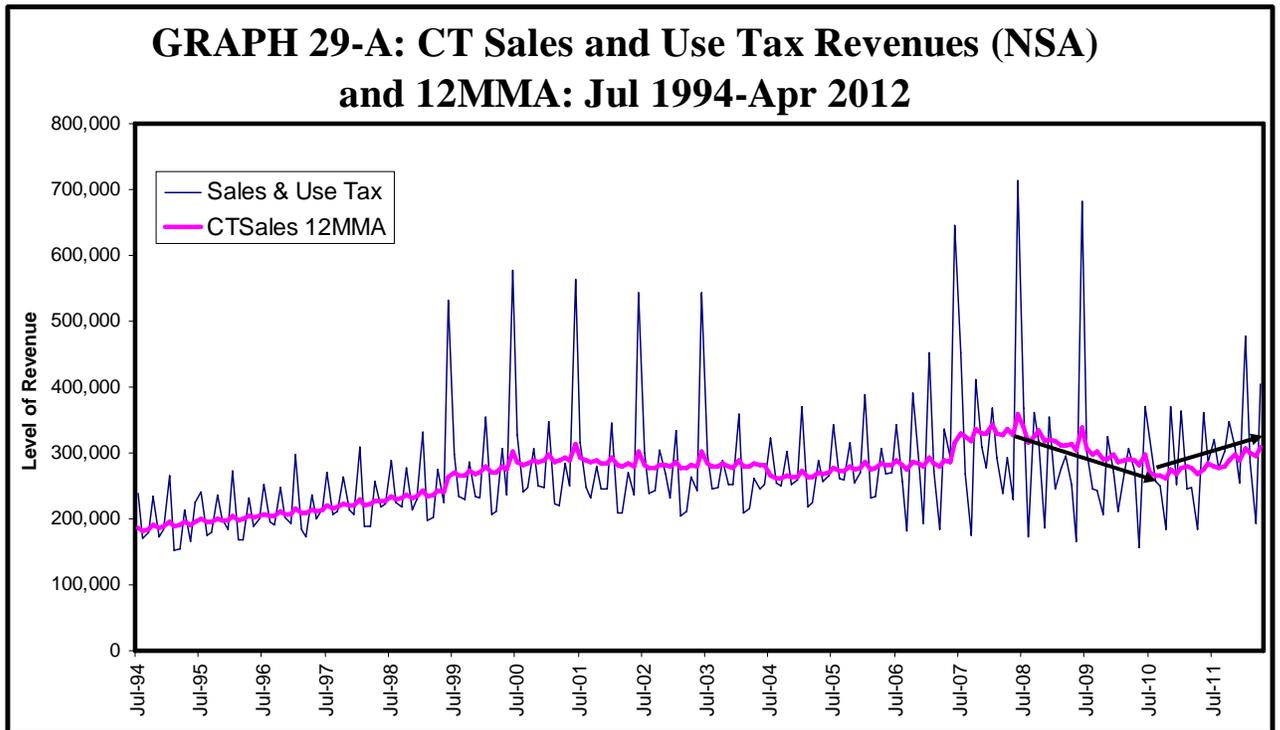


SOURCE: U.S. BEA and author’s calculations.

Though the growth in per capita DPI has certainly been weak overall over this recovery so far, the growth in Connecticut’s per capita DPI has been particularly weak. Graph 28 shows the YTY percent change in per capita DPI over the two full recovery years of this cycle: 2010 and 2011. The biggest reversal in fortunes in Graph 28 is clearly the Tri-State Region. After coming out of the crisis/recession with the strongest growth (+1.39%) in 2010, per capita DPI then contracted by 0.20% in 2011. Growth also slowed for the U.S. in 2011 compared to 2010 (+0.91% versus +0.53%). New England’s per capita DPI growth also slowed in 2011, with growth of 0.85% in 2010 compared to 0.30% in 2011. Nevertheless, Connecticut’s performance in per capita DPI-growth is the second worst behind the Tri-State region, after growing by 0.59% in 2010, growth slowed even further, to a flat 0.05% in 2011. It is, of course, no coincidence that job growth has followed a similar pattern over the 2010 and 2011 recovery years.

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Since the BEA's estimates of state-level DPI for 2012 will not be out until June 2013, we will not know until then how DPI performed over the first one-half of 2012 (the time of writing), at least at the state and regional levels. Two possible reference points for trying to infer how consumer spending has performed in Connecticut over the first one-half of 2012, and where it might be going the last half of the year is data on Connecticut sales and use tax revenue, and the recent trends in U.S. Personal Income and Its Disposition, and retail sales.



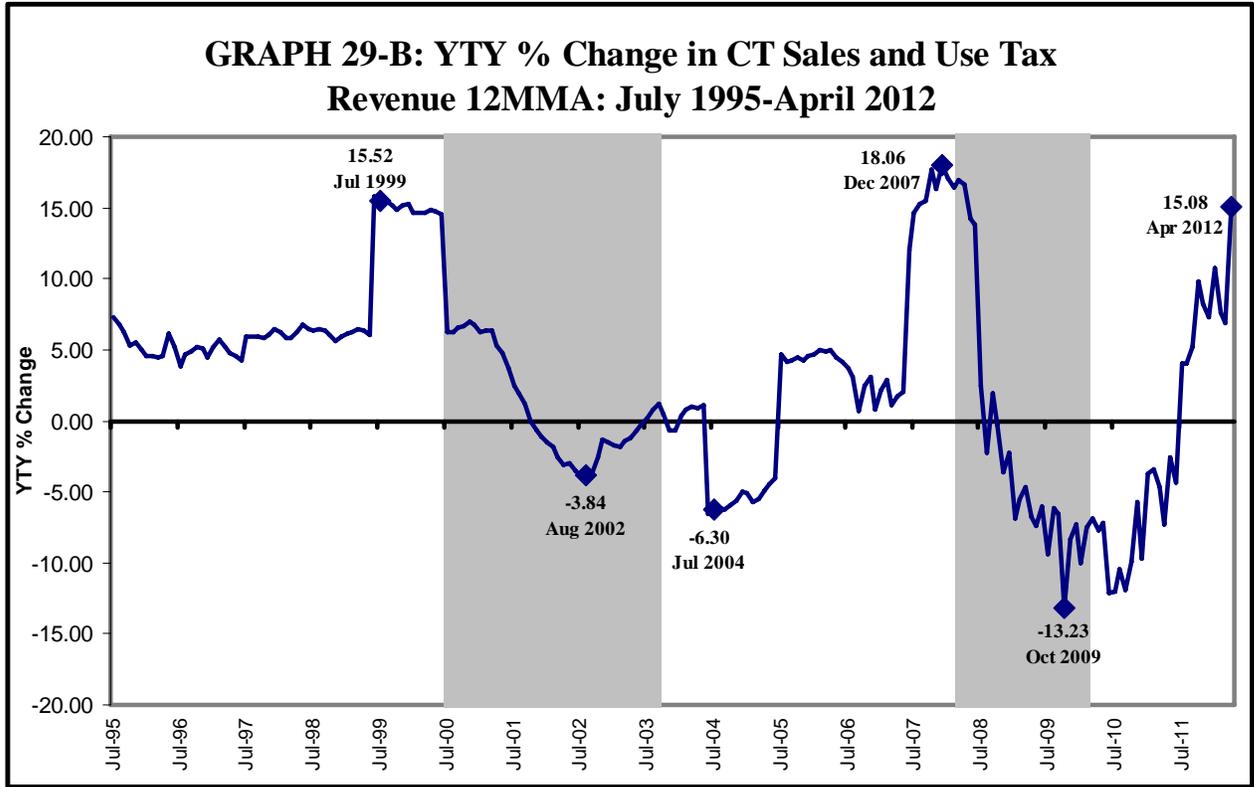
SOURCE: Boston Federal Reserve Bank-New England Economic Indicators (NEEI) and author's calculations.

From Graph 29-A, it is clear that the sales and use tax revenue data for Connecticut has a lot of noise in it. In fact, Demetra, the seasonal adjustment software available from the European Statistical Agency, which has the X-12 method as one of its options, rejected the data-series for deseasonalization because of the presence of so many outliers. To filter out some of the noise, in addition to the original series, the 12-month moving average (12MMA) is also included in Graph 29-A covering the period January 1994 to April 2012, the most recent period available, at the time of writing. After declining from June



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2008 to October 2010, the 12MMA of Connecticut sales and use tax revenue turned up and has been increasing through April 2012. To focus on the most recent growth trends, Graph 29-B presents the year-to-year (YTY) growth rate in the 12MMA of sales tax revenue (again, given the volatility of the data, the “true” month-to-month percent change would be masked by noise, even in the 12MMA).



SOURCE: Boston Fed-NEEI and author’s calculations.

The largest increase in the 12MMA of Connecticut sales and use tax revenue, on a YTY basis, was the 18.06% jump in December 2007. This was followed by a precipitous drop, which bottomed out with the 13.23% YTY decline in the 12MMA in October 2009. Both the jump in December 2007 and the decline in October 2009 represent the two largest extremes, in absolute value, over the entire range of data. The YTY growth rate in the 12MMA of Connecticut sales tax revenue of 15.08% represented the third-largest YTY jump. Ominously, the two preceding large YTY increases in the 12MMA of revenue were followed by steep declines. Nevertheless, the YTY growth rate in the 12MMA of



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sales tax revenue has been strong in 2012, the YTY growth rate in January and April each exceeding 10%. But, as mentioned above, the economy's "Arab Spring" may be coming to an end. There is direct data on U.S. Retail Sales, and they indicate a slowing economy. The U.S. Census Bureau released the sales data for June 2012 at the time of writing²¹. Though Retail Sales for June 2012 were up 3.5%, YTY, they were down 0.50% from May. And, in fact, on a MTM basis, Retail Sales were down in April and May as well. Three straight months of MTM declines in Retail Sales does not bode well for where they economy is heading. This definitely reinforces other indicators, such as the jobs data, that seem to be pointing in the direction of a slowing economy. That may have implications for the indirect numbers for Connecticut's sales tax revenue, a proxy for the State's retail sales, for May and June. Also, and particularly for Connecticut, how much of it represents the decline in gasoline prices.

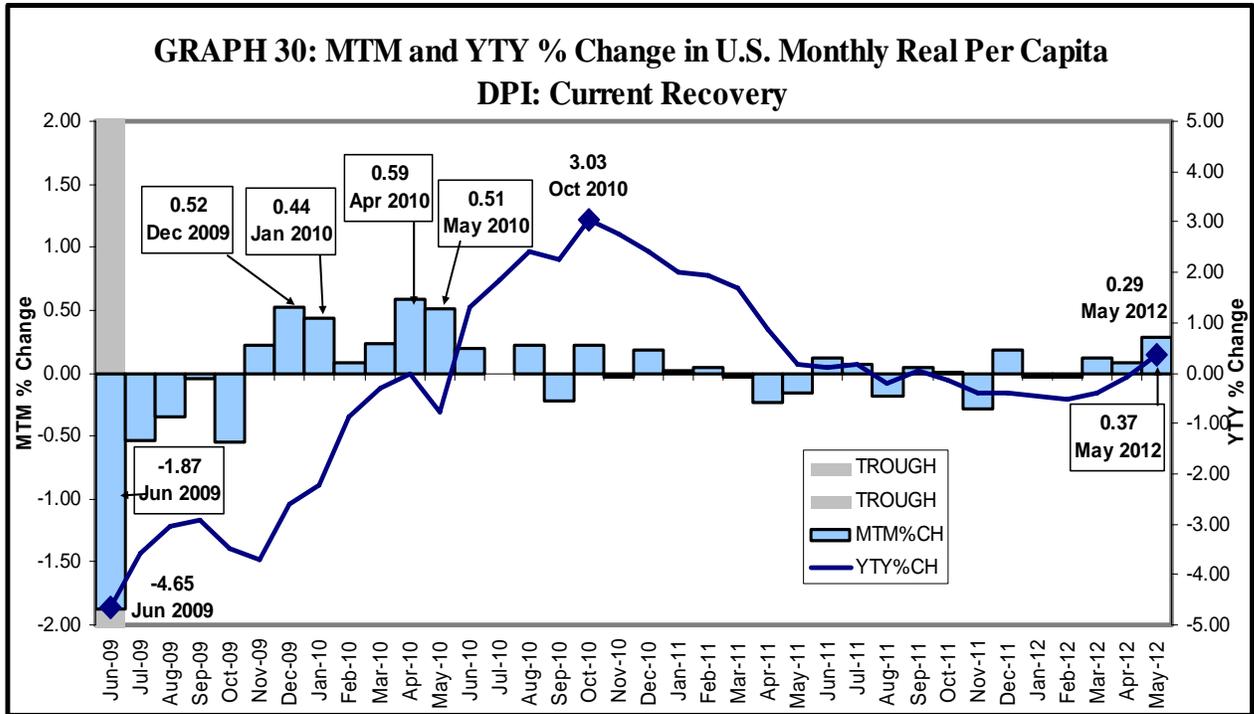
Looking at the higher-frequency monthly data, and looking at data for 2012, which was not available at the annual-level data on per capita DPI discussed above, U.S. real per capita DPI data depicted in Graph 30 indicates the long deceleration, and then contraction in the YTY growth rate had been reversed in February 2012 (line in Graph 30, and measured on the right, vertical scale), though the MTM growth rate in real per capita DPI had been fairly flat until the jump in May (bars in Graph 30 and measured on the left vertical scale). Graph 30 tracks the MTM and YTY percent change in U.S. monthly, real per capita DPI from the trough of the last recession (June 2009) up to the latest period of available data, May 2012.

After the steep MTM contraction of 1.87% (20.27% on a compounded, annualized basis), in June 2009, the month that the National Bureau of Economic Research (NBER) declared the official trough of the 2007-09 Recession, The declines in the MTM growth-rate in real per capita DPI then began to decelerate and turned to positive growth in November 2009. After growth slowed going into 2010, it picked up over the middle part of the year, peaking at 0.59% (7.31% on an annualized basis), in April 2010.

²¹ U.S. Census Bureau News, ADVANCE MONTHLY SALES FOR RETAIL AND FOOD SERVICES JUNE 2012 (July 16, 2012) U.S. Census Bureau: Washington.



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SOURCE: U.S. BEA and author's calculations.

Since then, the MTM growth-rate in real U.S. per capita DPI has been weak and in an up-and-down fashion. The MTM growth rate in May 2012, at 0.29% (3.54% on a compounded, annualized basis), was the strongest MTM growth rate since May 2010, when the MTM growth rate was a stronger 0.51% (6.29% on an annualized basis). On a YTY basis, there is a clear and pronounced trend. After a 4.65% decline in June 2009, the YTY declines in U.S. real per capita DPI began to rapidly decelerate and the growth-rate turned positive in June 2010. The YTY growth-rate peaked at 3.08% in October 2010. From November 2010 the YTY growth rate decelerated, turning to declines in August 2011. After February 2012, the declines in real per capita DPI began to subside, and the 0.37% YTY growth rate in May was the first month of YTY positive growth since August 2011.

ii. AGGREGATE SUPPLY

Referring again to Table 6 above, which is a modified version of Table 1 in Volume 1- U.S. ECONOMIC OUTLOOK, it summarizes the indicators that are analyzed in



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assessing the current conditions in the U.S. economy. Since a number of the indicators available to assess the national economy are not available at the state level, Table 6 adds two columns that do not appear in Table 1. The last sub-columns from the right, under the two major headings, “Aggregate Demand” and “Aggregate Supply” are titled “State Level?” and note whether or not the corresponding indicator is available at the state level. Those available are analyzed in the next two subsections to gauge the current state of Connecticut’s economy. Part i looked at the indicators of Aggregate Demand and this section, part ii, turns to assessing the indicators of Aggregate Supply.

As indicated in Table 6, there is no state-level counterpart to the Federal Reserve Board’s statistical releases on Industrial Capacity and Capacity Utilization. Therefore, Capacity (Capital Stock) and the Capacity Utilization Rate (CUR) will not be included in the discussion of Aggregate Supply at the state level. In addition, there is either, cursory, or limited data available on foreign supply (Imports) and, productivity was touched upon above in Part a-*INDICATORS OF GROWTH AND OUPUTT* and in particular, in the discussion of Table 5 (p 31 above) The one set of indicators available in great detail, and on a timely and high-frequency basis, at the state, regional, and local levels, are indicators of labor market conditions. Therefore, the assessment of indicators of Aggregate Supply at the state level will focus on the state and local labor market, discussed under the heading of “Human Resource Utilization”. With that, the following discussion now turns to the current conditions and the outlook over the forecast horizon for Connecticut’s labor markets.

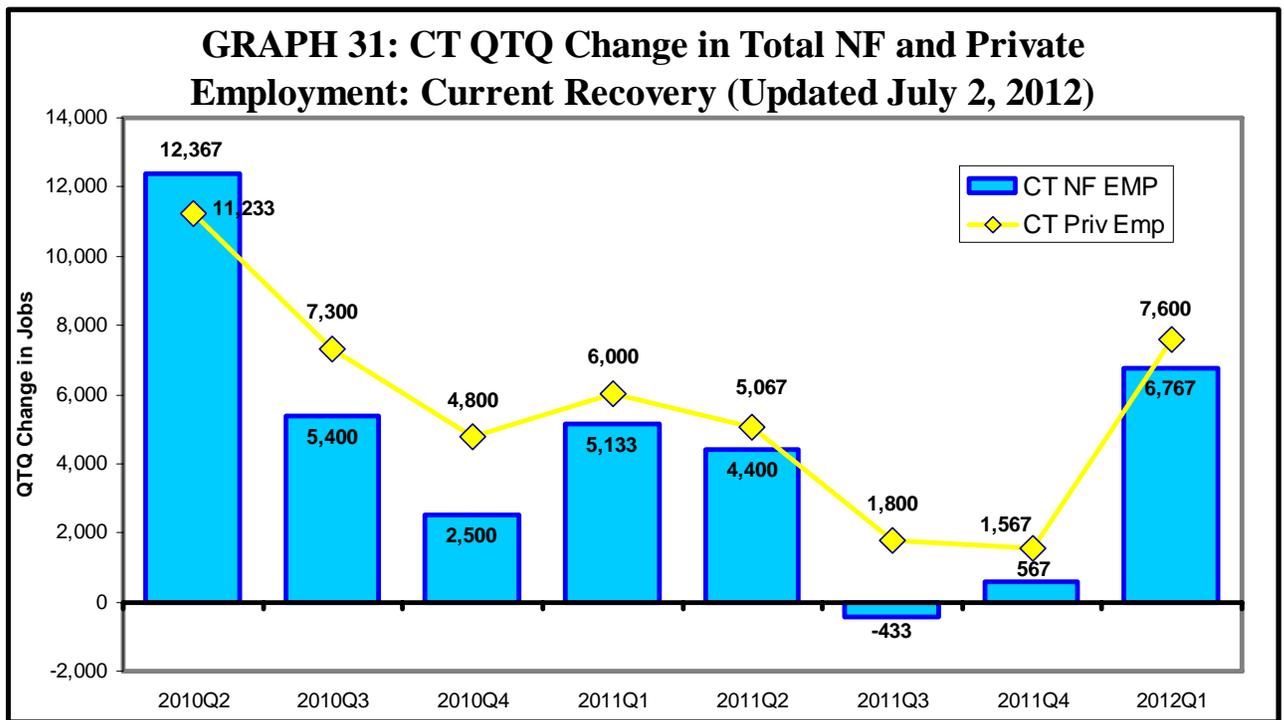
1. CONNECTICUT’S LABOR MARKET (Human Resource Utilization)

As noted in Chapter 1-INTRODUCTION, whether due to the record warm winter, which wreaked havoc with the seasonal factors for the nonfarm employment numbers, or more fundamental factors, like the burst of growth in Net Worth in 2012Q1 (its strongest QTQ



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growth rate since 2004Q4²²), the U.S. and Connecticut economies had what could be dubbed their “Arab Spring” over the final months of 2011 and into the beginning of 2012. And, as was illustrated on Graph 1, on a less volatile quarterly basis, there was strong growth in Connecticut’s nonfarm jobs in the first quarter of 2012 Connecticut added 7,000 net, new nonfarm jobs, the most since the 12,367 in 2010Q2. Graph 31 reproduces Graph 1 and superimposes Connecticut’s Private Sector QTQ job changes to the QTQ changes in nonfarm employment.



SOURCE: U.S. BLS, CTDOL-Research, and author’s calculations.

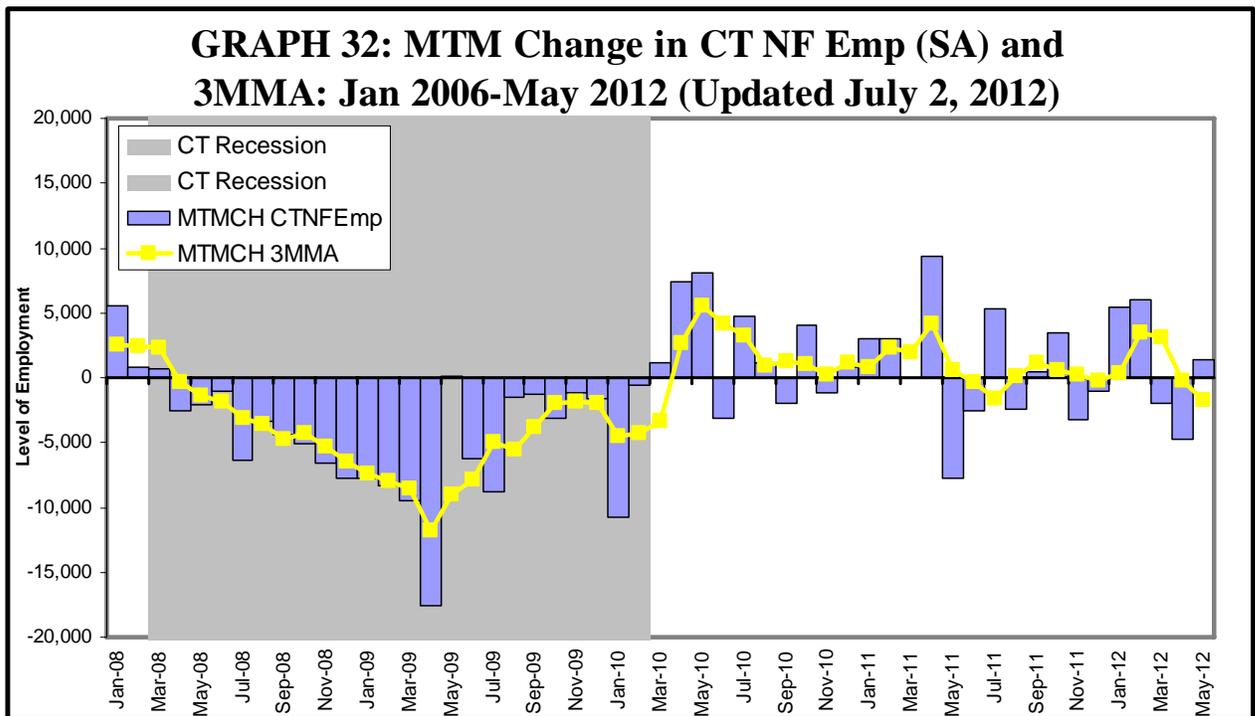
As noted above and in the introduction to this outlook, Connecticut nonfarm employment grew by 6,767 jobs in 2012Q1, which is the strongest QTQ growth over the current recovery since the 12,367 new jobs added in 2010Q2. Even stronger, both nationally, and at the state level, has been the growth in Private-Sector jobs. Save the burst in job growth in 2010Q2, Private Sector job-growth has outperformed total nonfarm employment over the entire recovery. And, though private job growth slowed over the last one-half of

²² See the discussion on Household Balance Sheets in Part I, Section C, Chapter II-CURRENT CONDITIONS, in Volume 1 of this outlook.



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2011, it did not turn negative as nonfarm employment did in 2011Q3. Further, the Private Sector actually added 7,600 jobs in 2012Q1, compared to the 6,767 overall. The critical factor here, as discussed in the introduction to this volume of the outlook, and as will be discussed in more detail below, is the behavior of Government Sector employment over this recovery. Unique to this recovery, instead of leading, or at least reinforcing, the growth in Private-Sector jobs, the Government Sector has significantly subtracted from job growth. This point will be illustrated in graphs 33 and 34. But, before getting to the sectoral performance over this cycle, Graph 32 extends the growth in Connecticut's nonfarm employment up to the most recent month of available data at the time of writing (the bars in Graph 32), by switching to the monthly frequency of data. And, to take into account the highly volatile monthly data (the reason for the quarterly frequency of data presented in Graph 31), since the full second-quarter data is not yet available, Graph 32 presents both, the MTM change in jobs (bars), and represented by the line in Graph 32, and the 3-month moving average (3MMA) of Connecticut's nonfarm employment.



SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.



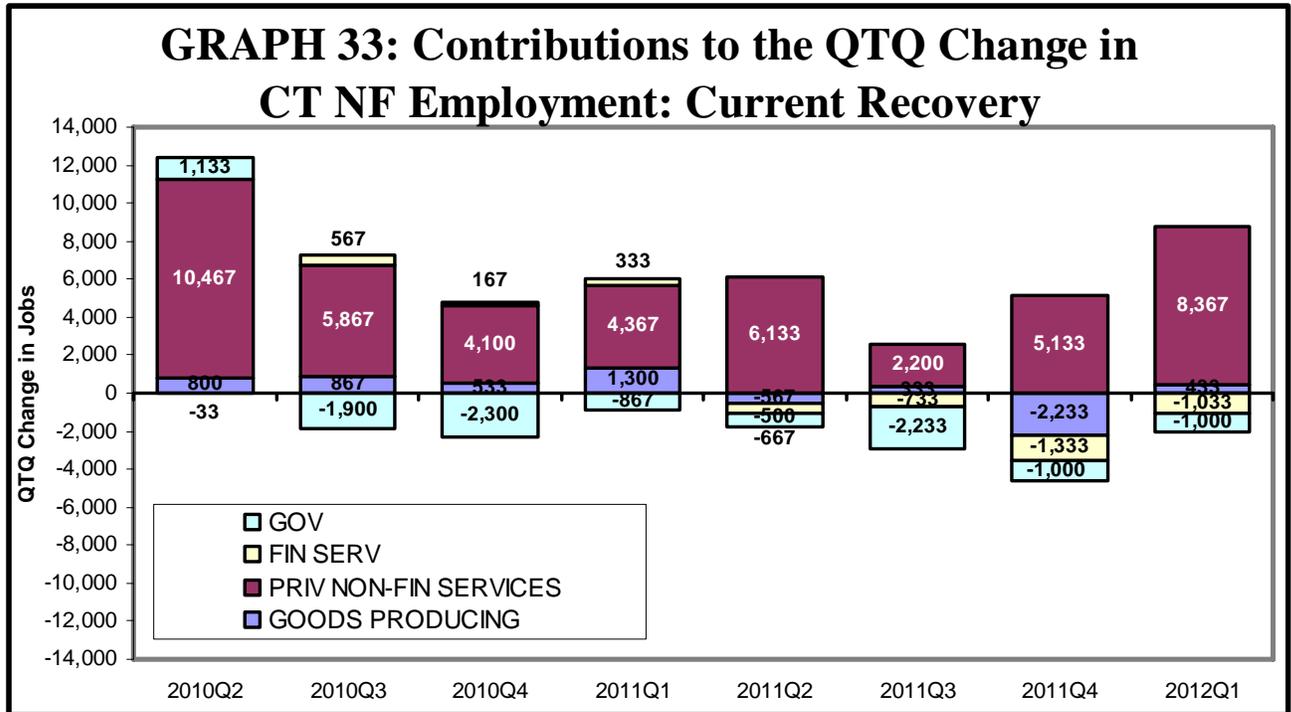
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From Graph 32, note the surge in MTM job growth in January (+5,400) and February (+6,000) of 2012, which was followed by two declines in March (-2,000) and April (-4,700), with a rebound in May (+1,400). The 3MMA reduces this month-to-month volatility, by filtering out some of the noise in the series, to permit a clearer signal about the trajectory of job growth to come through. Based on the 3MMA, Connecticut's nonfarm job growth decelerated over the last half of 2011, with a slight decline in December (-233). With the surge in job growth coming into 2012, the 3MMA shows accelerating job growth from January through March. Based on the 3MMA, more than 3,000 jobs were added to Connecticut's economy in both February and March. However, following the trend in job growth, at the national level, the 3MMA in Connecticut nonfarm employment contracted by 233 in April, and then by 1,767 in May. This, along with the behavior of Connecticut's real industry earnings, real per capita DPI (discussed above), and other indicators, appear to be sending signals that the State, as well as, the national economy, is slowing after a burst of activity at the beginning of the year (at least, in terms of jobs).

Turning now to what drove the burst in job-growth activity at the beginning of 2012, Graph 33 presents the major sectors and their contribution to quarterly (again, returning to the less volatile quarterly frequency), change in Connecticut's nonfarm jobs. As is clear, the major contributor to job growth over the recovery has been the Non-Financial, Private-Services Sector, the largest sector. The ups-and-downs of QTQ job growth are clearly tied to this sector's fortunes. Of the 12,367 jobs added to Connecticut's economy in 2010Q2, Non-Financial Private Services accounted for 10,467 of those jobs. And, it was this sector that accounted for 8,367 jobs being added to Connecticut's economy in the first quarter of 2012, while Financial Services and Government Sector each subtracted 1,000 jobs from the State's economy.

The largest contributor to the growth of private service jobs was Health Care and Social Assistance (HCSA), adding 3,300 jobs. The growth in HCSA, along with Education, which added 1,533 jobs, has been trend dominated. That is, the cyclical downturn slowed their growth, but never resulted in job losses. With recovery, stronger growth returned.



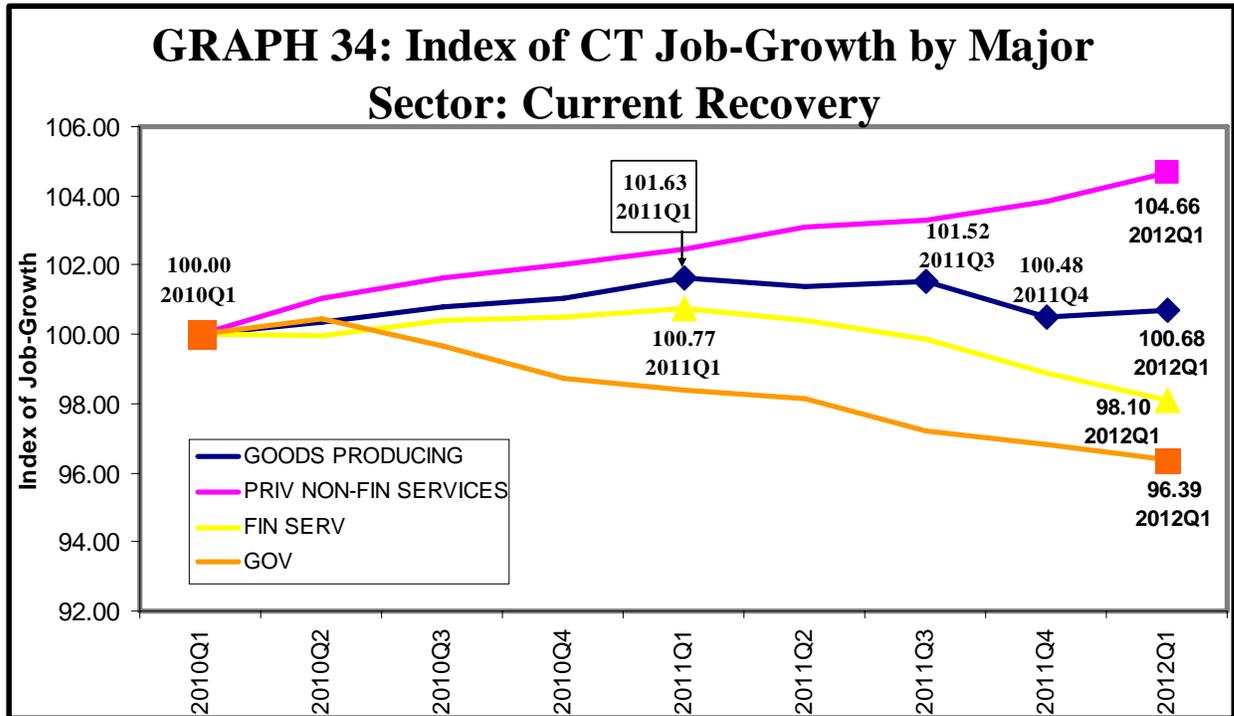


SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.

The Retail Trade Sector also significantly contributed to the strong growth in jobs over 2012Q1. This sector added 2,433 jobs. As discussed in Chapter I-INTRODUCTION, of this volume of the outlook, and followed up on below, consumer durables, and particularly, motor vehicle sales seem to be driving the strong job growth in Retail. HCSA, Education, and Retail Trade accounted for 7,266 jobs, or 87%, of the 8,367 jobs created by Connecticut's Non-Financial, Services sector in the first quarter of 2012.

Graph 34 tracks the major sectors over the entire recovery period. An index was constructed for each sector, such that each quarter's value is the ratio of that value to the level of employment for that sector in 2010Q1, the quarter of the turnaround in nonfarm jobs for Connecticut, and the beginning of the current recovery. Thus, for all sectors, the base period is 2010Q1, where the index is equal to 100.00. By far, Connecticut's Non-Financial Private Services Sector has outperformed all other sectors over the current recovery, with an index value of 104.66 in 2012Q1. This implies that the sector's employment has grown by 4.66% since the trough of the State's recession in 2010Q1. The other sectors have not fared as well.





SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.

Connecticut's Goods Producing Sector led by manufacturing's renaissance, unlike past recoveries, actually added jobs over the first four quarters of recovery. By 2011Q1, Connecticut's Goods Producing employment was 1.63% higher than in 2010Q1, the trough of the State's recession. But, by 2011Q3, growth had flattened to 1.52%. The next quarter, Goods Producing job-growth slipped, and by 2011Q4, the employment level was only 0.48% above its 2010Q1-level. Over the next four quarters, there was a very slight increase in jobs resulting in employment 0.68% above its 2010Q1 level. Financial Services and Government jobs have declined over the recovery period (as of 2012Q1).

Financial Services employment actually increased slightly over the first four quarters of the current recovery, and was 0.77% above its 2010Q1 level by 2011Q1. However, the trajectory has been downward since then. By 2012Q1, the Financial Services employment index was at 98.10, indicating that Financial Services employment was nearly 2% below its 2010Q1 level.



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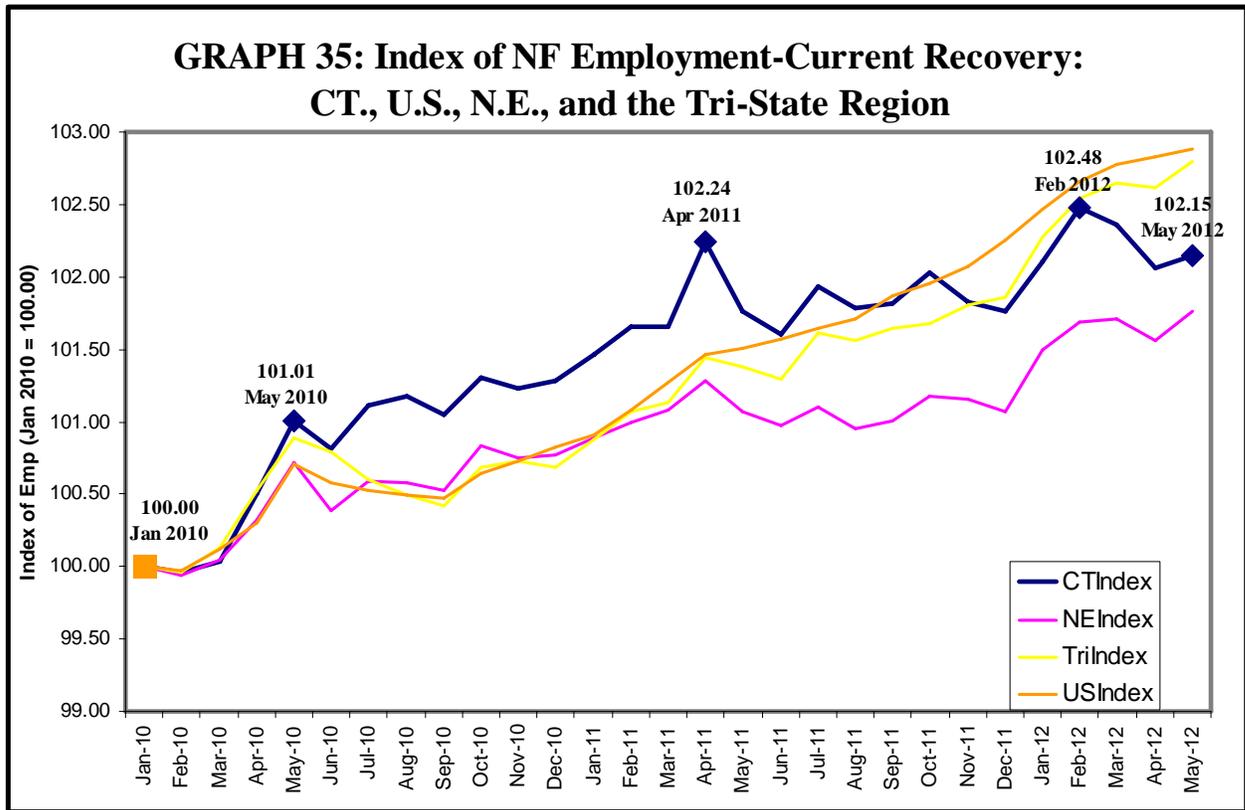
As noted above (and below), the Government Sector has fared the worst over this recovery, both nationally, and at the state, and especially the local levels, compared to previous recoveries. Reflecting the temporary boost from the hiring of Census workers, Connecticut's government employment was up by 0.46% in 2010Q2, compared to 2010Q1. However, from that point on, the trajectory has been downward. By 2012Q1, Connecticut's Government Sector employment index was 96.39, meaning that government employment was down 3.61% from its level in 2010Q1.

CONNECTICUT'S COMPARATIVE JOB PERFORMANCE: Current Recovery

Graph 35 tracks the trajectory of Connecticut's nonfarm employment from January 2010 (Connecticut's recovery began in February 2010), to May 2012, the latest period of available data for state-level nonfarm employment data. An index similar to the one constructed and presented in Graph 34 for Connecticut's nonfarm employment and employment for its major sectors is used in Graph 35 to compare the growth in Connecticut's nonfarm employment, over the current recovery, to the U.S., New England (N.E.), and the Tri-State Region (Tri-State). However, the data in Graph 35 are at the monthly frequency, and the base period, where the index equals 100.00, is January 2010.

From Graph 35, Connecticut's job growth was stronger than that of the U.S., N.E., or Tri-State over the first one and one-half years of the current recovery. In April 2011, Connecticut's index value was 102.24, which meant that the State's employment level was 2.24% higher than it was in January 2010. By comparison, U.S. employment was only 1.47% higher in April 2011 than it was in January 2010; it was 1.42% higher in the Tri-State area and only 1.28% higher for N.E. Then, Connecticut traded places with the U.S. and the Tri-State Region. After July 2011, U.S. job growth passed up Connecticut, and, in November, so did the job growth of the Tri-State Region. By May 2012, the last period of state-level data at the time of writing, the level of U.S. nonfarm employment





SOURCE: U.S. BLS and author’s calculations.

was 2.89% above its January 2010-level, the Tri-State Region’s employment level was 2.79% above where it had been in January 2010, but, Connecticut’s nonfarm employment was 2.15% above its January 2010 level. New England’s job growth began to flatten after May 2010, and then it declined after April 2011. By August 2011, New England had nearly given back all the jobs it had gained back in the recovery, up to that point. Since April 2011, New England’s job growth performance has fallen below that of Connecticut, the U.S., and the Tri-State Region. New England had a spurt of job growth from December 2011 to March 2012, along with other regions’ and U.S. job growth surge in the beginning of 2012. After a decline in April, like Connecticut, the New England, along with the Tri-State Region added jobs in May 2012. However, by May 2012, New England’s level of employment was 1.77% higher than it was in January 2010, a far lower relative recovery of lost jobs over the previous recession than for Connecticut, the U.S., and the Tri-State Region. And, as noted above, Connecticut’s relative recovery of lost jobs was lower than that for the U.S. or the Tri-State Region.

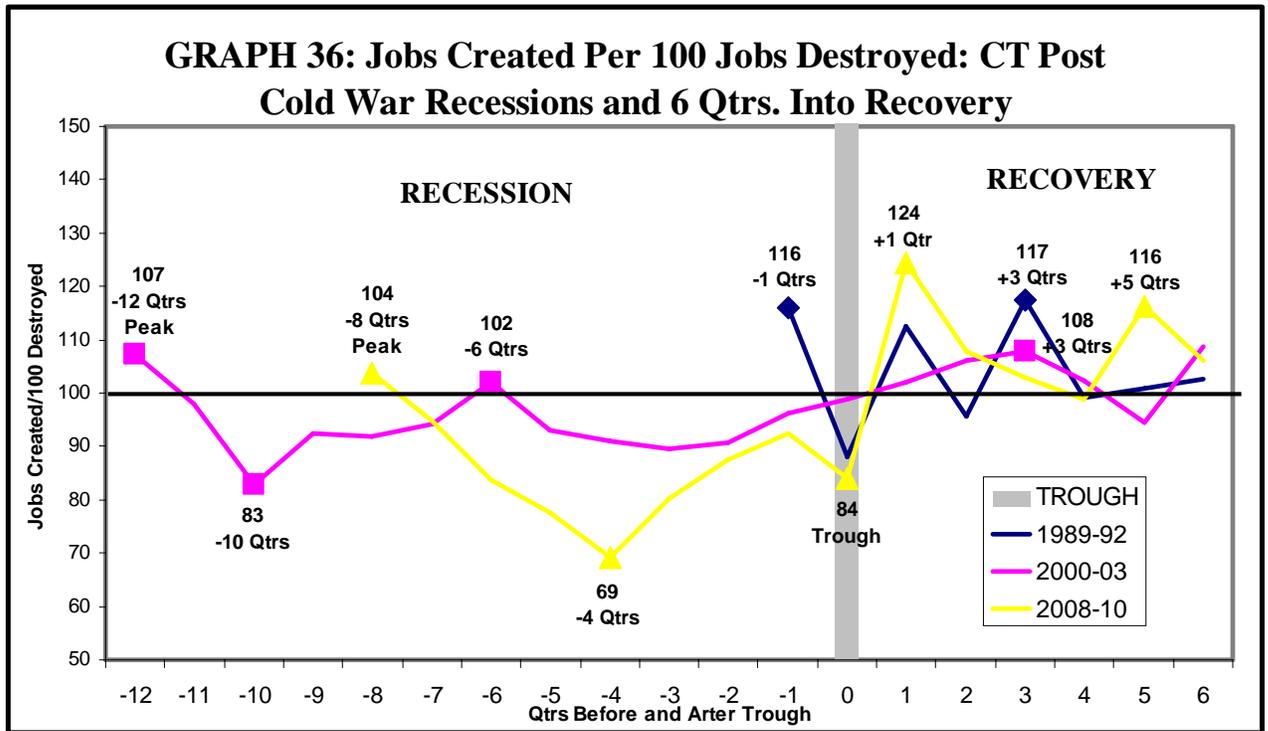


THE DYNAMICS OF JOB GROWTH

The net change in jobs reported each month from the Establishment Survey, which is reported as the increase or decrease in nonfarm jobs each month, is actually a snapshot of a dynamic process that is continually unfolding. This dynamic process is captured by the Business Employment Dynamics (BED) Program of the U.S. Bureau of Labor Statistics (BLS). Under this program, the BLS measures the gross number of jobs created, and the gross number of jobs destroyed, by establishments (worksites) over each quarter, drawn from the Unemployment Insurance (UI) Tax database known as the Quarterly Census of Employment and Wages (QCEW). The difference between the number of jobs created, and the number of jobs destroyed, is the net change in jobs. It is this net change that is reported each month when the nonfarm employment report is released. For example, a given increase in jobs, over a given month, could be due to job creation increasing, while job destruction remained constant, or due to the reduction in job destruction, while job creation remained unchanged. Other combinations that produce the same result could also drive a given net change observed over a given month. Thus, the underlying dynamics that produce a given result are critical for understanding where job growth may be heading in the near future, and what produced the current, observed results. To that end, Graph 36 looks at the number of jobs created per 100 jobs destroyed over Connecticut's three post-Cold War recessions and six quarters into their recoveries. Unfortunately, there is a two-quarter lag in the release of the data, so there is data available only up to 2011Q3. The fourth quarter of 2011 will not be released until August 2012. With that in mind, Graph 36 turns to the dynamics of job-growth behavior over the Post-Cold War cycles.

The horizontal reference line in Graph 36 represents the level at which, for every 100 jobs destroyed, 100 jobs are created. It can be thought of as the “break even” point of Job Creation (JC) and Job Destruction (JD). Above the line, more than 100 jobs are being created for every 100 destroyed, below the line, fewer than 100 jobs are being created for every 100 jobs destroyed. The horizontal axis designates the number of quarters before the trough of a recession with a minus sign, the number after the trough with a plus sign, and the trough of the recession is designated as “0”.





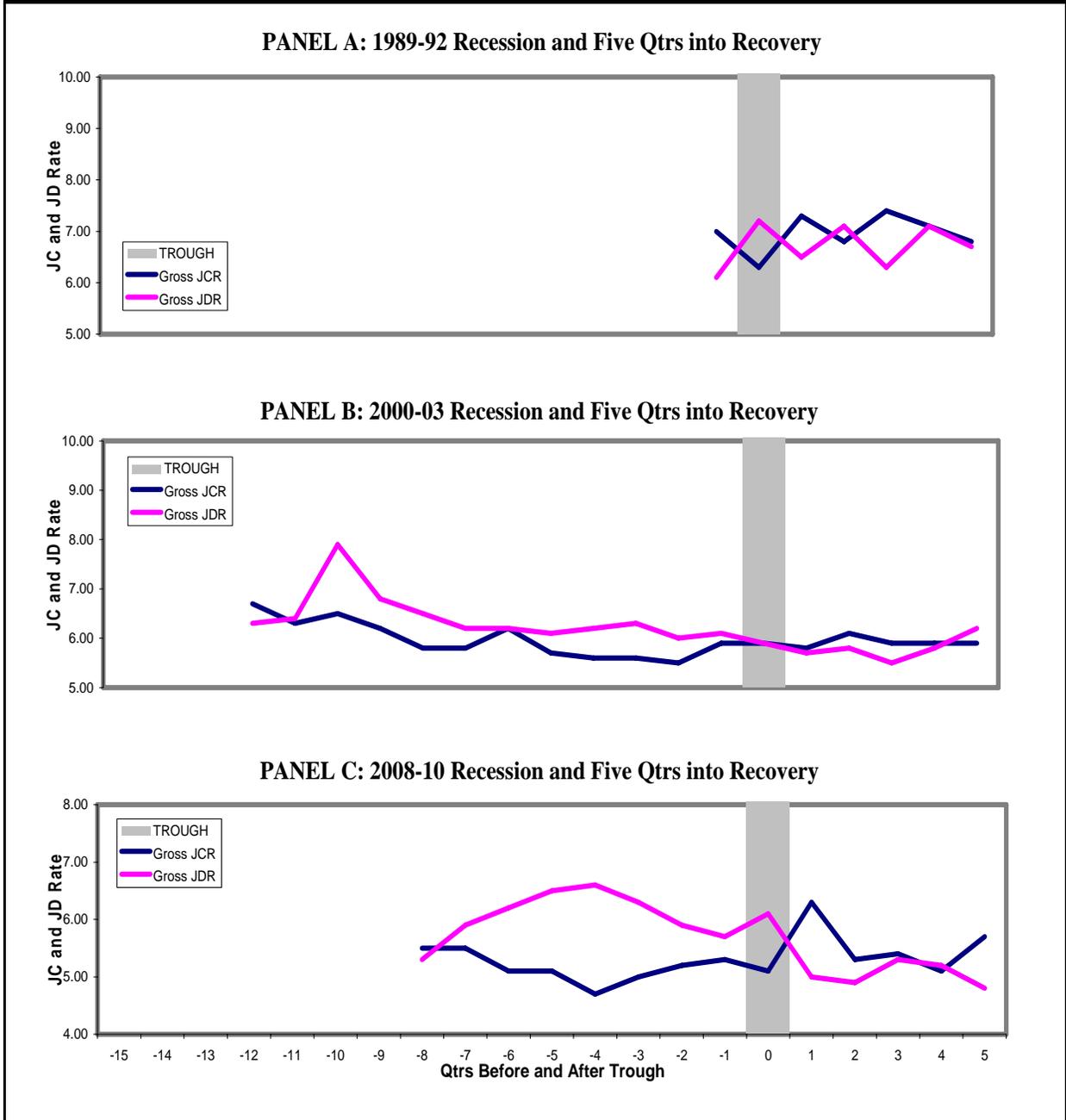
SOURCE: U.S. BLS and author's calculations.

First, it should be noted that there is no BED data available for most of Connecticut's 1989-92 recession. Data is only available from 1992Q2 on, the trough of that recession was in 1992Q4. Given that, the steepest decline in the rate of jobs created per 100 destroyed was the 69 in 2009Q1, four quarters before the trough in the last recession. The steepest decline over the 2000-03 recession was the 83 ten quarters before the trough of the recession. And, as is evident in Graph 26, and as noted above, there is no data available for most of the 1989-92 recession. Interestingly, the strongest surge in the job creation rate was the 124 in 2010Q2 in the early stages of the current recovery, and it coincides with the 12,367 jump in the QTQ growth in Connecticut's nonfarm jobs over that quarter. The second largest job creation rate was the 117 three quarters into the recovery from the 1989-92 recession. The next two were the 116 one quarter before the trough of the 1989-92 recession, and the 116 over the first quarter of 2012, the economy's recent "Arab Spring". Job creation rate over the 2000-03 cycle never achieved the levels they did over the 1989-92 and current cycle.



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GRAPH 37: JCR and JDR for CT. Post Cold War Recessions and Five Qtrs into Recovery
(SOURCE: U.S. BLS and CTDOL-Research calculations)



SOURCE: U.S. BLS and author's calculations.



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To dig deeper in order to get a better idea of what the drivers of the dynamics observed in Graph 36 are, Graph 37 breaks out job creation and job destruction into two separate rates. In Graph 36, a given number of jobs created per 100 jobs destroyed could be due to an increase in job creation, a decrease in job destruction, or some other combination of those two dynamic processes. Graph 37 presents both, the Job Creation Rate (JCR) and the Job Destruction Rate (JDR) over the three recession/recoveries depicted in Graph 36. Panel A follows the JCR and JDR over the 1989-92 recession/recovery, Panel B, the 2000-03 recession/recovery, and Panel C, the current recession/recovery cycle. All three panels follow the recoveries five quarters out from the trough of the previous recession.

Given the limited data for the 1989-92 recession and recovery in Panel A, Graph 37, both the JCR and JDR follow a saw-toothed pattern over the last two quarters of recession, and five quarters into recovery. They oscillated in opposite directions, that is, when the JCR increased, the JDR declined, and vice versa. The two then converged and trended downward the fourth and fifth quarters into recovery. From Panel B, there emerges a different pattern in the JCR and KDR over the 2000-03 recession and recovery. After a surge in the JDR as the Connecticut economy went into recession, the JCR and JDR paralleled each other, with JDR above the JCR, save the spike in the JCR five quarters before the trough in the recession. The two rates converged as the economy entered the trough of the recession, with the JCR passing above the JDR as the economy recovered, however, the JDR jumped up, and the JCR was flat by the fifth quarter of recovery.

With the behavior of the JCR and JDR over the current cycle, presented in Panel C, Graph 37, it is apparent that the behavior of the JCR and JDR over each post-Cold War cycle followed a pattern unique to that cycle. As Connecticut's economy went into recession in 2008Q1, over the current cycle (Panel C), the JDR accelerated as the JCR declined. At the trough of the recent recession, 2010Q1, the JDR fell below the JCR as it passed above the JDR, with the surge in the JCR producing the jump in nonfarm employment noted above. The two rates then converged, with the JCR jumping, as the JDR fell, five quarters into recovery and coinciding with the economy's "Arab Spring".



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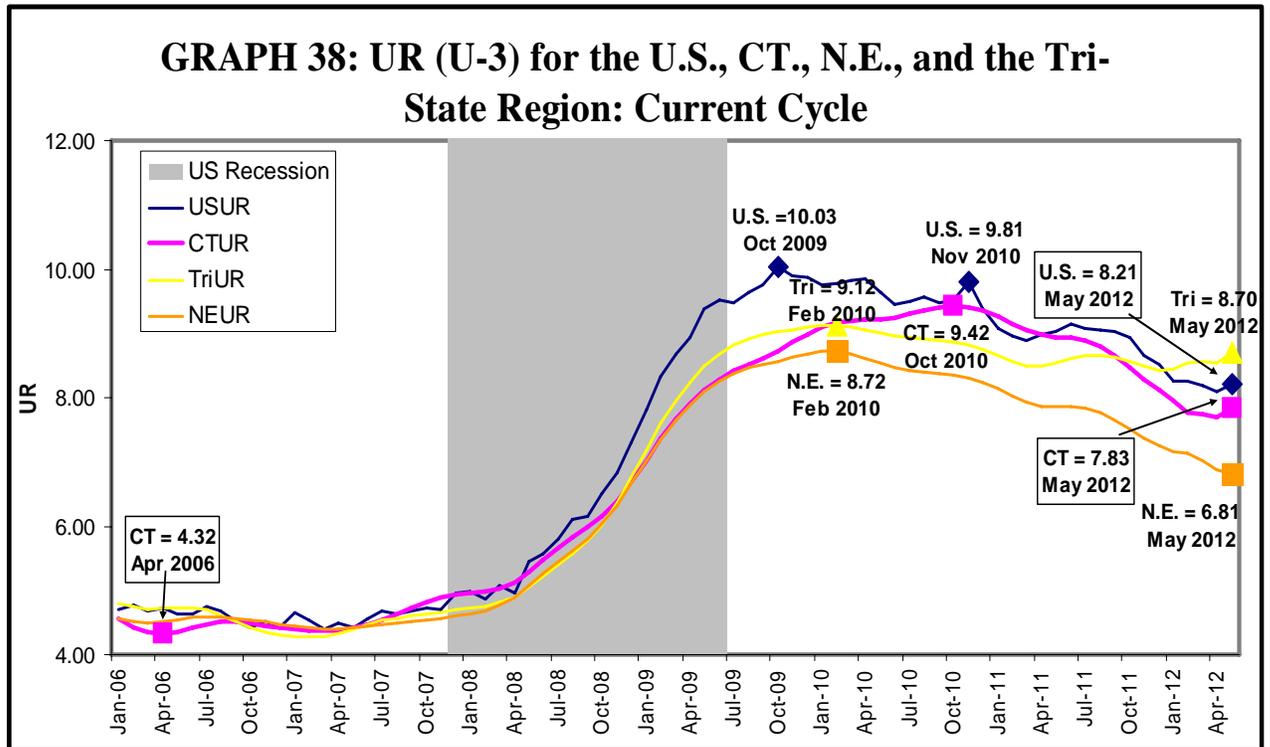
The process revealed in Graph 37 shows that the gap between the JCR and the JDR, and its persistence, was the largest, and lasted longer, over the recent recession than over Connecticut's previous two Post-Cold War recessions. Also, it is clear from the analyses in both, Graph 36 and Graph 37, that the three Post-Cold War recessions, though followed by jobless recoveries in all three instances, were being driven by different dynamics, each one unique to a particular recession and recovery. This implies that Connecticut's economy was undergoing different processes over the three different recessions and recoveries. It is only by going beyond the snapshot of the monthly jobs numbers that the underlying dynamic can be uncovered. And, as shown in the discussion of the JCR and JDR processes in Graph 37, important information about the dynamics of the economy are masked by just focusing on the "snap shot" numbers view.

UNEMPLOYMENT, RESIDENCE EMPLOYMENT, AND THE LABOR FORCE

Graph 38 shows the Connecticut unemployment rate (UR) over the current cycle, beginning in January 2006 up to May 2012, the last period of available data at the time of writing. Connecticut's UR is compared to the U.S., New England (N.E.), and the Tri-State Region (Tri-State). Connecticut's lowest UR, over the range of data in Graph 38, was 4.32% in April 2006. This compares to 4.27% for the Tri-State Region and 4.41% for New England, both in February 2007. The lowest for the U.S. was 4.42% in October 2006. Being a lagging indicator, as depicted in Graph 38, all areas compared had peaks in their UR's after the U.S. recession was over and the recovery was underway. And, in Connecticut's case, the UR peaked eight months after the trough in the State's recession.

Of the areas compared in Graph 38, the U.S. UR peaked first (October 2009), and reached the highest level, 10.03%. It then reached a second high of 9.81% in November 2010. Connecticut's UR, though peaking after New England and the Tri-State Region, in October 2010, it was higher at 9.42%. The two region's UR's peaked in February 2010: New England's UR peaked at 8.72%, and the Tri-State Region peaked at 9.12%. By May 2012, the last period of available data, Connecticut's UR, 7.83%, had fallen below that of both the tri-state region (8.70%) and the U.S. (8.21%). By May 2012, New England's UR, at 6.81%, was below Connecticut's, and that for the U.S. and Tri-State Region.



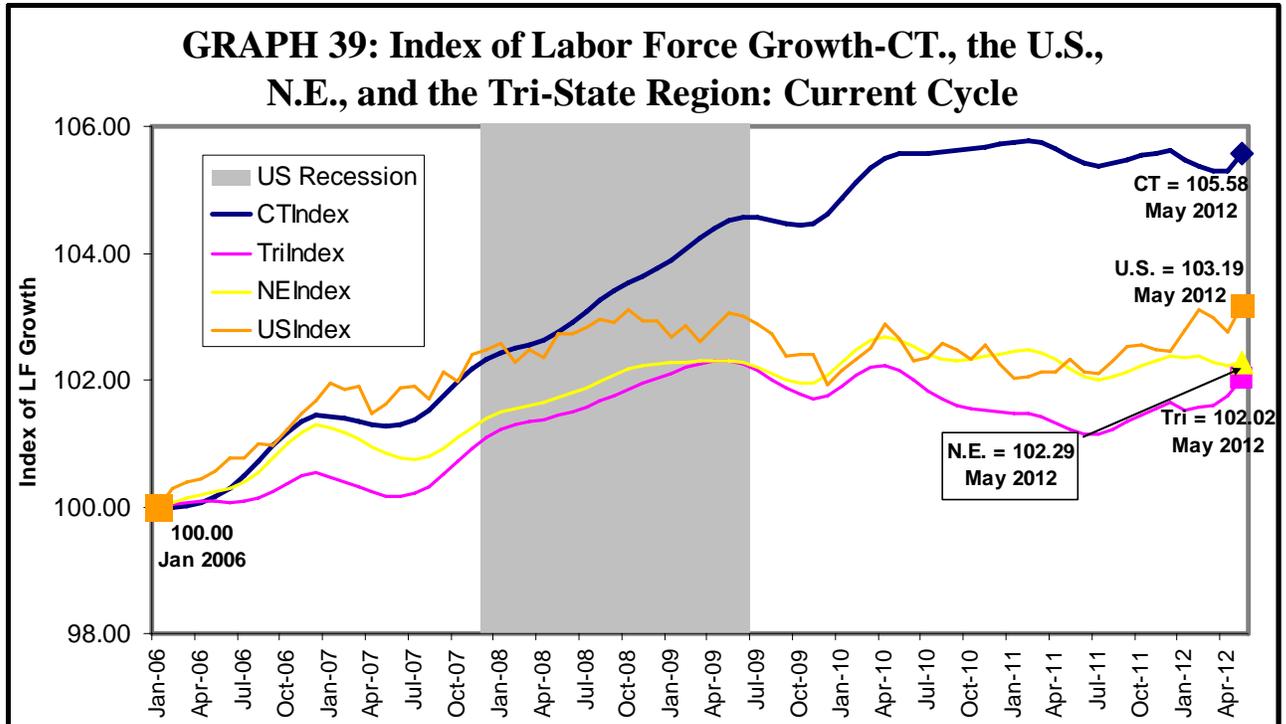


SOURCE: U.S. BLS and author's calculations.

And yet, as illustrated in Graph 39, with the rise in Connecticut's UR, its labor force growth surged. From January 2006, the period in which the index equals 100.00, Connecticut's index value was 105.58 in May 2012, which means that after the recession and recovery, Connecticut's labor force was 5.58% larger than it was in January 2006. Throughout the entire, NBER-defined recession period, Connecticut's labor force continued to grow, increasing by 2.19%, it continued to grow over the beginning of the recovery, and then level off as the recovery proceeded. The U.S. labor force grew by 0.67% over the recession, and that was after a decline, followed by growth. New England's labor force, like the U.S., grew by less than one percent over the recession (+0.887%), while the Tri-State Region's labor force grew by 1.23% over the recession.

From the end of the U.S. Recession in June 2009, to the end of the year, the labor force declined for Connecticut, but only by 0.13%, compared to the U.S., which declined by 1.10%, while the Tri-State Region declined by 0.54%, and New England by 0.30%.





SOURCE: U.S. BLS and author's calculations.

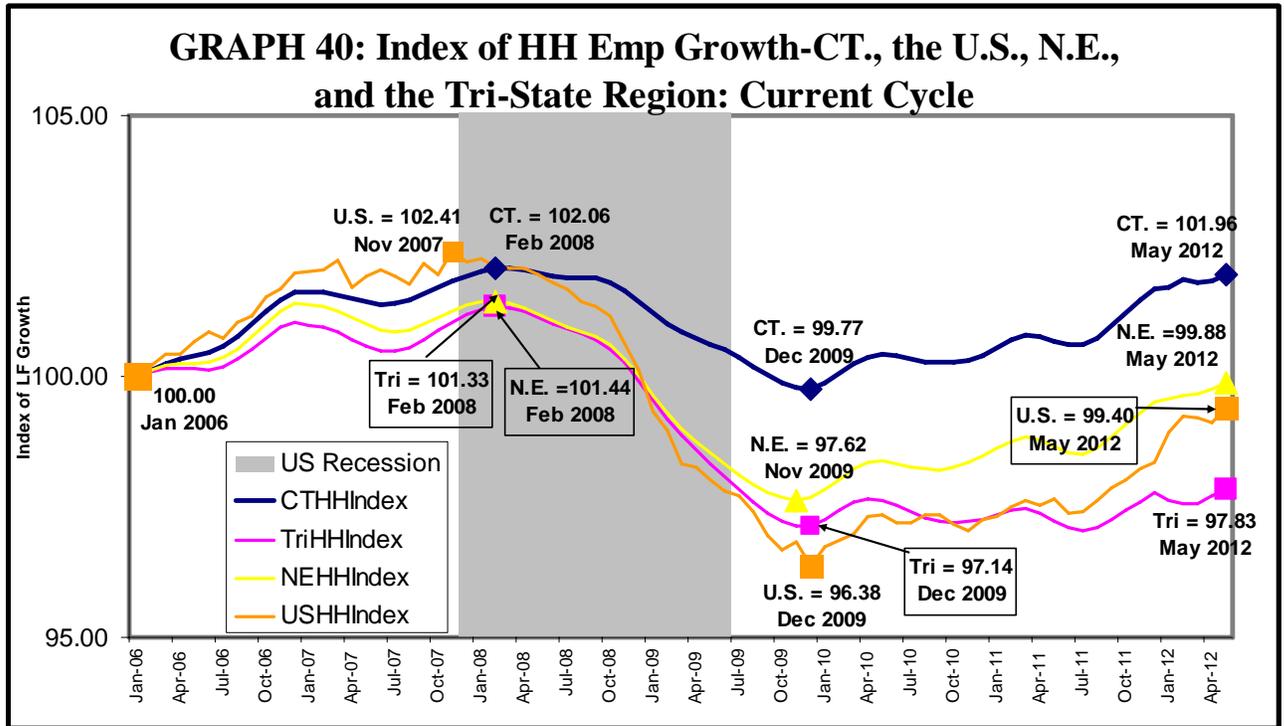
After a brief period of growth in 2010, the Tri-State Region's labor force then declined through the first half of 2011. It then grew again from May 2011 to May 2012, the last period of data. U.S. labor force growth followed an up-and-down trajectory through May 2011, and New England's labor force, after peak growth in April 2010, gradually declined through May 2012. Throughout the entire recovery period, save the brief stall in the last half of 2009, Connecticut's labor force continued relatively stronger growth over the entire recovery period surpassing the U.S., New England, and the Tri-State Region.

One clue to Connecticut's relatively strong labor force growth may be in the behavior of household employment from the Current Population Survey (CPS). The Household (HH) Employment, Labor Force, and UR come from a survey of the State's households and are therefore residence-based measures. Nonfarm (NF) employment is drawn from a survey of the State's business establishments (worksites), and is therefore based on geographic location. For a small state like Connecticut, located close to major job centers, in New York City and Boston, there can be a significant difference in the HH versus the NF



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employment series. Graph 40 compares the behavior of Connecticut’s residence-based HH employment series to the U.S., N.E., and Tri-State over the current cycle.



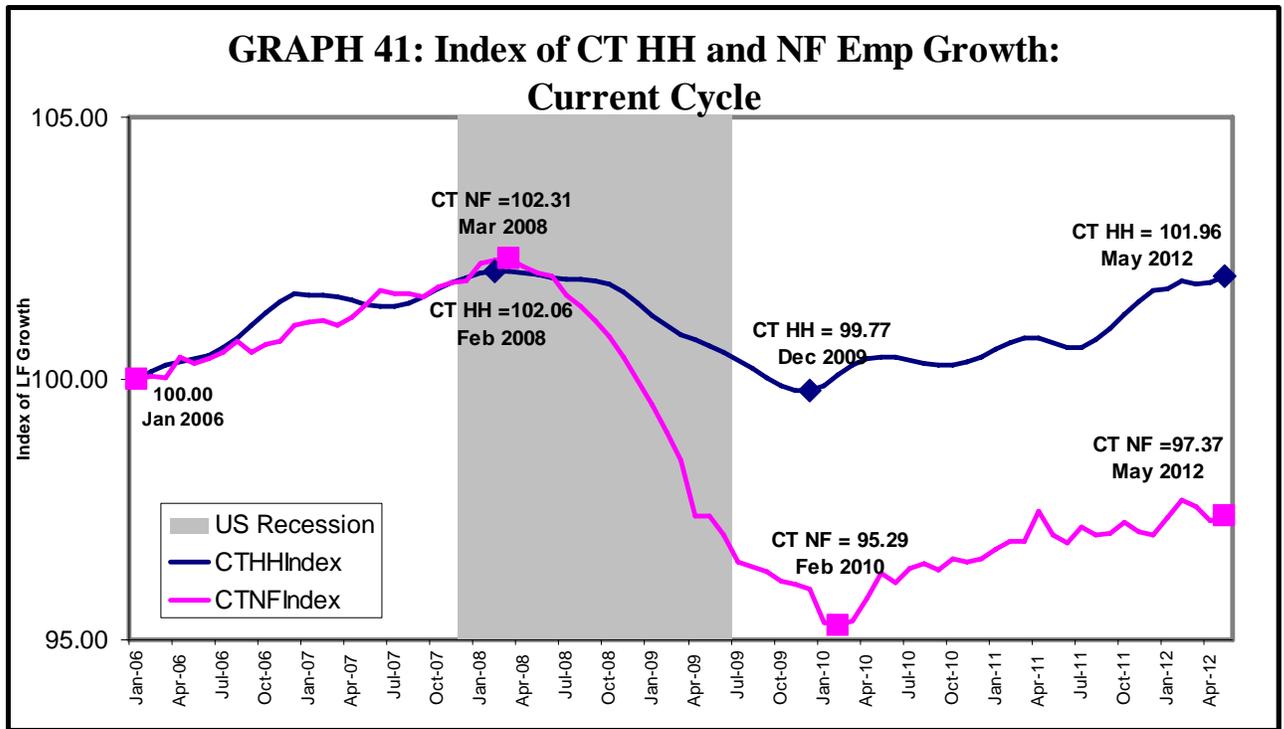
SOURCE: U.S. BLS and author’s calculations.

Continuing with the same index methodology, Graph 40 compares the index of Connecticut HH employment growth to that of the U.S., N.E., and the Tri-State Region. Note that Connecticut’s HH employment had the shallowest decline. Though Connecticut has only recovered 2.20% of the residence employment lost over the recession, as of May 2012, it also had relatively milder losses of 2.24% over the recent recession. While the U.S. recovered more strongly, gaining back 3.13% of its residence-based, or HH employment, its HH employment had declined more steeply by 5.90% over the recent panic/recession. N.E. has gained back 2.32% of its HH employment over the current recovery, but after losing 3.77% of its residence-based employment. The weakest performance was in the Tri-State Region. While only recovering 0.71% of residence employment lost over the recent recession, over the current recovery (as of May 2012), the region’s HH employment contracted by 4.14% over the recent panic/recession.



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As is illustrated in Graph 41, Connecticut’s HH employment has also performed much better than its NF employment over this cycle. Though the two series have been close in their relative job growth over the current recovery, from their respective troughs to May 2012, Connecticut’s NF employment grew by 2.18%, while the State’s HH employment grew by 2.20%, the two growth rates come off of significantly different relative declines.



SOURCE: U.S. BLS and author’s calculations.

Even though Connecticut’s HH employment declined one month before NF employment, (February versus March 2008), it recovered two months earlier (December 2009) than did NF employment (February 2010). In addition, Connecticut’s NF employment declined by 6.86% over the recession, compared to 2.24% for HH employment. Consequently, Connecticut’s HH employment had virtually completely recovery by May 2012, only 0.10% below its level at the peak of the last expansion. Conversely, Connecticut’s NF employment was only at 95% of its pre-recession, peak level. In other words, it was still 4.83% below its level at the peak of the previous expansion, as of May 2012. What accounts for the behavior of the two employment series over the cycle? Since residence

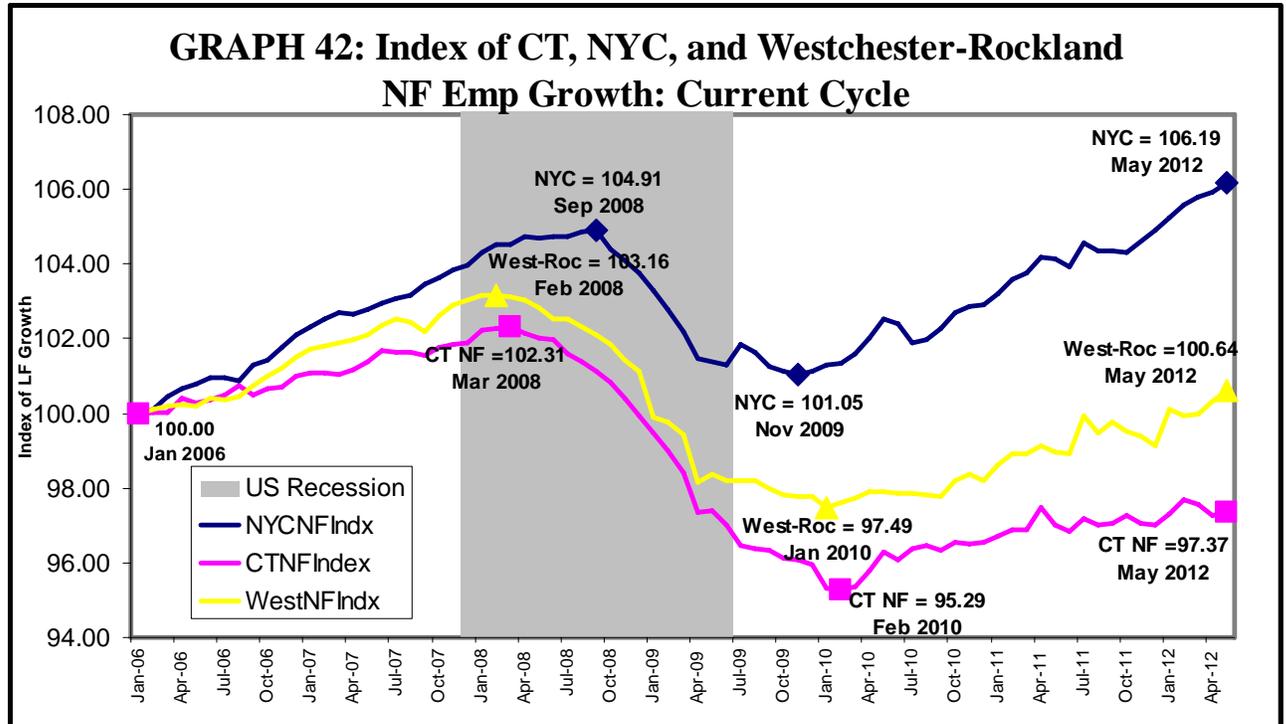


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employment includes those who reside in Connecticut, but commute to a job out of state, the answer may lie in relatively stronger job growth in these destinations. It is not likely that commuters from Connecticut into Rhode Island account for this growth, due to the small numbers of commuters, and the Rhode Island economy has declined more steeply than Connecticut's economy. And, growth had not been particularly strong in either the Springfield, or Boston areas, certainly not enough to account for the strong performance of Connecticut's HH employment. The two job centers that attract the largest number of Connecticut commuters are New York County (the Borough of Manhattan) and Westchester County. To explore the possibility of these two job centers accounting for, at least some of the strong growth in Connecticut's residence-based employment indicators, particularly, the labor force and HH employment, Graph 42 depicts the performance of the NF employment series for New York City (NYC) and the Westchester-Rockland-Putnam Area (Westchester-Rockland). If they were generating relatively stronger job growth in their economies then this would attract workers from Connecticut boosting the State's labor force and HH employment growth, even as its, geographic-based, NF employment grew more slowly.

The index methodology of the previous graphs is continued in Graph 42. Graph 42 presents indices for Connecticut's, NYC's, and Westchester-Rockland's NF employment series over the current cycle, including the peak of the last expansion, the recent panic/recession, and the current recovery up to May 2012. Graph 42 covers the period January 2006 to May 2012. What stands out in Graph 42 is the strong performance of NYC's NF employment over this cycle. NYC NF employment did not turn down until the month of the collapse of Lehman Brothers in September 2008, six months after Connecticut's NF employment turned down and seven months after the peak in Westchester-Rockland's NF jobs. Further, while Connecticut's NF jobs contracted by 6.86%, and Westchester-Rockland's contracted by 5.51%, NYC's NF jobs declined by 3.13%, a less severe contraction in NF jobs than for either Connecticut or Westchester.





SOURCE: U.S. BLS and author's calculations.

Further, NYC's NF employment came back relatively much stronger than Connecticut or Westchester-Rockland, after turning around in November 2009 (two months before Westchester-Rockland, and three months before Connecticut's turnaround in NF employment). Since it troughed, NYC's NF jobs have increased by 5.09% by May 2012. Although not as strong as NYC's, Westchester-Rockland's NF employment still grew by 3.22%, over the current recovery. Both grew more strongly than Connecticut's NF employment over the recovery, and did not decline as steeply over the recession.

The stronger growth in NYC and Westchester-Rockland NF employment over the current recovery, as of May 2012, given that these two job centers are the destinations for the greatest number of Connecticut's out-of-state commuters, may offer a major explanation of the stronger growth in Connecticut's HH employment, as well as its relative performance in its labor force growth, compared to its NF employment growth over the current recovery.

V. WHERE DO WE GO FROM HERE? The Outlook for 2011-2013 and Beyond

THE OUTLOOK FOR 2011-2013: Annual Forecasts

Graph 43 presents the history and forecast of annual average Connecticut nonfarm employment. The historical period covers 2007 to 2011, and the forecast period covers the years 2012 and 2013. Panel A presents the annual average of Connecticut nonfarm employment in levels, and Panel B shows the change in the annual, average level of employment. Over the two, recent recession years, Connecticut's job growth was flat in 2009, followed by a steep contraction of 72,400 jobs in 2009. Even though the State's employment recovered in February 2010, on an annual basis, Connecticut's economy shed another 18,600 jobs in 2010. Then, in 2011, the State added 15,500 jobs, on an annual basis, for the first time since 2008, and the strongest showing since 2007. The forecast expects continued growth over the forecast period, but that growth in the annual average level of jobs is projected to decelerate over 2011-2013 forecast horizon from 10,000 to 11,000 jobs added in 2012 with just over 3,000 added in 2013. That would result in 14,000 net, net jobs, on an annual basis, over the 2011-2013, two-year forecast horizon.

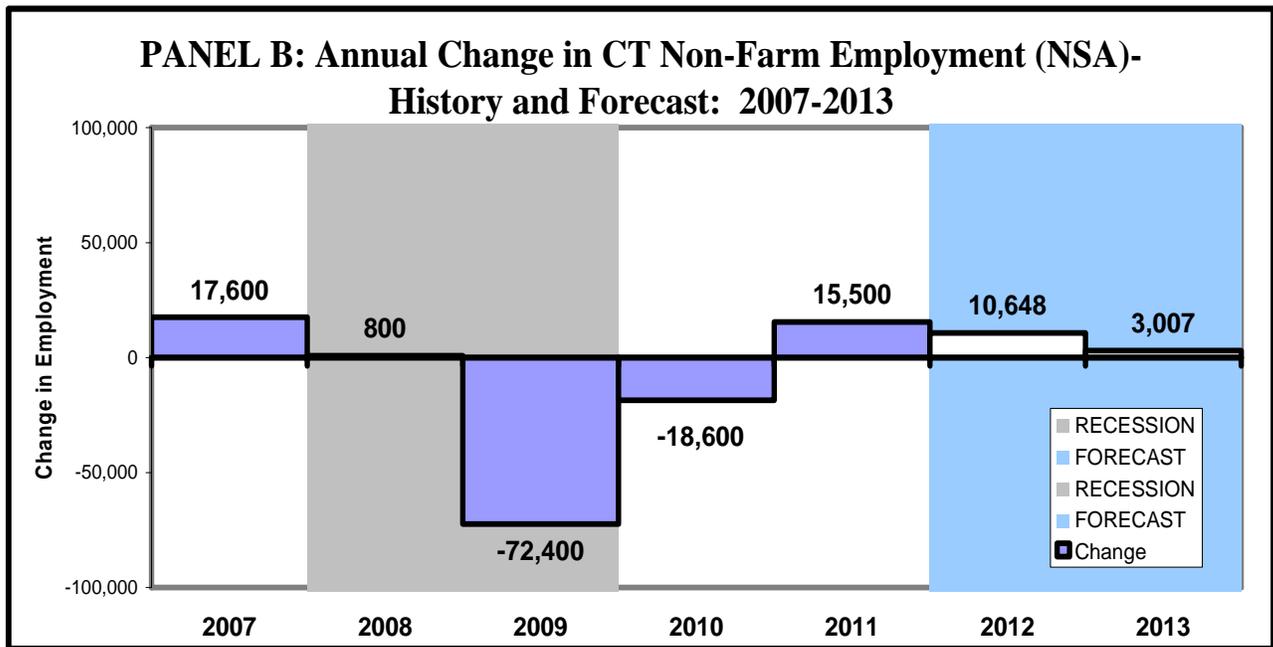
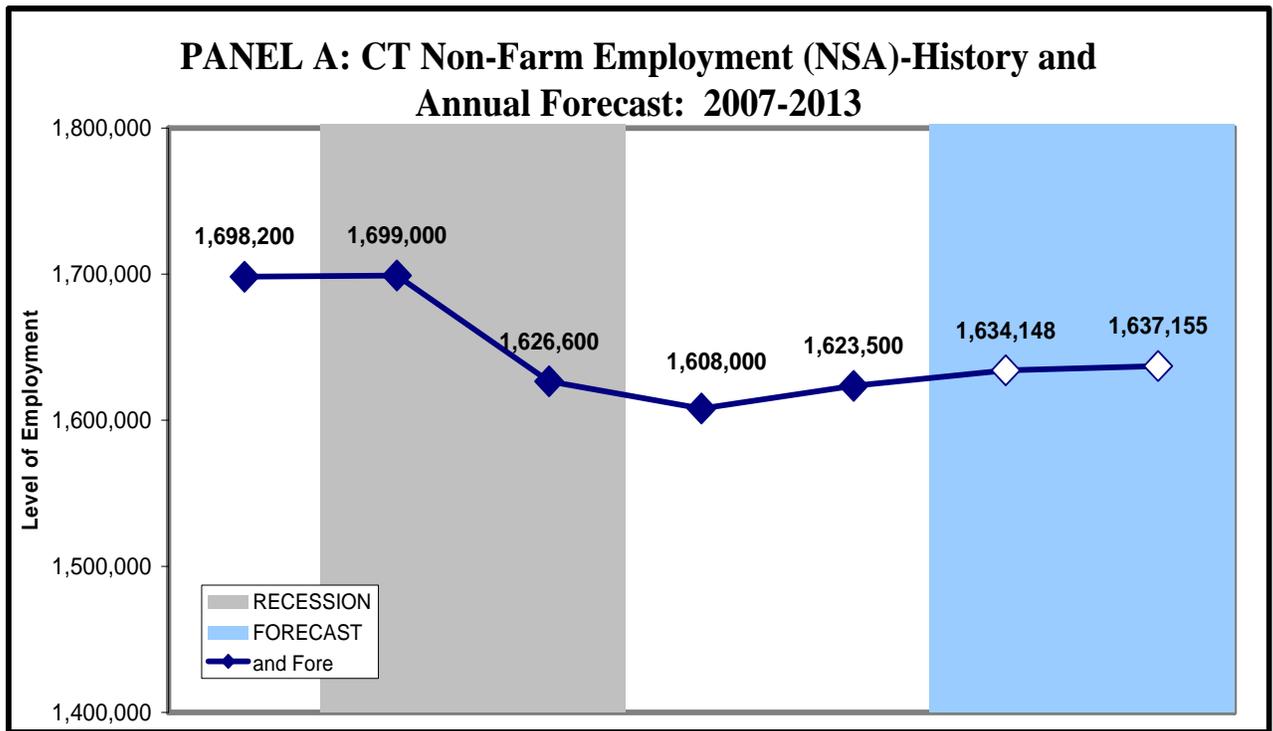
THE OUTLOOK FOR 2011Q4-2013Q4: 4th Qtr-to-4th Qtr Forecasts

Table A-1, in the Appendix, contains the details, by NAICS sector, for the fourth quarter-to-fourth quarter (4th Qtr-to-4th Qtr) forecasts for the 19 major, two-digit non-agricultural sectors, and the three- and four-digit detail.

Graph 44 turns to the 4th Qtr-to-4th Qtr forecast covering the two-year forecast period 2011Q4 to 2013Q4. For reference, two, two-year 4th Qtr-to-4th Qtr historical periods are also included in Graph 44. The last period before the recent crisis and recession was the 2005Q4-2007Q4 period. Over that eight-quarter period, Connecticut added nearly 40,000 net, new jobs. With the onset of financial crisis and the subsequent severe recession, the State's economy shed nearly 96,000 jobs between 2007Q4 and 2009Q4.



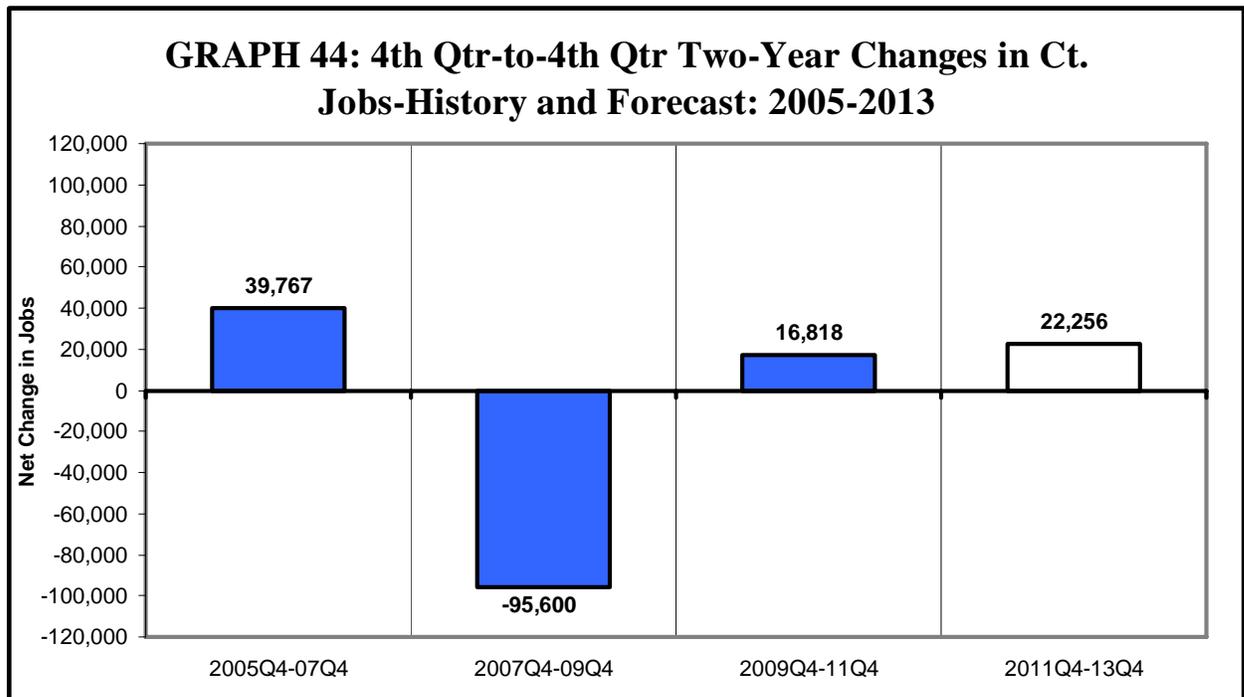
GRAPH 43: CT Non-Farm Employment-History and Forecast of Annual Average Employment (NSA)



SOURCE: U.S. BLS, CTDOL-Research, and author's calculations.

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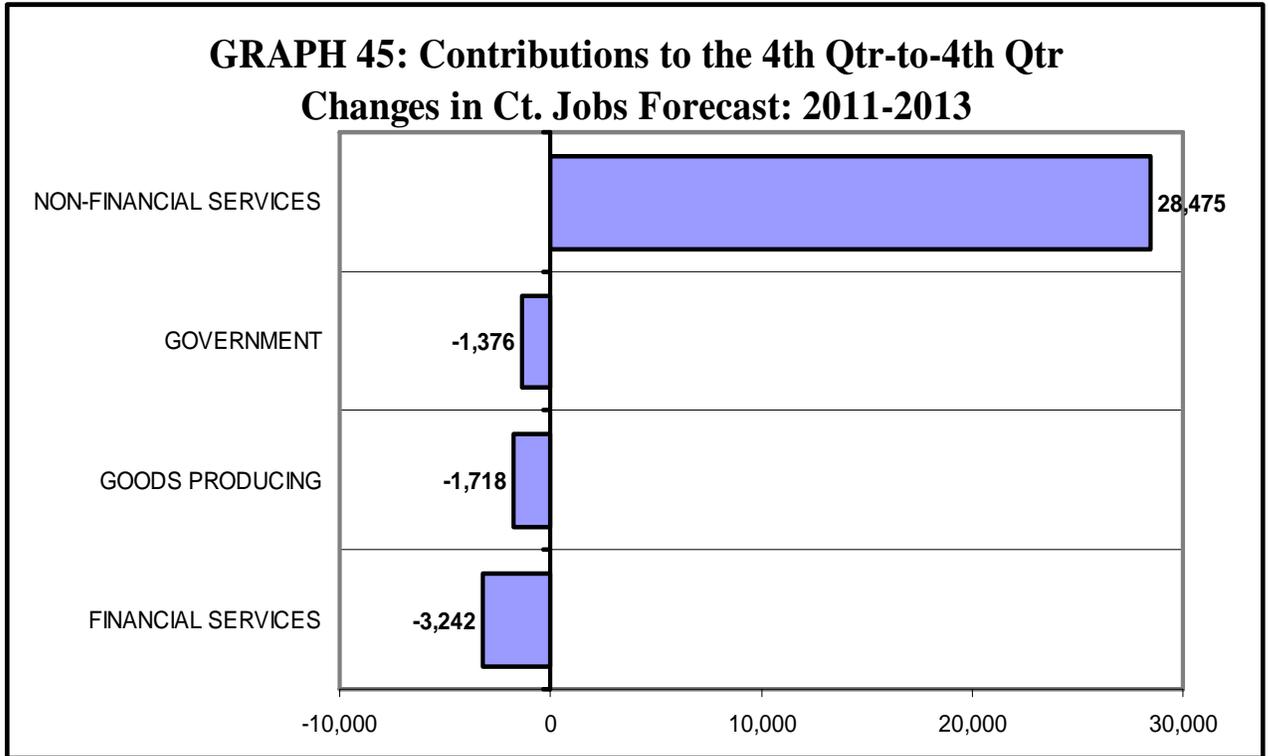
With the State’s recovery underway after February 2010, Connecticut added nearly 17,000 jobs between 2009 and 2011, 4th Qtr-to-4th Qtr. The forecast calls for the State’s economy to add another 22,000 jobs over the eight-quarter forecast period. The 2011Q4-2012Q4 segment of the 2011Q4-2013Q4 forecast period should account for a larger share of the job growth as the forecast expects job growth to slow over the 20012Q4-2013Q4 segment of the forecast period.



SOURCE: CTDOL-Research and author’s calculations.

Graph 45 breaks out the major sectors’ contributions to the forecast over the 2011Q4-2013Q4 period, and ranks the major sectors by their contribution to total growth over the forecast period. It is expected that the Private, Non-Financial Services Sector will be the only major sector that will add jobs over the forecast period. Non-Financial Services is expected to add 28, 500 net, new jobs over the 2011Q4-2013Q4 forecast horizon. The Government (-1,376), Goods Producing (-1,718), and Financial Services (-3,242) sectors are all expected to subtract jobs from the economy between 2011Q4 and 2013Q4.



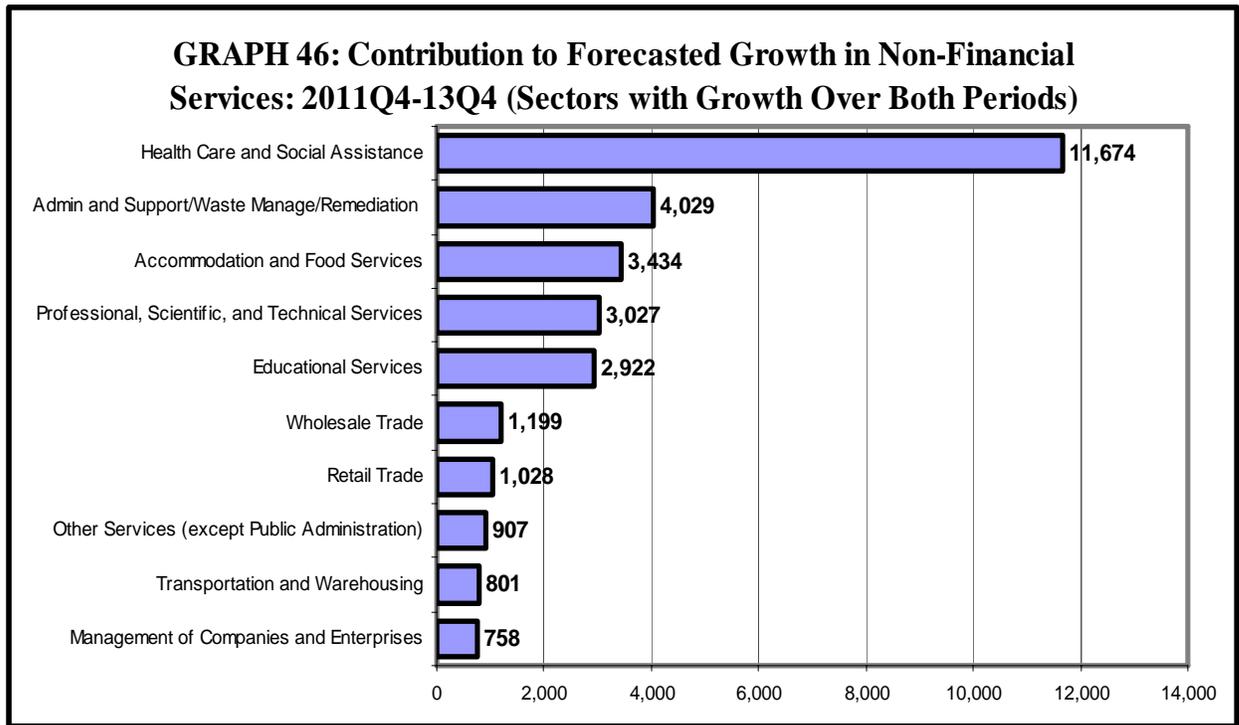


SOURCE: CTDOL-Research and author’s calculations.

Within Non-Financial Services, no sector that added jobs over the 2009Q4-2011Q4 base period is expected to shed jobs over the forecast period. On the other hand, two sectors that lost jobs over the base period are expected to add jobs over the forecast period: Construction (+1,633) and Arts and Entertainment (+370). Seven sectors that had job losses over the base period (2009Q4-2011Q4) are also expected to subtract jobs from the State’s economy over the forecast period. Mining is projected to shed another 34 jobs, the Manufacturing Sector, though experiencing a renaissance over the current recovery—especially in durable goods—is expected to shed jobs again, especially over the last half of the forecast period: 2012Q4 to 2013Q4. Utilities (-457), Information (-1,215), and the entire Financial Services Sector, as noted in Graph 45, are expected to eliminate jobs, and the Government Sector is expected to continue losing jobs over the forecast period, especially local government, eliminating another 1,376 jobs between 2011Q4 and 2013Q4.



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SOURCE: CTDOL-Research and author’s calculations.

As detailed in Graph 46, there are 10 sectors that added jobs over the base period that are also expected to add jobs over the forecast period. Seven of those 10 sectors are expected to add 1,000 or more jobs each between 2001Q4 and 2013Q4. Leading the way is the Health Care and Social Assistance (HCSA) Sector.

HCSA has been driven by trend-dominated growth propelled by demographics as the large Baby Boom generation has been aging. After adding 6,763 jobs over the base period (2009Q4-2011Q4), HCSA is expected to add 11,674 more new jobs, between 2011Q4 and 2013Q4, as a growing number of Baby Boomers celebrate their 65th birthday, and beyond. This is especially true for Connecticut whose median age at 40.0 years old is 2.9 years higher than that for the U.S., and with 14.2% of its population over 65, compared to 13.0% for the U.S.²³ The next most significant contribution to the forecast is the 4,029 jobs that Administration and Support and Waste Management

²³. Howden, Lindsay M and Julie A. Meyer, *Age and Sex Composition: 2010: 2010 Census Briefs* (May 2011) C2010BR-03, U.S. Census: Washington, Table 3, p. 7.



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(Admin-Support) is projected to add over the forecast horizon. This sector's growth is driven by temporary workers (Employment Services, NAICS 56130), which accounts for from one-quarter to one-third of the level of Admin-Support employment, but can account for most, or even all, of the sector's job growth, as the economy has moved more toward the use of contingent workers. This works in reverse when the economy contracts. And, this series may be evolving as a critical leading indicator. The Year-to-Year (YTY) growth in Temporary Help had decelerated in the last quarter of 2011, but then accelerated in the first quarter of 2012. Accommodation and Food Services is expected to add another 3,434 jobs over the 2011Q4-2013Q4 forecast period after adding 5,359 jobs over the 2009Q4-2011Q4 base period. This growth has been, and is expected to be, dominated by NAICS 722, Food Services, particularly Eating and Drinking Places. This seems to be driven by lifestyle factors. Professional, Scientific, Technical Services (Prof-Tech) is projected to add another 3,027 jobs over the forecast period to the 3,189 jobs added over the base period. Job growth, as well as decline, over the phases of the cycle in Prof-Tech have been driven by the cyclical behavior of Computer Systems and Design employment (NAICS 5415), as well as Legal (NAICS 5411) and Management Consulting (NAICS 5416). Education mostly private sector, is expected to add 2,922 jobs between 2011Q4 and 2013Q4. Wholesale Trade (+1,199) and Retail Trade (+1,028) are also projected to add more than 1,000 jobs each over the forecast period. Retail Trade has been particularly driven by the resurgence of Consumer Durables sales over the current recovery, particularly in the last half of 2011 and the first quarter of 2012. Consumer Durables, in turn, have been driven by jobs increases in NAICS 4411, New Car Dealers. In early 2010, NAICS 4451, Grocery, had been strong, but employment growth turned negative going into 2011 as Shaw's pulled out of the State in 2010²⁴.

RISKS TO THE FORECAST

There are significant downside risks to the forecast. That is, risks that could render the forecast overly optimistic. Foreclosures, distressed sales, and underwater mortgage

²⁴ By Gosselin, Kenneth G. and Janice Podsata, *Shaw's Selling All 18 Connecticut Stores: Stop & Shop To Acquire Five* (February 12, 2010) THE HARTFORD COURANT http://articles.courant.com/2010-02-12/business/hc-shaws00213.artfeb13115814_1_shaw-s-stores-shoprite-stores-shaw-s-supermarkets (Accessed on July 31, 2012)



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holders, as well as high unemployment, all are keeping the housing sector from recovering from the popping of the bubble. Consumer debt is still high, and student loan debt may be the next financial crisis. Depressed asset values and high debt loads mean that, as noted in the introduction to this outlook, as households and non-incorporated businesses continue to rebuild their net worth, it will act as a continued drag on the economy making it vulnerable to slipping back into recession. With talk of fiscal austerity winning the day, and no new fiscal stimulus on the horizon, growth will proceed in fits-and-starts, but overall, it will remain weak. The Eurozone Crisis could, of course, finally plunge the World back into financial crisis as it has been threatening to do for months now. Now, there is talk of Greece leaving the EU and Spain is now also in the spotlight. Furthermore, U.S. banks are not insulated from a financial crisis in Europe. They increased their sales of Credit Default Swaps (CDS), essentially writing insurance against credit losses to holders of Greek, Portuguese, Irish, Spanish, and Italian debt in the first half of 2011, boosting their risk exposure.²⁵

The second half of the forecast period, 2012Q4-2013Q4, is the most uncertain part of the forecast. In addition to the uncertainty of the political landscape until after the November elections, unless Congress kicks the proverbial can down the road, *The Budget Control Act of 2011* could potentially push the economy over a cliff in 2013²⁶. The spending cuts scheduled to take effect because of the failure of the so-called “Super-Committee” last November will take us down the same road as the United Kingdom, which has been plunged back into recession as a consequence of Draconian budget austerity measures.

On the positive side, gasoline prices have been declining for about three weeks at the time of writing, which acts as a progressive cut, which can stimulate the economy. Private sector job creation has been slow, but steadily growing, even as government, especially local government, has been a drag on the economy. And, at the time of writing, the U.S. Auto Industry had been going through a resurgence.

²⁵ Onaran, Yalman, *Selling More CDS on Europe Debt Raises Risk for U.S. Banks* (November 1, 2011) BLOOMBERG.COM <http://www.bloomberg.com/news/2011-11-01/selling-more-insurance-on-shaky-european-debt-raises-risk-for-u-s-banks.html> Accessed on February 29, 2012.

²⁶ Congressional Budget Office, *Estimated Impact of Automatic Budget Enforcement Procedures Specified in the Budget Control Act* (September 12, 2011)



APPENDIX

TABLE A-1

PUBLICATION TABLE AS OF MAY 11, 2012

Connecticut Non-Agricultural Employment: History and Forecast

INDUSTRY	HISTORICAL			FORECAST	NUMERICAL CHANGES			PERCENT CHANGES		
	2007:Q4	2009:Q4	2011:Q4	2013:Q4	CH07-09	CH09-11	CH11-13	%CH07-09	%CH09-11	%CH11-13
TOTAL	1,723,099	1,627,571	1,644,318	1,666,575	-95,528	16,748	22,256	-5.54	1.03	1.35
GOODS PRODUCING.....	261,873	221,030	220,120	218,403	-40,843	-910	-1,718	-15.60	-0.41	-0.78
Mining.....	747	610	571	537	-137	-39	-34	-18.38	-6.34	-5.95
Construction.....	70,464	53,851	53,507	55,140	-16,612	-344	1,633	-23.58	-0.64	3.05
Manufacturing.....	190,663	166,569	166,042	162,726	-24,094	-527	-3,316	-12.64	-0.32	-2.00
SERVICE PROVIDING.....	1,445,786	1,391,692	1,410,186	1,434,043	-54,094	18,494	23,857	-3.74	1.33	1.69
Wholesale Trade.....	68,279	63,896	64,020	65,219	-4,382	124	1,199	-6.42	0.19	1.87
Retail Trade.....	197,254	183,101	185,633	186,661	-14,152	2,532	1,028	-7.17	1.38	0.55
Transportation and Warehousing.....	53,951	49,470	49,540	50,341	-4,481	70	801	-8.31	0.14	1.62
Utilities.....	6,685	6,590	6,038	5,581	-95	-552	-457	-1.42	-8.38	-7.56
Information.....	38,133	34,020	31,241	30,025	-4,113	-2,779	-1,215	-10.79	-8.17	-3.89
Finance and Insurance.....	122,866	116,718	113,751	111,511	-6,148	-2,968	-2,239	-5.00	-2.54	-1.97
Real Estate and Rental and Leasing.....	20,937	18,962	18,599	17,596	-1,975	-363	-1,003	-9.43	-1.91	-5.39
Professional, Scientific, and Technical Services....	93,019	85,457	88,646	91,673	-7,562	3,189	3,027	-8.13	3.73	3.41
Management of Companies and Enterprises.....	27,076	27,163	28,880	29,638	87	1,718	758	0.32	6.32	2.62
Admin and Support/Waste Manage/Remediation..	90,404	76,720	83,116	87,145	-13,684	6,396	4,029	-15.14	8.34	4.85
Educational Services.....	177,587	179,324	180,514	183,436	1,736	1,190	2,922	0.98	0.66	1.62
Health Care and Social Assistance.....	255,936	265,645	272,408	284,082	9,709	6,763	11,674	3.79	2.55	4.29
Arts, Entertainment, and Recreation.....	42,540	40,607	39,434	39,804	-1,934	-1,172	370	-4.55	-2.89	0.94
Accommodation and Food Services.....	113,137	110,083	115,442	118,876	-3,054	5,359	3,434	-2.70	4.87	2.97
Other Services.....	58,648	56,556	57,160	58,068	-2,092	604	907	-3.57	1.07	1.59
Government**.....	79,334	77,380	75,763	74,386	-1,954	-1,617	-1,376	-2.46	-2.09	-1.82

SOURCE: Connecticut Department of Labor, Office of Research NOTE: Data not seasonally adjusted

**State and local-government employment did not actually increase by 29,769 between 2007Q4 and 2009Q4. Reporting requirements changed, which caused a jump in jobs reported by the State and local governments.