Current Conditions and Outlook for the U.S. and Connecticut Economies: 2007-2009

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Table of Contents

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CURRENT CONDITIONS AND OUTLOOK FOR THE
U.S. AND CONNECTICUT ECONOMIES: 2007-2009

I.   INTRODUCTION

What follows is the outlook on the U.S. Economy, which is prepared by the Office of Research, Connecticut Labor Department, to set the assumptions for the next round of Short-Term Connecticut, Industry-Employment Forecasts to the fourth quarter of 2008. An outlook for the Connecticut Economy is also prepared.

Due to time and resource constraints, this outlook focuses on the performance of growth and output, investment spending, and resource utilization, both physical and human, over the current recovery/expansion. There is a particular emphasis on labor markets, given that setting the assumptions for the Connecticut Short-Term Employment Forecasts is the motivation for both, the U.S. and Connecticut economic outlooks. The current cycle's performance is compared to that of the Post-1975 business cycles. The comparisons are restricted to the Post-1975 Era because of the significant shifts in the World Economy since then. In August 1971, Richard Nixon announced that the U.S. would no longer honor dollars for gold. This effectively ended the Bretton Woods System. For the next two years attempts were made to patch it up. The attempt was given up in 1973, and that year, the gold-based world exchange regime officially ended. After the Yom Kipper War in 1973, OPEC imposed an oil embargo on the World, which ushered in the new energy realities. Thus, by the initial trough of the cycle beginning in 1975, the World Economy had undergone a significant structural shift. These factors have motivated the use of Post-1975 cycles as the reference for measuring the performance of the current recovery/expansion in this outlook.

The next section, Section II, looks at the principal measures of output in the economy: Gross Domestic Product and Industrial Output. It then investigates the current recovery/expansion's utilization of resources, both human and physical. To that end, the performance of labor markets and capacity utilization are discussed.

II.   SECTORAL DETAIL

a. Growth and Output

U.S. GDP and Manufacturing Output
The assessment of the current conditions prevailing in the U.S. Economy in the first half of 2007 begins with tracking the most well-known indicator of economic activity: ***Gross Domestic Product*** (GDP). U.S. Gross Domestic Product (GDP) is defined as the dollar-value of all current-period production of goods and services. And, in this case, those goods and services produced within the territorial boundaries of the U.S., regardless of the country of ownership. In this context, "current-period" means quarterly output. This contrasts with Gross National Product (GNP). GNP counts all goods and services produced by American-owned facilities, and all payments made to American factors of production, regardless of where they are located. Thus, production of goods and services by foreign-owned facilities, within the territorial borders of the U.S. would not be counted as part of U.S. GNP (but, would be counted as part of U.S. GDP). To summarize: GDP is a *geographic-location* concept, where GNP is a *residence-based* concept.

GDP is not the only measure of growth and output. **Industrial Production** is another measure of growth and output of the economy. But, GDP and Industrial Production are based on different methodologies. GDP is calculated on a *net output* basis (i.e.; Value Added). It excludes the double counting of the intermediate inputs of purchased goods and services that are used to produce final output. Whereas, Industrial Production is calculated on a *gross output* basis that includes the intermediate inputs of purchased goods and services used in the production of final output. In this analysis, the *Manufacturing Industrial Production Index* (IPI) is used rather than the Total IPI. In addition to leaving out utilities that can be influenced by the weather rather than the underlying forces driving the economy, Manufacturing, despite its decline in importance in the U.S. Economy, still has a significant direct effect, and wide secondary and tertiary ripples throughout the economy, as the indirect effects, in conjunction with its strong induced effects, due to the high-paid workforce, stimulates substantial secondary production and a greater per-worker spending impact than most other sectors of the economy.

i.   U.S. GDP and Manufacturing Output Growth

Connecticut's growth in output, whether measured as GDP, or industrial output, is heavily tied to the performance of the U.S. Economy. With this in mind, the discussion in this section begins with an assessment of U.S. economic growth over the current cycle compared to past cycles. This will provide the context for gauging the strength or weakness of the current recovery/expansion, and what might be expected over the 12 to 24 months.

U.S. GDP Growth

On March 29th, the U.S. Bureau of Economic Analysis (BEA) released the final estimates of Real Gross Domestic Product (GDP) for the fourth quarter of 2006 (2006Q4). GDP increased at an annual rate of 2.5 percent according to final estimates. In the third quarter, real GDP increased by 2.0 percent.

Due to the difficulties of adding together the constant-dollar, chained components of GDP, the discussion will begin with a look at the contributions of the major components to the growth of nominal, or current-dollar GDP. Current-dollar GDP increased 4.1 percent, or $135.6 billion, in the fourth quarter to a level of $13,458.2 billion. In the third quarter, current-dollar GDP increased 3.8 percent, or $125.3 billion. Graph 1, tracks the major components of GDP and their contribution to the change from the previous quarter in the dollar-value of goods and services produced in the U.S. Economy.

Graph 1 presents the contributions to the quarterly changes in Nominal GDP of the major spending-side components from the first quarter of 2005 (2005Q1) to the fourth quarter of 2006 (2006Q4). The big positive feature to note is the large contribution that Net Exports made to U.S. GDP-growth in the fourth quarter, after subtracting from growth in the second and third quarters. Net Exports added $101 billion to Current-Dollar GDP growth in the fourth quarter. Though the growth in Exports actually declined from $40 billion in the third quarter to $35 billion in the fourth, it was the $66 billion decline in Imports that pushed Net Exports into the

positive column, making it an addition to GDP, rather than a subtraction. This, of course, was due to the significant drop in the U.S. "oil bill" as a result of rapidly falling prices. Government Spending accelerated slightly, while the growth in Consumer Spending actually declined in the fourth quarter. In fact, the growth in Consumer Spending has been decelerating since the first quarter of 2006. Consumption made the smallest contribution to GDP-growth in the fourth quarters of both, 2005 and 2006.

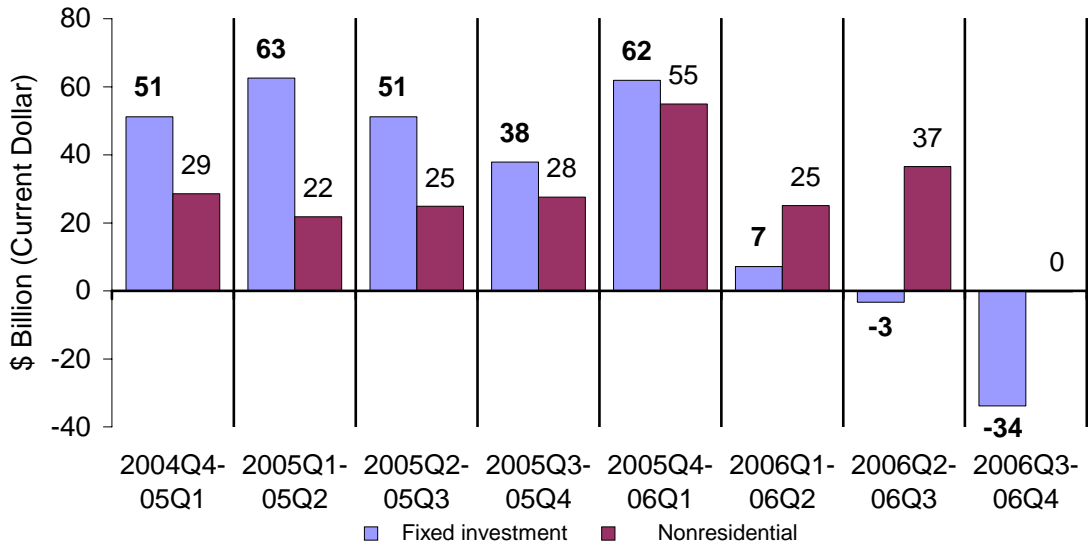GRAPH 1: Contributions to U.S. Nominal GDP Growth: 2005Q1-2006Q4
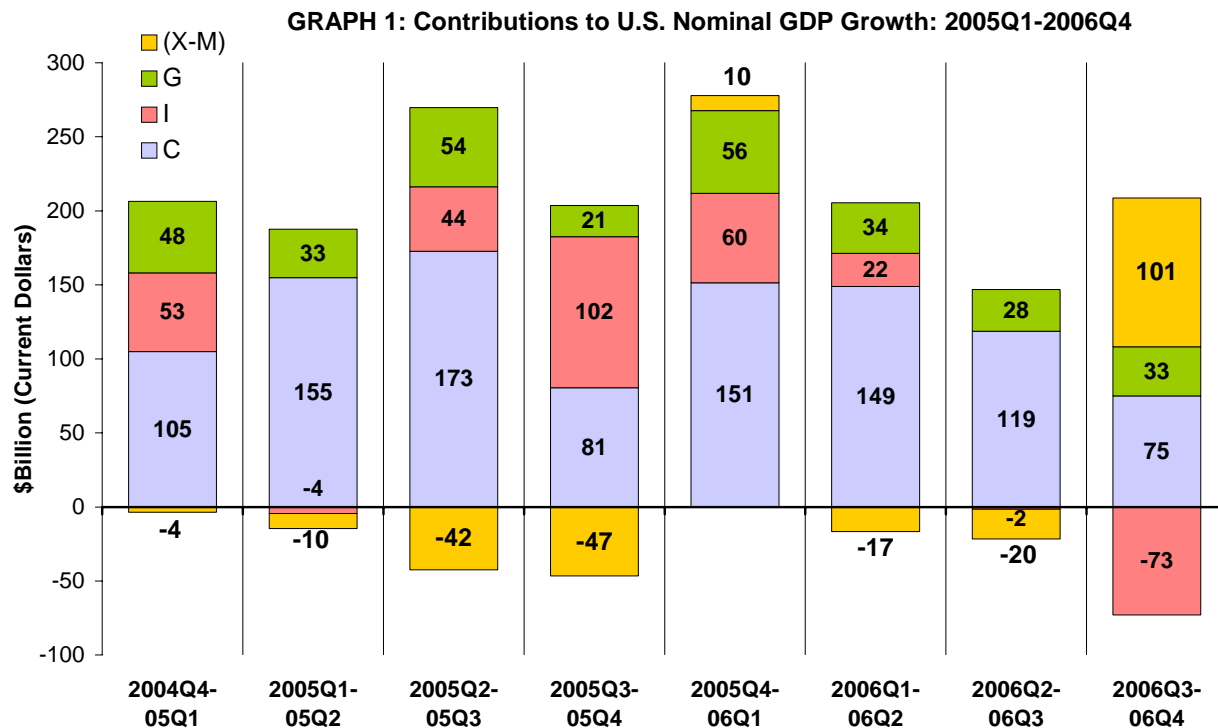
Graphs 2-A and 2-B, present a detailed brake down of the components of Fixed Investment over the 2001Q1-2006Q4 Period. Graph 2-A compares Total Fixed Investment and Non-Residential Fixed Investment. After peaking in the second quarter of 2005, the QTQ growth in Total Fixed Investment (TFI) decelerates, until peaking again at $62 billion in the first quarter of 2006. The growth in TFI then decelerates rapidly in the second quarter to $7 billion. QTQ growth in TFI then turns negative in the third quarter, followed by a steep decline of $34 billion in the fourth quarter of 2006. Throughout the entire period, Non-Residential Fixed-Investment is positive until 2006Q4, when it is flat (i.e., zero QTQ growth). This would point to Residential Investment as the culprit pulling down TFI over the last half of 2006. Graph 2-B explores this question. The contributions to the QTQ growth (in nominal terms) of TFI are broken out for the eight quarters depicted in Graph 2-A. And, indeed, it appears that Residential Investment, with steep declines in the second, third, and fourth quarters of 2006 was the major contribution to the anemic growth in TFI in 2006Q2, and the back-to-back, QTQ, declines in TFI over the third and fourth quarters of 2006. But on closer inspection of Graph 2-B, it is also apparent that other investment components are also contributing to the weakness in business investment spending. The $36 billion

spurt in investment in Equipment & Software in the first quarter of 2006, was followed by a $3 billion decline in the second quarter. After recovering to a $16 billion increase in the third quarter, investment in Equipment & Software fell again, by $7 billion, on a QTQ basis. Further, investment-growth in Residential Structures grew at a modest $7 billion, after growing two to three times that over the previous two quarters.

GRAPH 2-A: Total and Non-Residential Fixed Investment
QTQ Growth:2005Q1-2006Q4

GRAPH 2-B: Contributions to U.S. Nominal Fixed-Investment Growth: 2005Q1-2006Q4
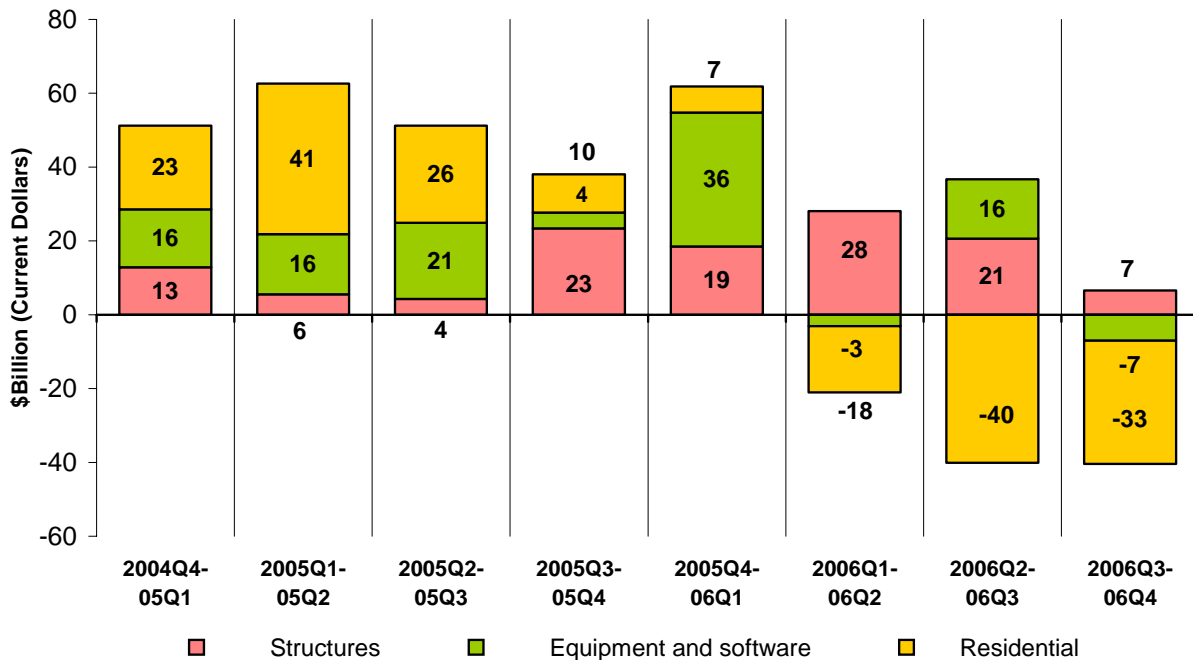
Turning to Real GDP measured in Chained 2000 Dollars, Graph 3, shows the QTQ real, or constant-dollar, change in U.S. Gross Private Domestic Investment (GPDI),

which reflects investment spending by the Business Sector over the 2005Q1-2006Q4 Period. After some up-and-down growth over the first three quarters of 2005, Investment Spending surged to $71 billion in the fourth quarter of 2005. However, $56 billion of the growth in Real GPDI was due to inventory accumulation. Since then, the growth in Investment Spending has decelerated rapidly, and turned negative in the third quarter of 2006, followed by a steep decline of $79 billion in the fourth quarter.

GRAPH 3: QTQ Change in U.S. Real GPDI: 2005Q1-2006Q4
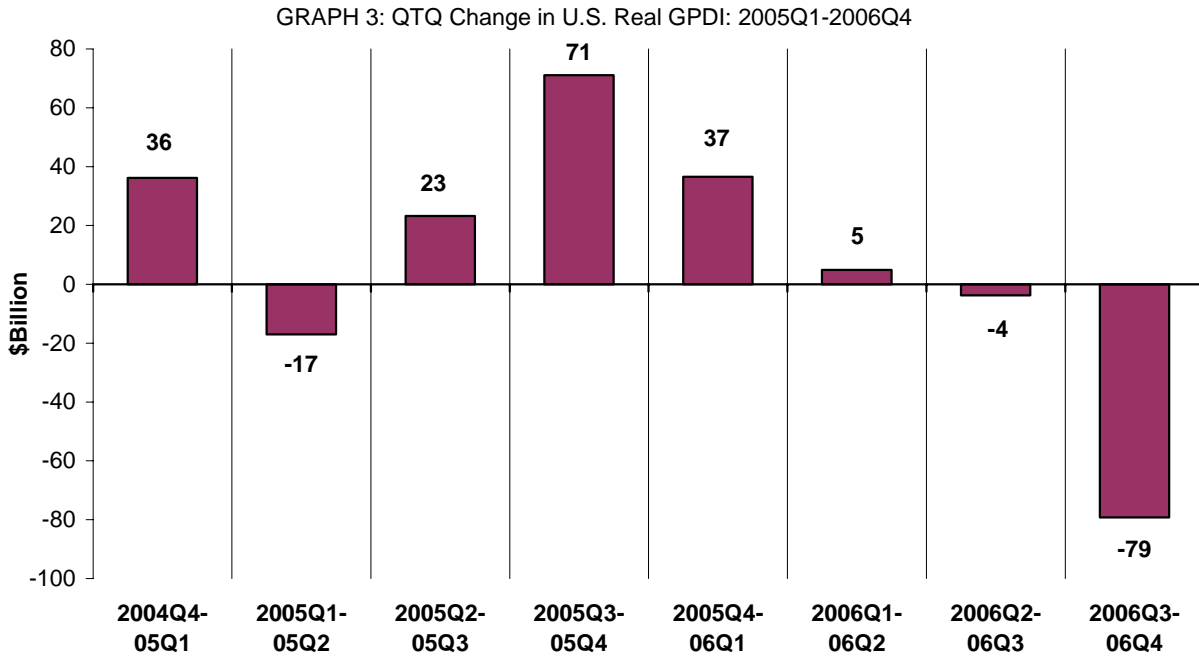
Graph 4, isolates the changes in Real Total Fixed Investment (RTFI) over the 2005Q1-2006Q4 Period depicted in Graph 3. This removes the effects of the swings in inventory changes, and focuses on the changes in fixed-investment spending in the U.S. Economy.
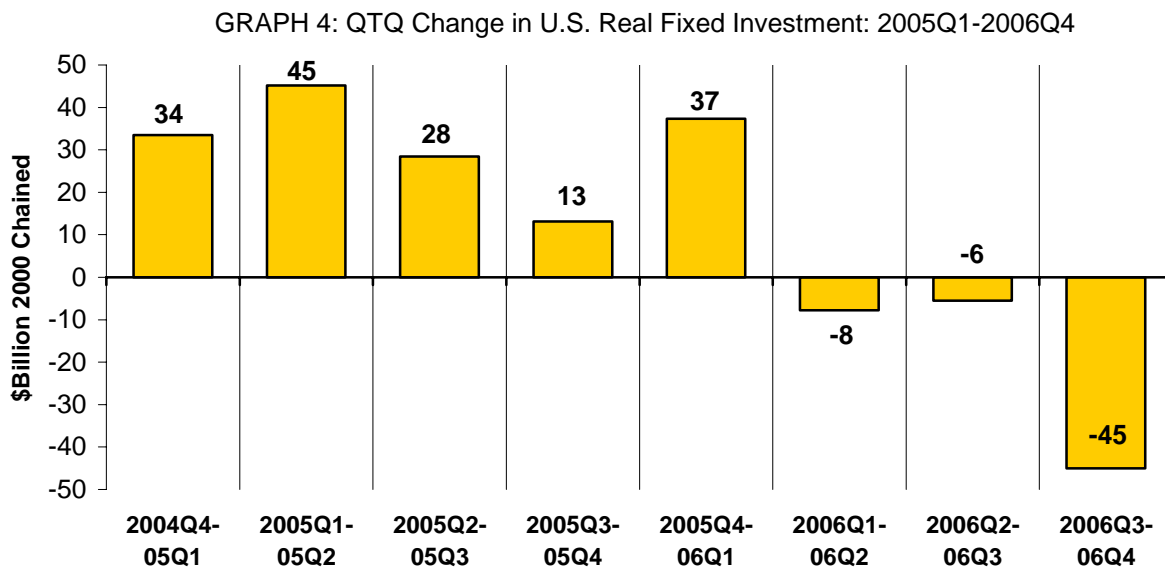
GRAPH 4: QTQ Change in U.S. Real Fixed Investment: 2005Q1-2006Q4

Graph 5 decomposes Real Investment Spending into selected component-parts to investigate some of the underlying trends driving the changes in aggregate, fixed investment behavior observed in Graph 4. Referring to Graph 5, the growth in Investment in Non-Residential Structures has roughly followed a quadratic trend pattern from 2005Q3 to 2006Q4. After a $5 billion dollar decline, the growth in investment activity in Non-Residential Structures accelerated until 2006Q2, when it grew $12 billion, on a QTQ basis. Since then, growth has decelerated, turning flat in the fourth quarter of 2006, increasing by $1 billion. Before addressing the decline in Residential Investment, it should be noted that, as depicted in Graph 5, it was not just the decline in Residential Investment that produced the negative investment numbers for the fourth quarter of 2006, investment in Equipment & Software declined by $13 billion in the fourth quarter of 2006. It is also worth noting the volatility of Equipment & Software Investment, compared to the other major components of fixed investment. That is, there appears to be larger quarter-to-quarter swings, producing a "saw-toothed" configuration of its time-path. With a maximum QTQ growth of $37 billion in 2006Q1 and a decline of $13 billion in 2006Q4, the range is $50 billion over the 2005Q1-2006Q4 Period. Whereas the $58 billion range in the QTQ change Residential Investment spending was the result of a steady, six-quarter deceleration in growth.

GRAPH 5: Residential and Non-Residentail Investment Components of U.S. Real GDP-QTQ Change: 2005Q1-2006Q4
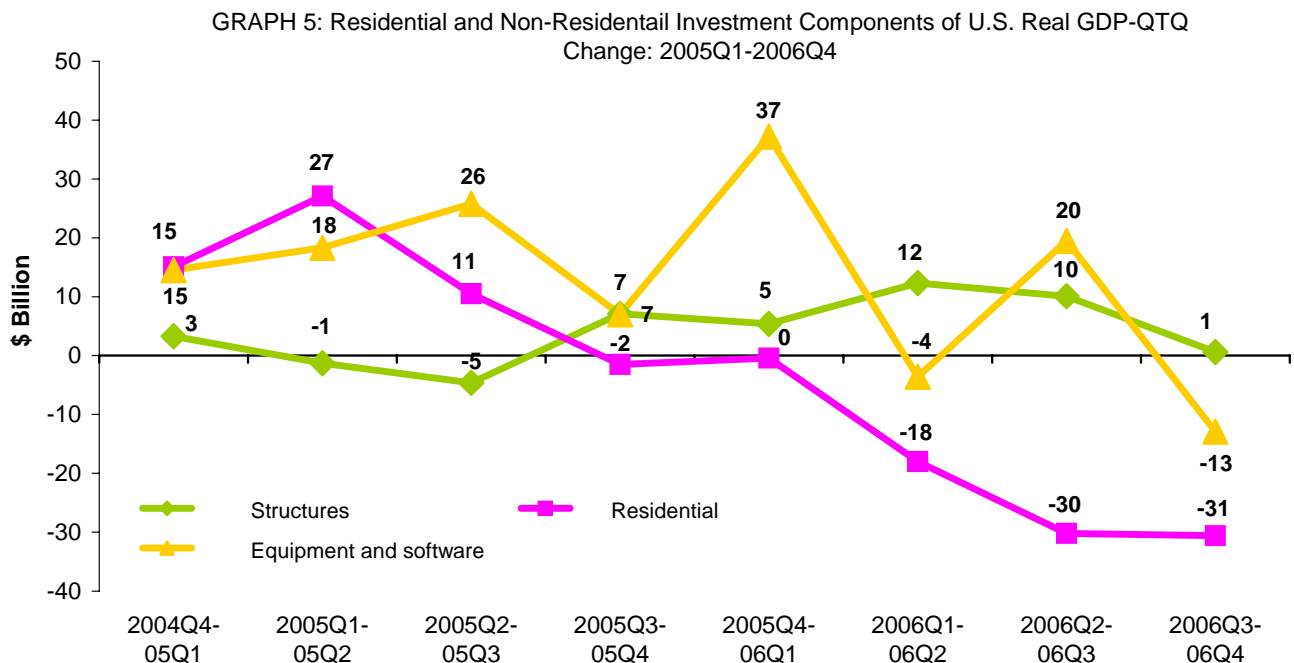
Of course, the big story in the economy over the past year has been the deflating of the housing bubble. From Graph 5 it is apparent that there has been a rapid deceleration in the QTQ growth in Residential Investment spending. After a peak growth of $27 billion in the second quarter of 2005, the growth in Investment in Residential Structures has rapidly decelerated, turning negative in 2005Q4, flat in 2006Q1, and then declining by $18 billion in 2006Q2, and by another $30 billion each quarter, in the third and fourth quarters of 2006.

To see how Real GDP-growth in this recovery/expansion stacks up to the performance over recent business cycles, Graph 6 presents an index of relative growth of Real GDP over the first 20 quarters of Post-1975/Cold War cycles: the 1975Q1, 1982Q4[1], 1991Q1, and the current recovery/expansion. What stands out in Graph 6 is the weakness in RGPDI growth over the first 20 quarters of recovery/ expansion, when compared to the other Post-1975 recovery/expansions. In fact, RGPDI started declining after 18 quarters into the current recovery/expansion. After declining for a couple of quarters in the 1991Q1 Recovery/Expansion, RGPDI began to grow again after the 18th Quarter of recovery/expansion and continued for more than 20 additional quarters.

GRAPH 6: Index of Real U.S. GPDI Growth-First 20 Quarters of Recovery/Expansion:
1975Q1, 1982Q4, 1991Q1, and Current Recovery/Expansion

Index of Real GPDI (Quarter 0 = 100.00)

Quarters into Recovery/Expansion

— 1975Q1 RECOVERY — 1982Q4 RECOVERY — 1991Q1 RECOVERY — CURRENT RECOVER (2001Q4)
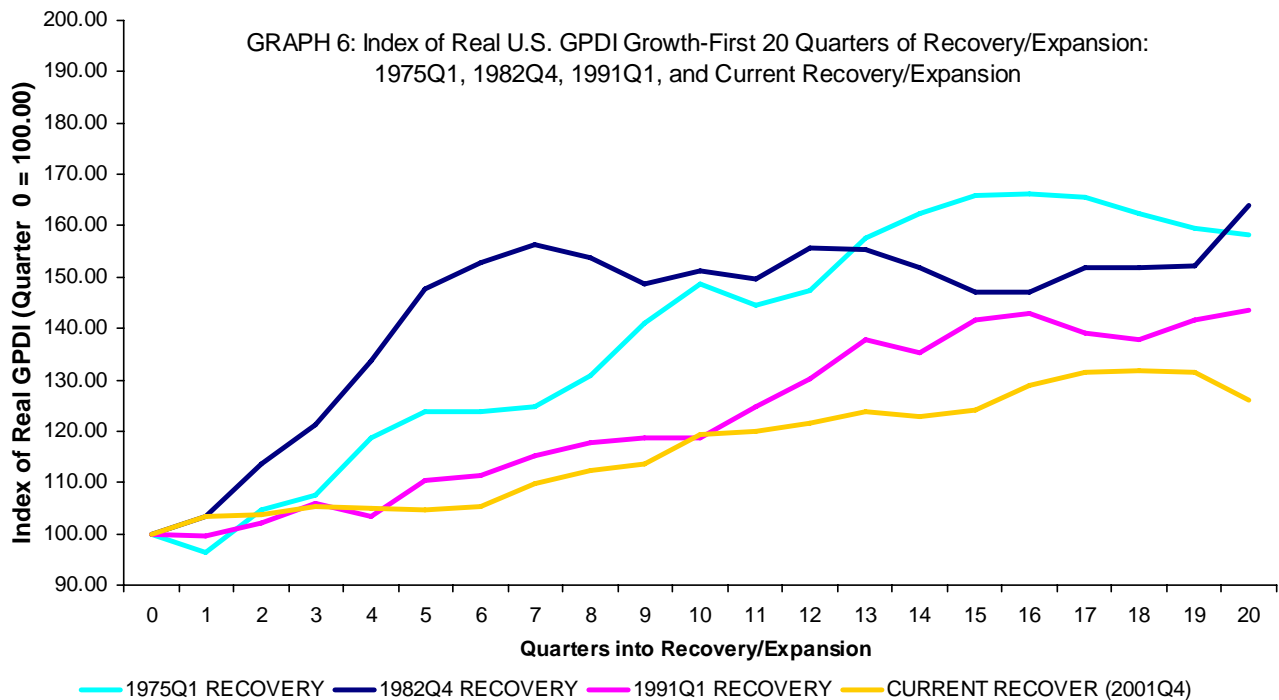
It should be noted here that the comparable 20-quarter period over the 1991Q1 Recovery/Expansion ends with the first quarter of 1996. At this point, the boom/ bubble had not yet started. The milestone Netscape IPO, which kicked off the tech-boom (whether symbolically, in reality, or a little of both), which took place in September 1995, the *Telecommunications Act of 1996* (largely believed to have caused, or at least, exacerbated the overinvestment in the Telecommunications Sector) had not yet affected the economy, including investment decisions, as these factors would by the end of the expansion. Although, it should be noted that 1996 was the year that Greenspan gave his, now famous, "Irrational Exuberance" speech. This discussion will be picked up below in the sections on industrial output, resource utilization, and business investment spending.

Growth in U.S. Manufacturing Output

On March 16, 2007, the Board of Governors of the Federal Reserve released the February numbers for ***Industrial Production and Capacity Utilization***.

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[1] Since it was essentially an aborted recovery, the 1980 Recovery is not included

Industrial production increased 1.0 percent in February after a decrease of 0.3 percent in January and a rise of 0.8 percent in December. However, the output of utilities jumped 6.7 percent in February, as colder-than-average temperatures boosted production at both electric and natural gas utilities. At 113.1 percent of its 2002 average, overall industrial production for the month was 3.4 percent above its year-earlier level. As highlighted in the Fed's release, the cold weather in February significantly boosted the output of utilities. To mitigate the affects of the weather, the strength or weakness of the underlying economic activity is best gauged by looking at changes in Manufacturing Output, or the Manufacturing Industrial Production Index (IPI), rather than the Total IPI. This is not to say that the weather has no affect on manufacturing output. It surely does. But the effects should not be as pronounced as they are in the total index, which includes the utilities. With that in mind, the remainder of this section focuses on manufacturing output for both the U.S. and Connecticut.

In addition to the Total IPI, the Fed also released numbers for February on Manufacturing Output and Capacity Utilization. They reported that output in the manufacturing sector gained 0.4 percent in February and was led by increases in motor vehicles and in high-technology goods. The same approach will be used when looking at the Capacity Utilization Rate (CUR), which is discussed below in the section on resource utilization.

Graph 7, tracks the MTM percent growth in Manufacturing output, or the Industrial Production Index (IPI), (left vertical scale), and the YTY percent growth (right vertical scale) over the first 63 months of the current recovery/expansion (November 2001 to February 2007). After a 1.57% surge in the month-to-month growth-rate in October 2005, growth hit 0.90-1.00%, on a MTM basis, in November 2005, and April, June, and December 2006. Slight MTM declines in manufacturing output were recorded in February, September, and November 2006. Steeper monthly declines occurred in October 2006 (-0.93%) and January
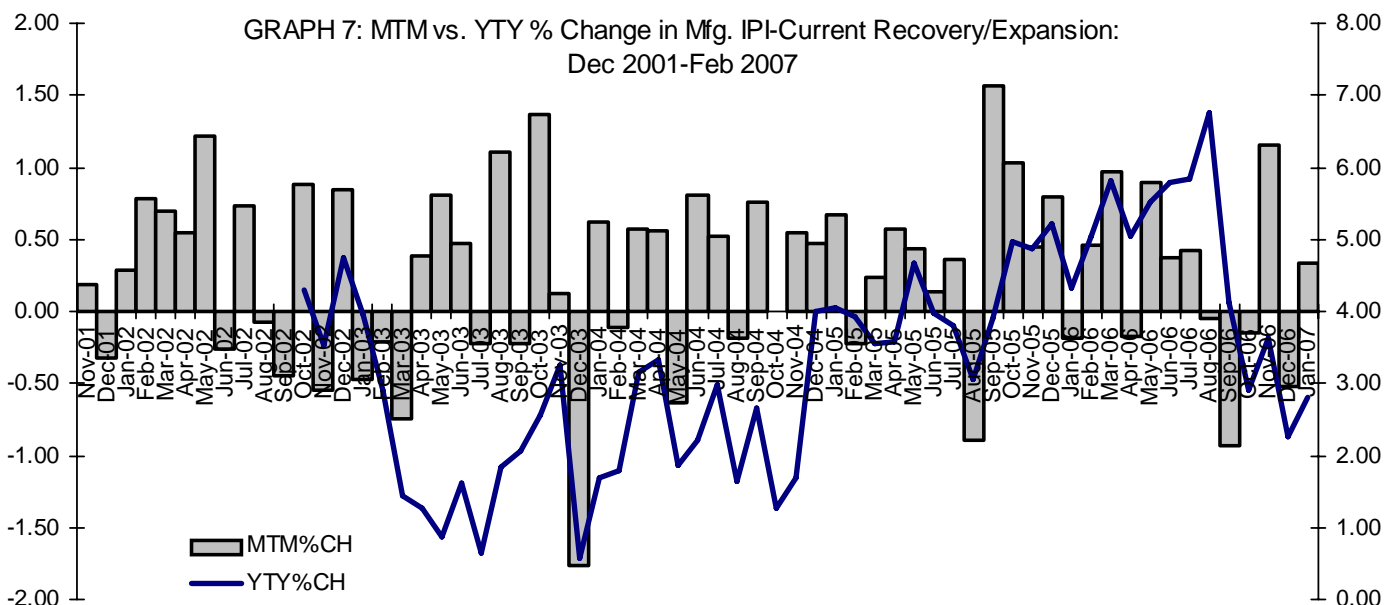
GRAPH 7: MTM vs. YTY % Change in Mfg. IPI-Current Recovery/Expansion: Dec 2001-Feb 2007

2007(-0.80%). February's output was up 0.33%, on a MTM basis. On a Year-to-Year basis (YTY), manufacturing industrial output began 32-month trend of accelerating growth beginning with a 0.58% YTY increase in December 2003, and which culminated with a 6.76% YTY increase in August 2006 (see Graph 7). Since September 2006, there has been a rapid deceleration in the YTY growth-rate in manufacturing output. The YTY % change in the Manufacturing IPI decelerated to 2.20% in January 2007; then picked up slightly to 2.80% in February.

As can been seen in Graph 8, manufacturing output over the current recovery/ expansion has been weaker over the first 63 months than it was for the average Post-1975, Cold War recovery/expansion, and for the 1990's Recovery/Expansion, which began in March 1991. The average increase in manufacturing output over the first 63 months of expansion for the two Post 1975-Cold War recovery/ expansions was 31.8%, and that for the Post Cold-War Nineties recovery/ expansion was 30.7%. Manufacturing output has increased by only 18.1% over the comparable period during the current recovery/expansion. Still another perspective on the strength of manufacturing output growth over the current cycle, as compared to past cycles, is presented in Graph 9-A.

GRAPH 8: Mfg. IPI Over the First 63 Months of Recovery/Expansion: Cold War Average and 1990's vs. Current Recovery/Expansion
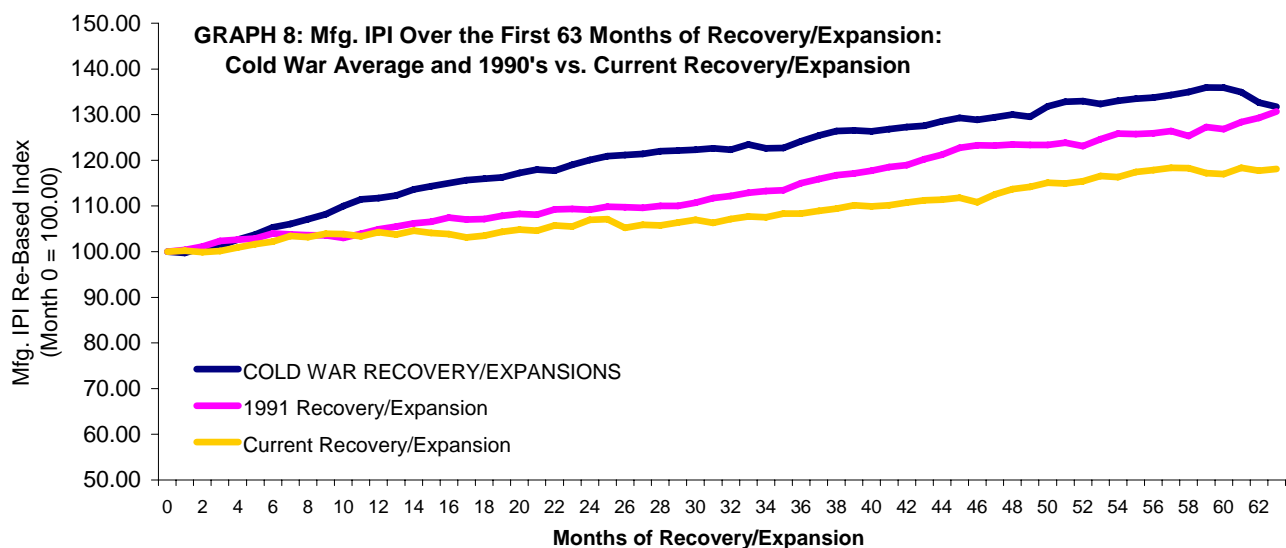
As depicted in Graph 9-A, both Post Cold War recovery/expansions had much weaker YTY growth-rates in manufacturing output one year into recovery, when compared to the Cold-War average, with the current cycle producing the weakest YTY growth-rates (the graph begins at Month 12 of recovery/expansion). The YTY growth-rate in the Manufacturing IPI, over the current recovery, exceeded the other recovery/expansions depicted in Graph 9-A around 54 months into expansion, but falls back below the other two expansions between the 58th and 60th months. However, the average Cold War recovery/expansion YTY percent-change in manufacturing output, falls below that of the current expansion, and turns negative, as the 1975 Cycle had peaked by the 58th month, and had been five months into recession by Month 63. Whereas, the YTY growth-rate manufacturing output, over the 1990's recovery/expansion, began accelerating from the 58th month, onward.

GRAPH 9-A: YTY % Change in Mfg. IPI Months 12 to 63 of Recovery/Expansion: Cold War Average and 1990's vs.Current Recovery/Expansion
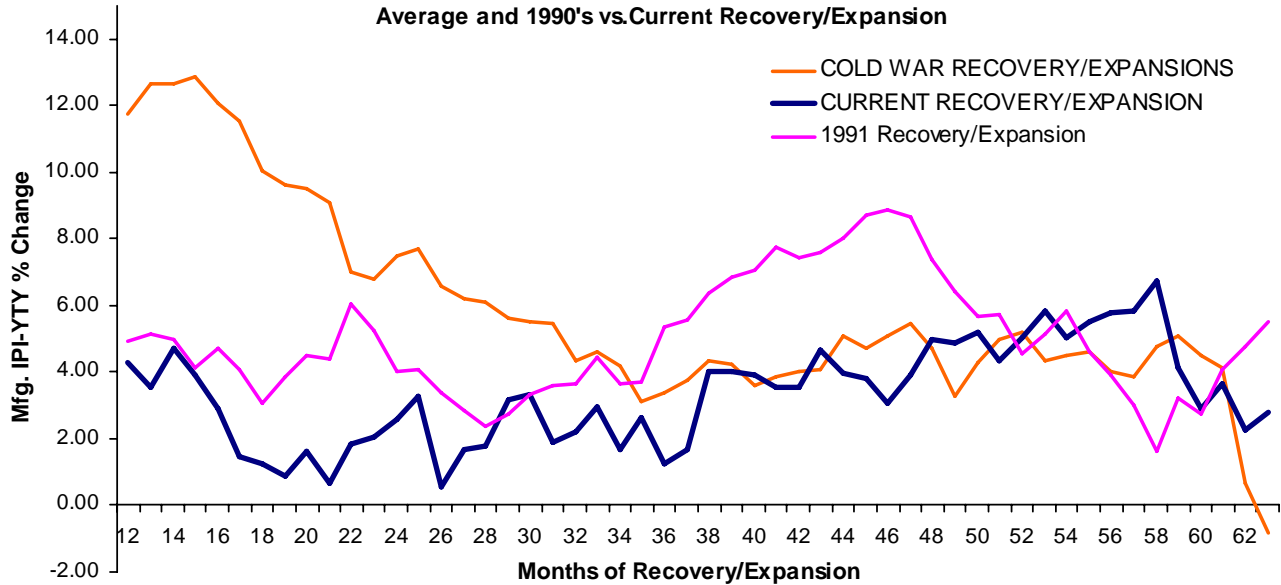
GRAPH 9-B: MTM vs. YTY Pct.-Point Ch in Mfg. CUR-Current Recovery/Expansion: Dec 2001-Feb 2007
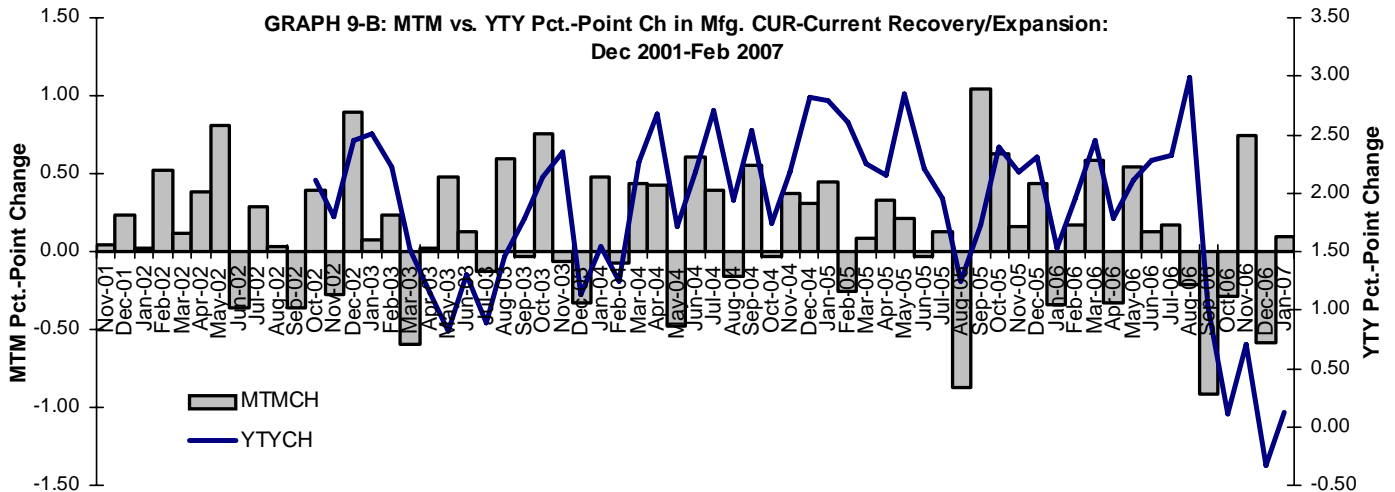
b. Resource Utilization (Use of Factor-Inputs)

An important indicator about the health of the economy is resource utilization. If there are underemployed or unemployed resources, or both, then the economy is not "firing on all cylinders". Further, is the economy adding capacity? That is, is the economy increasing its physical and human capital stock in order to increase its ability to produce output of goods and services? What follows divides resource utilization into two broad categories: physical and human. The utilization of physical resources, as measured by capacity and capacity utilization, is covered first, then the economy's use of human resources, as measured by the labor force and labor-market conditions is discussed.

The economy's use of physical resources is measured by the ***Capacity*** and ***Capacity Utilization*** Series, and is produced and published by the Federal

Reserve Board, and it is part of the *Capacity and Industrial Output* statistical program that includes Industrial Production, Capacity, and Capacity Utilization. Specifically, the discussion here will focus on capacity and utilization in the Manufacturing Sector. And, for the same reasons that were given in regard to industrial production, manufacturing activity is a better barometer for the underlying strength, or weakness, in the economy.

Turning now to the measure of the economy's use of human resources, there are two major series that are released in the monthly jobs report. The monthly jobs report is one of the most anticipated of the economic indicators. For the average household employment is the primary source of income. In addition, there are intangible benefits to having a job such as feelings of self-worth and dignity[2]. From the macroeconomic standpoint, consumer spending accounts for between two-thirds and 70% of aggregate demand in the U.S. Economy. Income growth, and particularly growth in the Wages and Salary source of income is the primary basis for sustainable consumption. Further, the monthly jobs report is closely watched by the Fed and the stock and the bond markets. Baumohl[3] discusses three reasons why the jobs report is the most eagerly awaited news on the economy:

1. The *Employment Situation* put out by the U.S. Bureau of Labor Statistics (BLS) is very timely. It is released just a week after the end of the reference month.

2. The report is rich in detail about the job market and household earnings.

3. As discussed above, Wages and Salaries from employment make up the main source of household income.

There are two major surveys that measure the levels and net changes in monthly job activity: the **Establishment Survey** and the **Household Survey**.

Establishment Survey
The Establishment, or Payroll Survey is part of the Current Employment Statistics (CES) Program. The sample for the Establishment Survey is drawn from the Unemployment Insurance (UI) Tax-Reporting Database, known as the Quarterly Census of Employment and Wages (QCEW), formally known as the ES-202 Program. The U.S. BLS includes 400,000 business establishments and government agencies in their sample, which captures about 40 million workers, or approx. 45% of all non-farm employment.

The Establishment Survey covers all jobs for non-farm businesses, non-profit groups, and Federal, State, and local government offices. Non-Farm Employment is a geographic-location concept. That is, it counts jobs within the geographic boundaries of the U.S., regardless of where the workers come from to work those jobs. Thus, the jobs worked by workers coming into the U.S. from Canada and Mexico, are counted in the Establishment Survey. The only groups excluded from the Establishment Survey are farm-workers, the self-employed, and domestic help.

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[2] Frumkin, Norman, Tracking America's Economy (2004), M.E. Sharpe: Armonk, N.Y., p. 207

[3] Baumohl, Bernard, The Secrets of Economic Indicators (2005), Wharton School Publishing: Upper Saddle River, N.J.

Household Survey

Information for the Household Survey is collected from the Current Population Survey (CPS) conducted jointly by the U.S. BLS and the U.S. Census Bureau. It is the CPS that provides the data on Household, or Total Employment, Number Unemployed and the Unemployment Rate, Current Population, Labor Force, and other statistics on persons in, and out, of the labor force. Each month, the CPS contacts 60,000 households, a population that includes farm, as well as, non-farm workers, the self-employed, domestic workers, and multiple jobholders. It counts persons with jobs, regardless of how many, as opposed to the Establishment Survey, which counts jobs, not persons. Further, while Non-Farm Employment is a geographic-location concept, Household Employment is a residence-based concept. Thus, in the case of the Household Survey, or CPS, U.S. residents who work in Canada or Mexico would by counted in the Household Employment Survey, whereas, they would be excluded from the Establishment Survey. The discussion now turns to the use of physical and human resources of the current recovery/ expansion, and how it compares with the comparable stage of previous cycles.

i.   **CAPITAL: Capacity and Capacity Utilization**

As the economy turns the corner from recession to recovery, and economic activity picks up, idle capacity is brought back into production to meet growing demand for goods and services as the Business Cycle enters its Recovery/Expansion Phase. Graph 9-B tracks the percentage-point change in the *Capacity Utilization Rate* (CUR) in Manufacturing from the beginning of the current recovery/expansion, in November 2001, to Month 63 of expansion (February 2007). What is immediately gleaned from the graph of both, the Month-to-Month (MTM) and Year-to-Year (YTY), percentage-point changes in manufacturing utilization, is the noise in the data. Nevertheless, the YTY pattern in the change in utilization is strikingly similar to the YTY percent-change in manufacturing output (see "Growth and Output", above). As detailed below, the link between the two is much tighter over this expansion, compared to past expansions. Like manufacturing output, manufacturing capacity utilization peaked in August 2006, after steadily accelerating after a sharp deceleration between September and August 2005. However, the overall trend in the acceleration in utilization pretty much followed the trend in the Manufacturing IPI from late Spring/Early Summer 2003. And, like manufacturing output, the YTY change in utilization has decelerated since August 2006.

Graph 10 compares the percentage-point decline in the manufacturing CUR over the previous recession, and the percentage-point increase over the first 63 months of the following recovery/expansion, for 1975, 1982, 1991, and the current recovery/expansion. The bar for 1975 Recovery/Expansion is crosshatched to indicate that, over that cycle, the economy peaked and went into recession in Month 58. Thus, by Month 63, the economy had been in recession for five months, in the cycle that began with the March 1975 Trough. It should also be noted that the peak is measured from the end of the 1981 Expansion, rather than the 1980 Expansion, which directly followed the 1975 Expansion. This is because the 1980 Expansion is considered an aborted expansion, and therefore, it is not included in

any of the calculations or discussion in this outlook.

What stands out immediately in Graph 10 is how steep the decline in manufacturing capacity utilization was over the November 1973-March 1975 Recession. The 16.7 percentage-point decline is the steepest in the Post-1975 Era. The next steepest, another Cold War recession, was the 9% decline during the July 1981-November 1982 Recession. However, they also had the two strongest recoveries in manufacturing capacity utilization. Utilization increased by 11.2 percentage points from trough to peak (month 58) over the 1975 Recovery/ Expansion, but had been reduced to 4 percentage points by five months into recession in Month 63. The strongest recovery in the Manufacturing CUR was over the first 63 months of the 1982 Recovery/Expansion. Utilization increased by 14.5 percentage points. By contrast, the two Post Cold-War recessions had mild declines in utilization rates. In both cases, utilization-rates declined by less than 4 percentage points. However, the gains in the utilization rate were also much weaker. Although, as discussed below, the weakest gain of 5.4 percentage points over the 1991 Recovery/Expansion masks factors that mitigate the tepid growth in manufacturing capacity utilization.

GRAPH 10: Percentage-Point Decline vs. Percentage-Point Gain in Mfg. CUR:
Peak-to-Trough and First 63 Months of Recovery-Post-1975 Cycles and Average
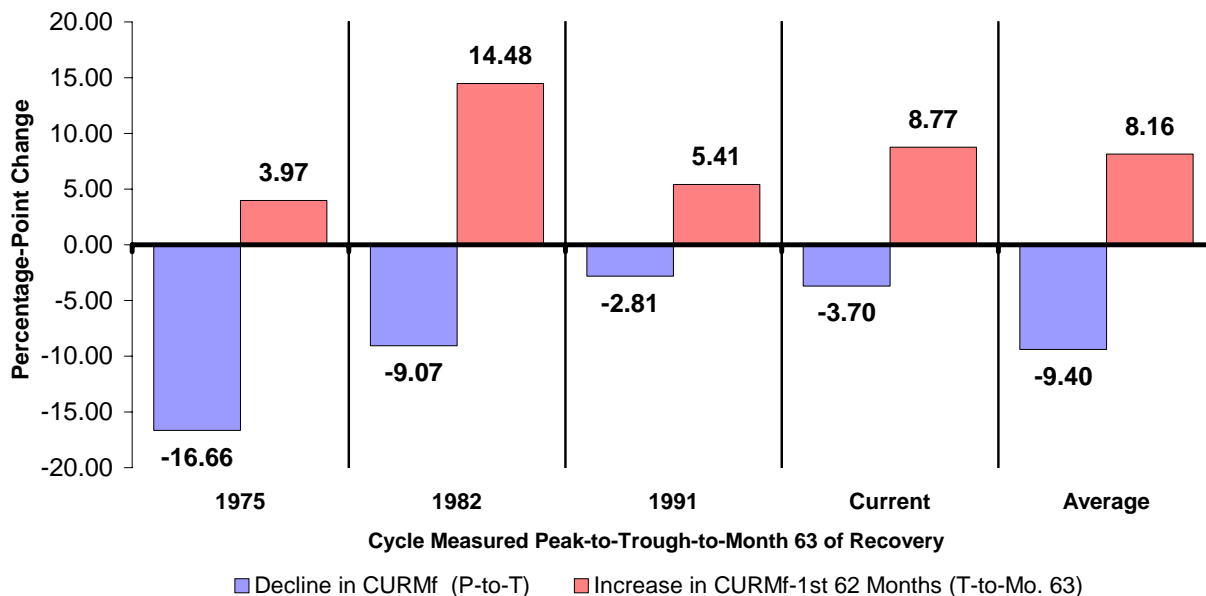
As mentioned above, the CUR is only part of the story. Another piece of the puzzle involves the addition of manufacturing capacity. If the production-possibilities frontier of the Manufacturing Sector is shifting out faster than the growth of output, then utilization rates could remain flat, or even decline. This point is illustrated in Graph 11.

The growth in industrial output and capacity (the outward shift in the PPF) are shown for each of the discussed recovery/expansions: 1975, 1982, 1991, the

Current Recovery/Expansion, and the average for all four. The largest percent increase in manufacturing capacity (i.e., largest relative, outward shift in the PPF) was over the 1991 Recovery/Expansion: capacity grew by 22.1%. The next largest addition was the 18% in new capacity put in place over the Trough-to-Month 63 Period from 1975 to 1980 (16.4% Trough-to-Peak). The smallest addition to manufacturing capacity is the 5.1% growth over the 63 months (November 2001 to February 2007) of the current recovery/expansion. The strongest growth in manufacturing production was the 39.1% over the 1982 Recovery/Expansion, followed by the 30.7% growth in manufacturing output over the first 63 months of the 1991 Recovery/Expansion. The growth in manufacturing output, at 18.1%, has been the weakest over the current 63 months of recovery/expansion.

GRAPH 11: Percent Change in Mfg. IPI vs. Percent Change in Mfg. Capacity: First 62 Months of Recovery/Expansion-Post-1975 Cycles and Average Cycle

■ %Change in Mfg. Capacity-1st 63 Months (T-to-Mo. 63)   ■ %Change in Mfg. IPI-1st 63 Months (T-to-Mo. 63)
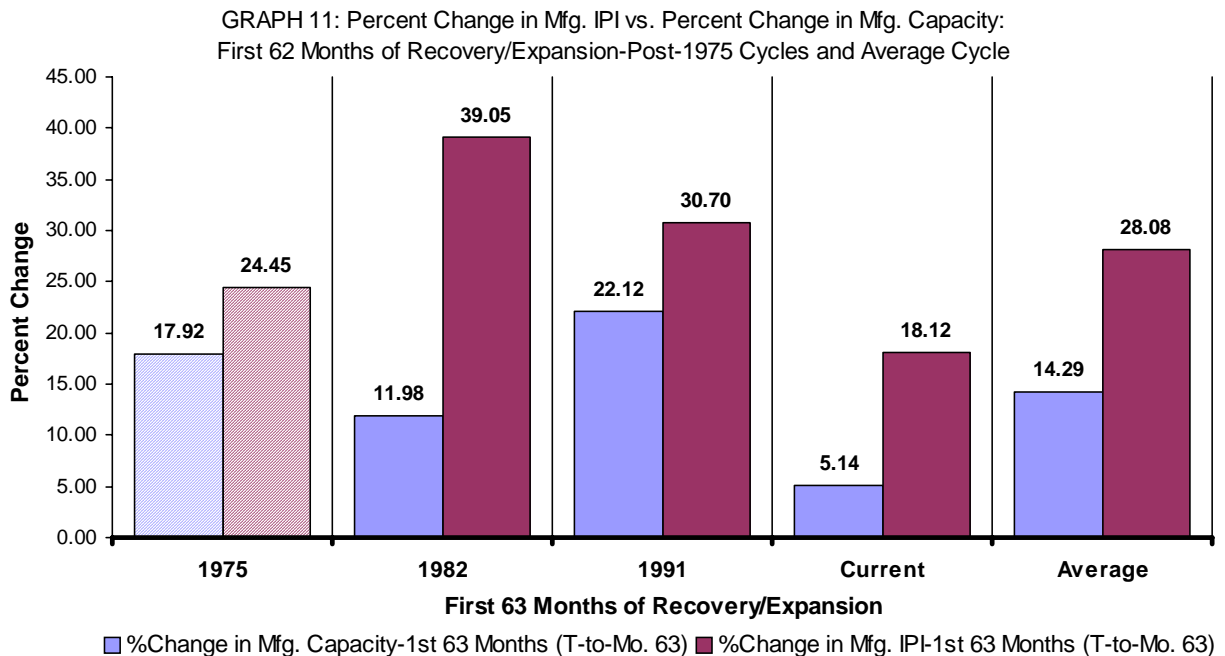
Thus, while the weaker growth in the capacity utilization rate, over the first 63 months of the 1991 Recovery/Expansion, as depicted in Graph 10, and when compared to the stronger 8.8 percentage-point increase over the current cycle, it appeared that output was growing more slowly over the previous recovery/ expansion. However, as illustrated in Graph 11, four times more capacity was added to the Manufacturing Sector over the first 63 months of recovery/expansion, and manufacturing output grew 1.7 times faster. The paradox, with regard to lower utilization, but lager gains in industrial production, is resolved by looking at the capacity-growth numbers in Graph 11. Over the 1991 Recovery/Expansion, output in manufacturing was growing, but so was investment in new capacity.[4] Thus, as output grew, there was a simultaneous outward shift in the PPF, which kept the CUR for manufacturing lower than it would have been had the PPF not

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[4] Since the *Telecommunications Act* was passed and signed into law in 1996, and since the period of analysis ends in June 1996, that act had not yet had time to introduce significant distortions (particularly in regard to investment decisions) into the economy, as many have noted. Although the influence of the "High-Tech" Boom could have begun, as the, now famous, Netscape IPO, which is credited with kicking it off, was in September 1995.

shifted out. Conversely, there has been very little addition to manufacturing capacity over the current cycle. This is, for all practical purposes, a situation best represented by a fixed PPF over the current recovery/expansion. Thus, the relatively tepid growth in manufacturing production results in a high utilization rate. That is, a smaller growth in manufacturing output, in the face of a fixed PPF, has produced a higher growth in the CUR over the first 63 months of recovery/ expansion.

There are a couple of explanations for the flat investment in plant and equipment over the current cycle. First, the bursting of the bubbles in the stock market, the Dot.com's, and the over-investment, and consequent excess capacity in the Telecommunications, and related industries, has dampened fixed investment since 2001. Second, many businesses got caught up in an "IT arms race", and as a consequence, they kept buying the latest-generation, IT-related equipment to stay ahead of their competitors. Once the bubble burst, and businesses began to take the time to slide down the learning curve on their recently purchased equipment, they found, not only how to use it more efficiently, but in the process, found, in many instances, that they had more capacity than they needed for the foreseeable future. Finally, with the ballooning of the trade deficit, more and more U.S. consumer demand is being met through imports. Thus, the additional capacity required to meet that growing demand is being added by foreign producers who export their goods and services to the U.S. domestic market.

ii.   LABOR: The Labor Force and Labor Markets

Another important factor-input into producing the economy's output is labor. And, as for the capital input, if the economy is not using all of the labor-input available to it, then it is "not firing on all cylinders". But, more than that, if the economy is not using all of its resources, and using them efficiently, to produce the maximum possible output, then society is forgoing output, which can never be recovered. Thus, the *Output Gap* has an opportunity cost.

There are many dimensions to the labor market and the utilization of human resources by the economy, and this is reflected in the numerous measurements of labor-market activity that gauge the strength or weakness of the supply of, and demand for labor, both, at a point in time, and over time. The most well known indicator of the health of the labor market is the monthly jobs report put out by the U.S. Bureau of Labor Statistics (BLS). The "top-line" number released in the *Labor Situation* is the number of jobs created over the previous month. This is the report on **U.S. Non-Farm Employment.** Thus, the discussion begins with the number of jobs created in the U.S. Economy over the current expansion, and how it compares to past expansions.

1.   U.S. Establishment Survey Employment: Job Creation

Graph 12 presents the Month-to-Month (MTM) percent change (bars; left scale), and the Year-to-Year (YTY) percent change (line; right scale) in U.S. Non-Farm Employment for the first 63 months of the current recovery/expansion (November 2001 to February 2007).

GRAPH 12: MTM and YTY % Change in U.S. NF Employment-63 Months into the Current Recovery/Expansion: Dec 2001-Feb 2007
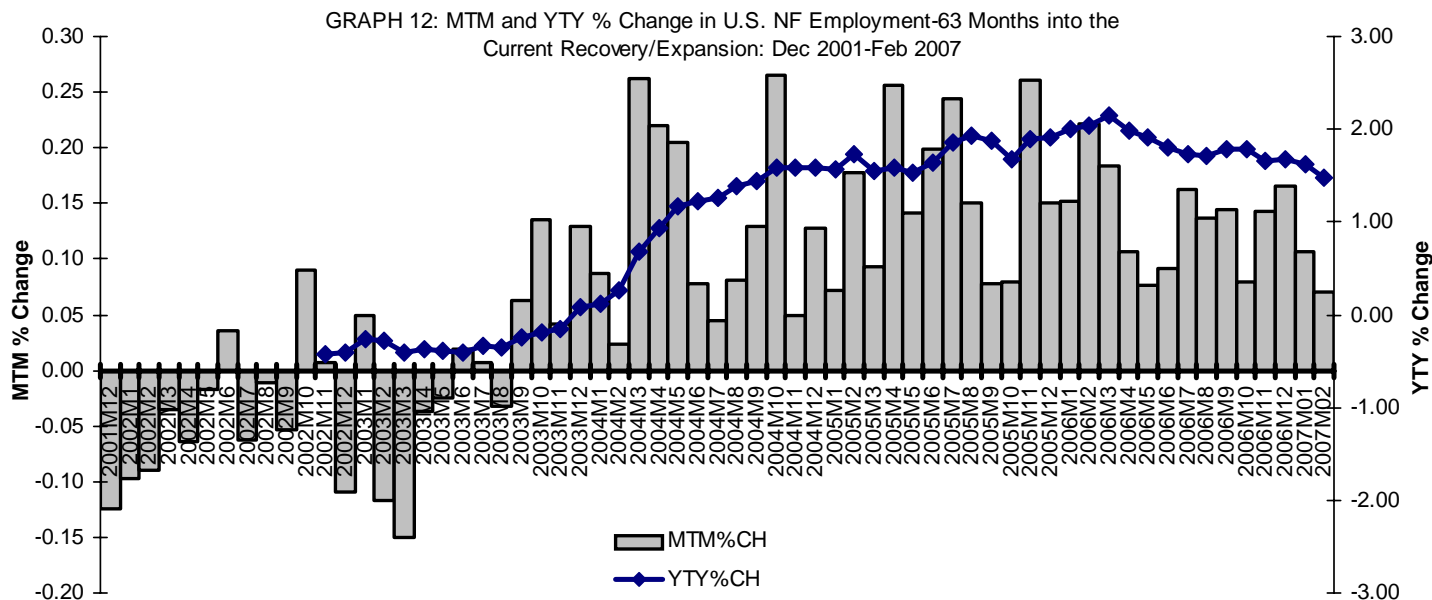
On a YTY basis, U.S. Non-Farm Employment-growth turned positive in December 2003. The growth-rate accelerated until March 2006, when it peaked at 2.1%. Since then, the YTY growth-rate has been gradually decelerating. In February 2007, YTY, U.S. Non-Farm Employment grew 1.5%. Save a dramatic turn-around in job-growth trends, March 2006 could have marked the global maximum for YTY job-growth over this cycle.

U.S. 2006 benchmarked data show that MTM employment-growth turned consistently positive from September 2003 onward. Since December 2006, the MTTM growth-rate has decelerated from 0.17% to 0.07% in February 2007.

## Performance of Non-Farm Employment: Current vs. Post-1975 Recovery/ Expansions

Like the first part of the 1990's Recovery/Expansion, the current recovery began as a "jobless recovery". However, as Faberman[5] has pointed out, the two jobless recoveries were not the same. Analyzing Job Creation and Destruction from the Business Employment Dynamics (BED) data, Faberman found that the 1990's job-recovery was muted because the Job-Destruction Rate (JDR) remained at its recession levels long after the end of the 1990 Recession, even though the job-Creation Rate (JCR) had recovered. The opposite was true for the Current cycle. Though the JDR returned to pre-recession levels after recovery began, the JCR took a long time to return to pre-recession levels. Thus, though the recession officially ended in November 2001, it was 2003 before the job-market recovered (at least as measured by the Non-Farm Employment Series). To see how the current cycle measures up against previous cycles, in terms of labor-market performance, Graph 13 shows the first 63 months of recovery/expansion for the four Post-1975 recovery/expansions.

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[5] Faberman, Jason, Job Flows and the Recent Business Cycle: Not All 'Recoveries' Are Created Equal (Feb 2006) Working Paper 391, U.S. Bureau of Labor Statistics: Washington D.C.

GRAPH 13: Percent Change in U.S. NF Employment-First 63 Months of Recovery/Expansion:
1975, 1982, 1991, Current Recovery/Expansion
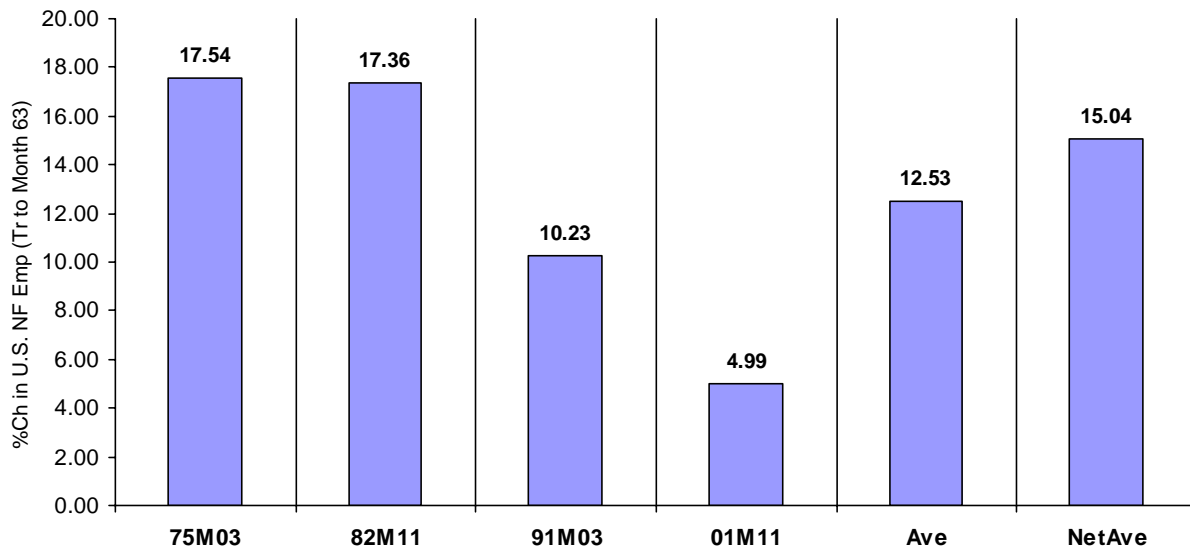
Note the strength in job-growth over the two Cold-War recovery/expansions. Each one exceeded growth of 17% in non-farm employment over the first 63 months since the trough of the previous recession. This is even more striking, when considering that the 1975 cycle was already five months into recession by the 63rd month.[6] Though the second half was of the 1990'2 Recovery/Expansion was much stronger, non-farm jobs had only grown by 10.2% by the 63rd month. And, as depicted in Graph 13, the current recovery has had a slower 5% growth in Non-Farm Employment. To get a sense of how employment-growth unfolded over the 63-month period, Graph 14 tracks an index of U.S. Non-Farm Employment from the trough of the previous recession to the 63rd month into recovery/expansion for the four cycles since 1975. The index value is equal to 100.00 in Month 0, the trough of the previous recession, and the base period.

What stands out immediately is the two jobless-recoveries of the 1990's and the current cycle. The line representing the index of the Post-1975, Cold War cycles (1975 and 1982) shows that non-farm employment began growing within a few months after the turning point in the economy. By contrast, employment-growth in the two Post-Cold War recovery/expansions lagged the turning point by 12 to 18 months. Further, the lines for the Post Cold War cycles lie below the line for the Cold-War recovery/expansions throughout the 63-month period.

2. U.S. Establishment Survey (Jobs) vs. Household Survey Employment (Persons Working)

In past cycles, the Non-Agricultural Employment levels obtained from the *Household Survey* was pretty much in agreement with the Non-Farm Employment numbers, taking into account multiple jobholders. However, over the current cycle, the two surveys are now producing results that are at odds with
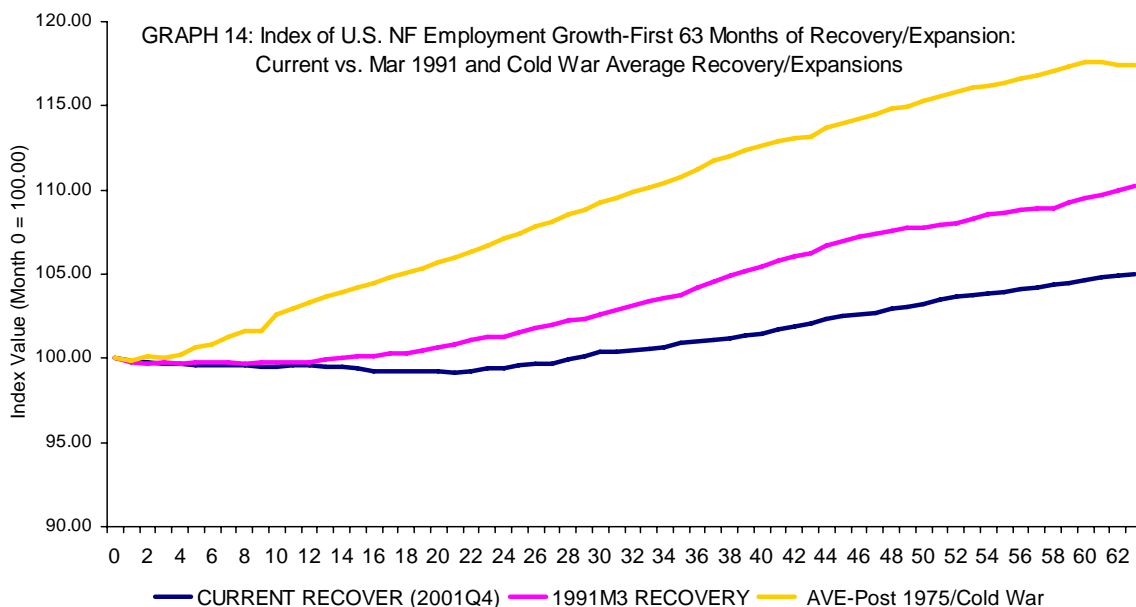
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[6] The peak of the 1975 Cycle was January 1980, which was Month 58. From trough-to-peak, Non-Farm Employment grew by 18.5%.

each other. And, the debate has been raging on over the entire cycle. The U.S. BLS has studied the problem and presented some of their findings at the 2004 Policy Conference of the National Association for Business Economics (NABE). In their presentation, they concluded that:

> BLS has estimated the measurable definitional differences between the household and payroll surveys and found they provide a partial explanation for the employment trend differences. There are a number of definitional differences between the surveys that cannot be readily measured or quantified. These differences may contribute to divergences in the surveys' trends, but their effects are either unknown or can only be conjectured. In addition, although BLS has devoted considerable attention to this issue, there may be other contributing factors that have not been identified.[7]

GRAPH 14: Index of U.S. NF Employment Growth-First 63 Months of Recovery/Expansion: Current vs. Mar 1991 and Cold War Average Recovery/Expansions

CURRENT RECOVER (2001Q4) — 1991M3 RECOVERY — AVE-Post 1975/Cold War

Graph 15 presents the growth-rate in average, annual employment over the first five years of recovery/expansion for the Non-Agricultural portion of the Household Survey to that of the Non-Farm Employment produced by the Establishment Survey. The four Post-1975 recovery/expansions are compared.

Given multiple jobholders, the growth of Non-Ag vs. Non-Farm employment makes sense, especially for the 1975 and 1991 recovery/expansions. Given that individuals can hold more than one job, the number of jobs should be greater than the number of persons working. This would certainly be the case at the National level, where cross-border commuting is a relatively small percentage of total employment and jobs. As depicted in Graph 15, the growth-rates, in the two

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[7] U.S. BLS, *Employment from the BLS household and payroll surveys: summary of recent trends*, NABE Policy Conference (March 5, 2004): Washington

employment series were close, over the first five years of the 1980's Recovery/ Expansion. This did not leave any room for much in the way of multiple jobholding. However, there is clearly a paradox in the growth-rate in the two series over the current cycle, as the growth-rate in the number of persons working significantly exceeds the growth-rate in the number of net, new jobs created by the economy.

GRAPH 15: CES vs CPS Non-Ag Employment Growth-First 5 Years of Recovery/Expansion: 1975, 1982, 1991, Current Recovery/Expansion
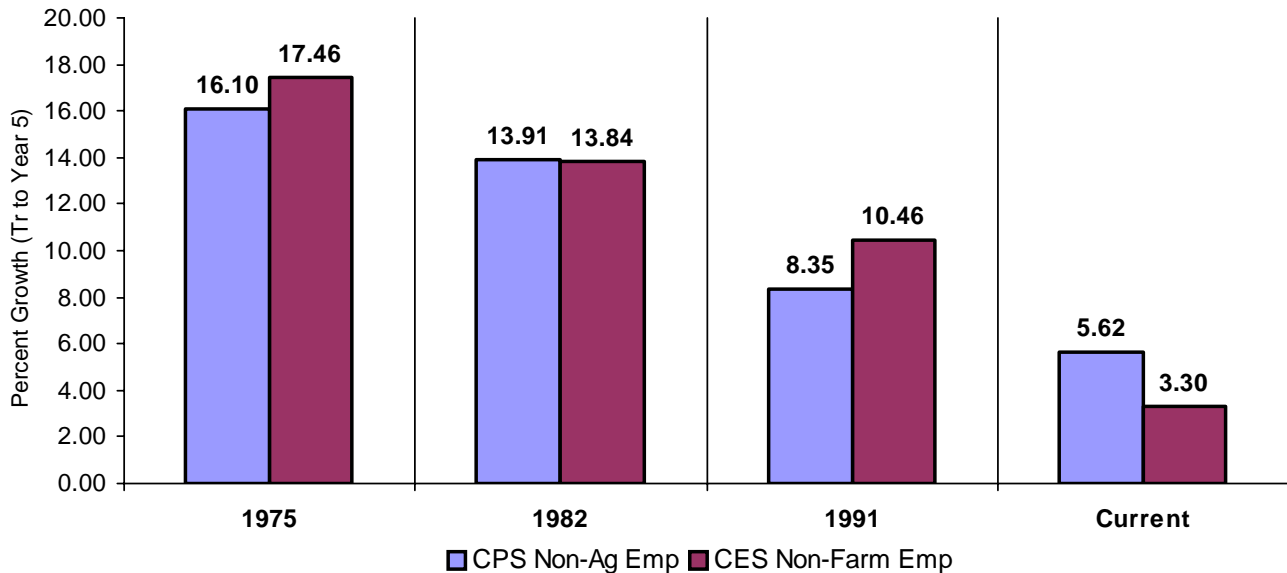
So, which one is to be believed? The Household survey counts persons, whereas, the Establishment Survey counts jobs. The Household Survey includes 60,000 households, while the Establishment Survey samples 160,000 businesses and government agencies, which includes 400,000 establishments representing one-third of the jobs in the U.S. Economy. Both are monthly surveys. The Establishment Survey is benchmarked once a year to the Unemployment Insurance (UI) Tax database known as the Quarterly Census of Employment and Wages (QCEW). The Household Survey is not directly benchmarked, but the population part of the survey is adjusted annually to the population estimates, and once a decade, based on the Decennial Census. For a statistically significant result, the absolute value of a MTM change must be equal to, or exceed 290,000; for the Establishment Survey that threshold is 108,000.

The question still remains: Which one is the most useful indicator? BLS gives the following answer to that question:

> Both the payroll and household surveys are needed for a complete picture of the labor market. The payroll survey provides a highly reliable gauge of monthly change in nonfarm wage and salary employment. The survey has a large probability sample, and is benchmarked annually to a universe count of jobs derived from the unemployment insurance tax system. The payroll survey offers industry and

geographic information at very detailed levels. The household survey provides a broader picture of employment including agriculture and the self employed, as well as detailed information on the demographic composition of the employed and the unemployed.[8]

The Growth in Self-Employment and Part-Time Employment over the Current and Past Cycles

Also obtained from the Household Survey, as part of the *Current Population Survey*, conducted jointly by BLS and the U.S. Census Bureau, is data on the self-employed and part-time and full-time employment. Graph 16 shows the growth-rate in annual Total Non-Agricultural Employment broken out by Wage and Salary (W&S) and Self-Employed over the first five years of recovery/expansion (i.e., from the year containing the trough to five years out), for the four recovery/ expansions since 1975.

GRAPH 16: Growth in W&S, Self-Employment, and Total Non-Ag Employment Growth
(5 Years into Recovery): 1975, 1982, 1991, and Current Recovery/Expansion
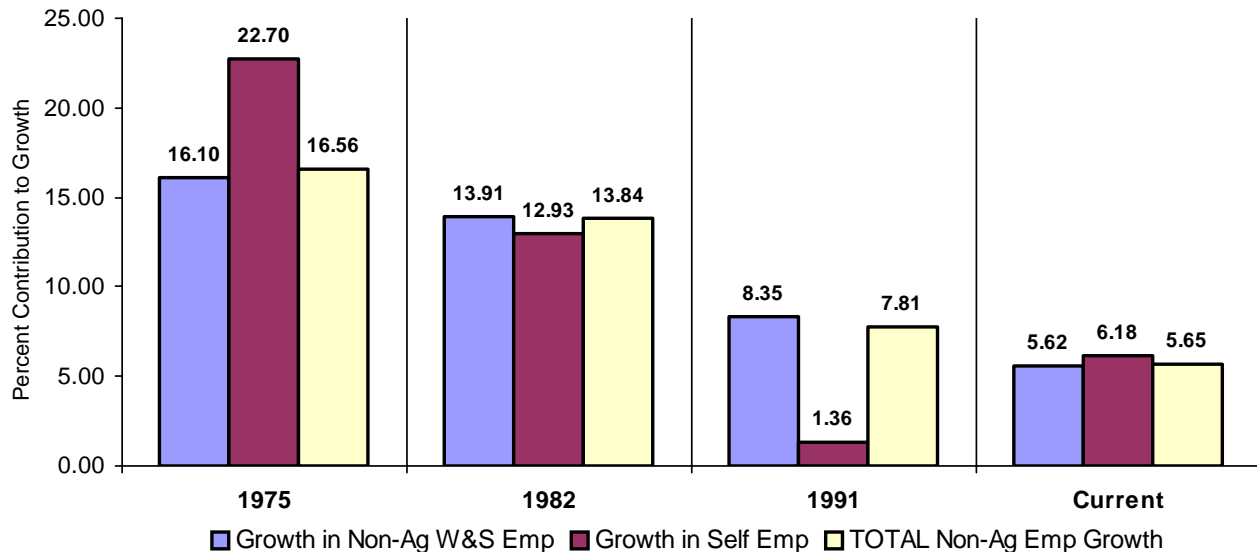
There are two interesting results in Graph 16: the first is the 22.7% growth in the self-employed over the first five years of the 1975 Cycle; the second result that stands out is the anemic growth of self-employment over the first five years of the 1990's Recovery/Expansion. Even over the second half of the expansion, self-employment, though its growth accelerated, it was not that impressive. Self-employment grew by 2.9% over the 1996-2000 Period, and 4% over the entire 1991-2000 recovery/expansion period. Though strong in the 1980's, the growth in self-employment lagged behind the growth of W&S employment. Over the current recovery/expansion, growth in self-employment, at 6.2%, has been faster than W&S employment-growth, and exceeds growth in the 1990's, but overall growth (i.e., Total Non-Ag and W&S) is weaker than that over the first five years of the other three recovery/expansions. Graph 17 presents another perspective on the
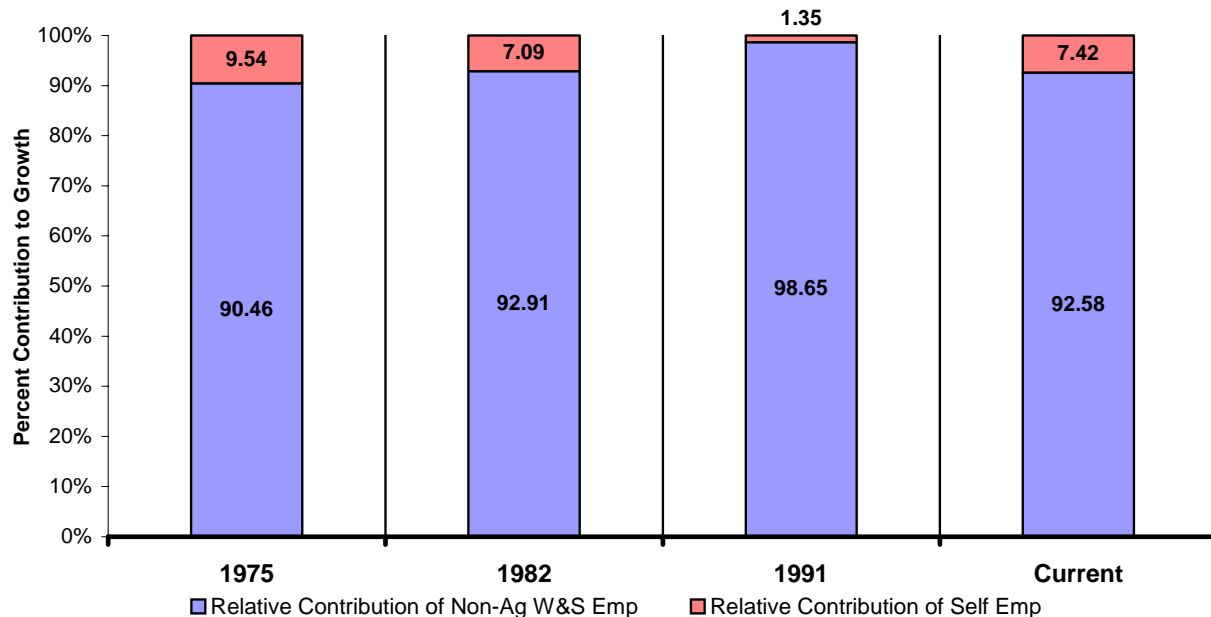
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[8] ibid.

growth in self-employment. It shows the relative contribution of self-employment to Total Non-Agricultural Employment-growth over the first five years of recovery/expansion for the Post-1975 cycles.

GRAPH 17: Relative Contribution of W&S and Self-Employment to Total Non-Ag Employment Growth (5 Years into Recovery): 1975, 1982, 1991, and Current Recovery/Expansion


Over the 1975 Recovery/Expansion, the self-employed accounted for 9.5% of the growth in Total Non-Agricultural Employment. This was the largest relative contribution to growth-growth made by the self-employed in the Post-1975 Era. In the current recovery/expansion, the self-employed have made the second-biggest contribution, accounting for 7.4% of Total Non-Agricultural Employment growth over the first five years of recovery/expansion. The smallest contribution of self-employment to Non-Agricultural Employment-growth was the 1.4% over the 1990's Recovery/Expansion.

Graph 18 compares the growth of part-time and full-time employment over the first five years of recovery/expansion for the Post-1975 cycles. Though the 1975 Expansion/Recovery had the largest growth-rate in part-time employment (19.6%), over the five-year period following the year containing the trough of the previous recession, it was the 1991 Recovery/Expansion that had the largest gap between the growth in full-time employment and part-time employment. Part-time employment grew 14.1%, or 2.9 times faster than full-time employment (at least over the first five years). Over the last half of the expansion, part-time employment growth slowed significantly to 0.81%, and growth in full-time employment accelerated to 9%. For the current expansion, full-time employment has grown 7.3% over the five years since the year containing the trough, which is faster than the 4.9% growth in part-time employment over the same period. Total employment over the first five years of recovery/expansion is slightly faster than it was at the comparable point in the 1991 Recovery/Expansion, but, far below the growth of the two Cold-War Era recovery/expansions.

GRAPH 18: Percent Growth in Full- and Part-Time and Total HH Employment
(5 Years into Recovery): 1975, 1982, 1991, and Current Recovery/Expansion
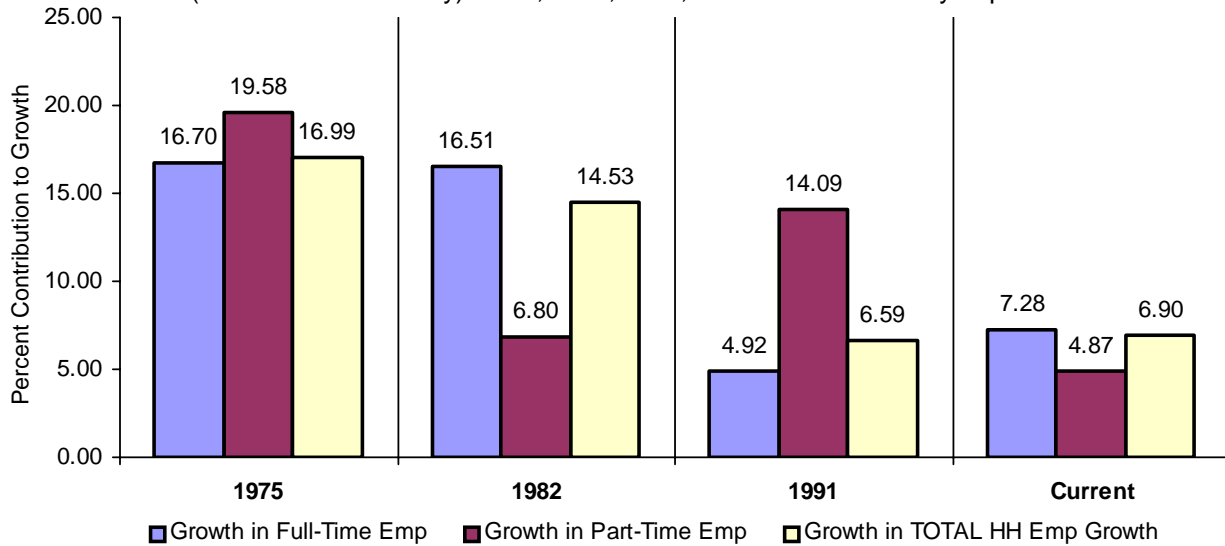
3.   Unemployed and the Unemployment Rate

In February 2007, the level of the U.S. Unemployment Rate was 4.5%, down 1.6 percentage points from the 6.1% in May 2003, when U.S. Nonfarm Employment finally turned around, 18 months after the National Bureau of Economic Research (NBER)-designated end of recession in November 2001. After 63 months of recovery/expansion, how does this compare with previous cycles? This question is addressed in Graph 19.

GRAPH 19: Level of the U.S. UR:
Peak, Trough, and 20 Quarters into Recovery/Expansion-Post-1975 Recovery/Expansions
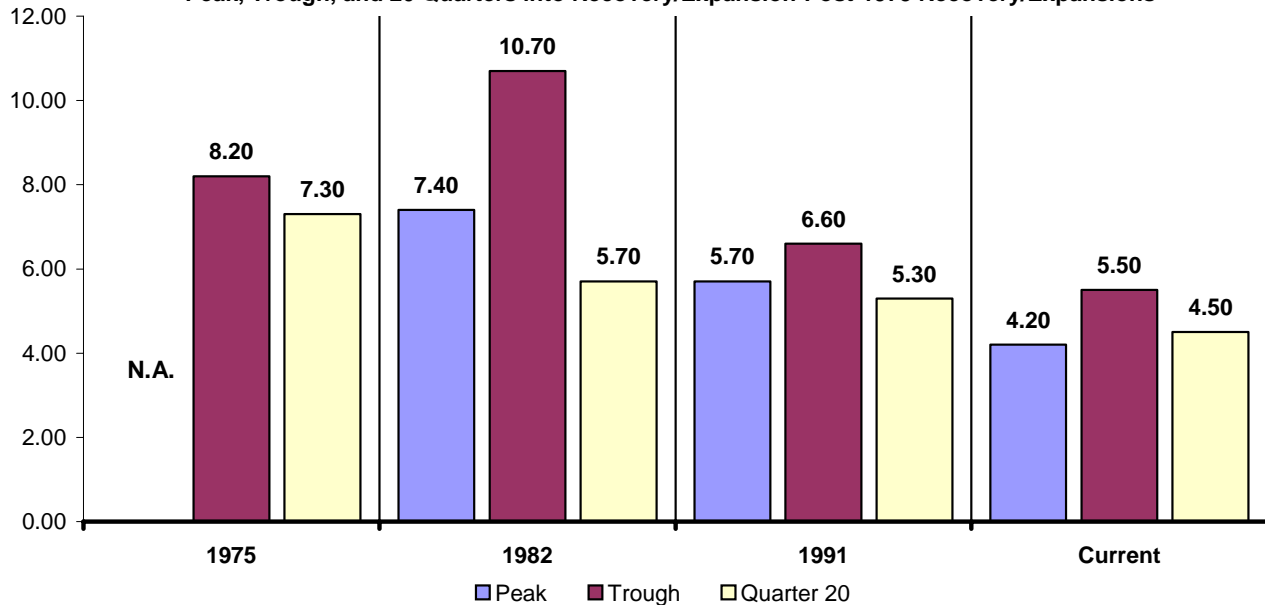
The level of the UR at the previous peak, trough, and 20 quarters into recovery/ expansion are presented for the 1975, 1982, 1991, and current U.S. cycle. The "N.A." value for the peak of the 1975 Cycle stands for Not Available. Household Survey data for the U.S. does not begin until 1975. Since the 1980 Recovery/ Expansion was aborted (and thus, not included in Graph 19), the peak in July 1981 started out the cycle with a much higher UR than for the peaks of the two subsequent cycles. The UR rate increased to over 10% by the trough of the 1981-82 Recession, surpassing the 8.2% of the 1974-75 Recession. However, 20 quarters into recovery/expansion, the UR had dropped to 5.7%, nearly 2 percentage points lower than the rate at the comparable point in the 1975 Recovery/Expansion. When the economy slipped into recession in 1990, the UR was still at 5.7%, declared the new "natural rate" at the time. By the trough of the 1990-91 Recession, the UR had increased by 0.9 percentage-points to 6.6%. Twenty quarters into recovery/expansion, the UR was down to 5.3%, but would drop below 4% over the second and fourth quarters of 2000, the last year of expansion. The quarter of the peak of the last expansion, 2001Q1, the UR was 4.2%. Thus, the current cycle started out with the lowest UR of the cycles appearing in Graph 19. It increased to 5.3% at the trough of the recession, 2001Q4. It had declined to 4.5% by the fourth quarter of 2006, and was still 4.5% in February 2007, two-tenths of a percentage point higher than it was at the previous peak.

GRAPH 20: Percentage-Point Change in the U.S. UR:
Peak-to-Trough and Trough-to-20 Quarters into Recovery/Expansion-Post-1975
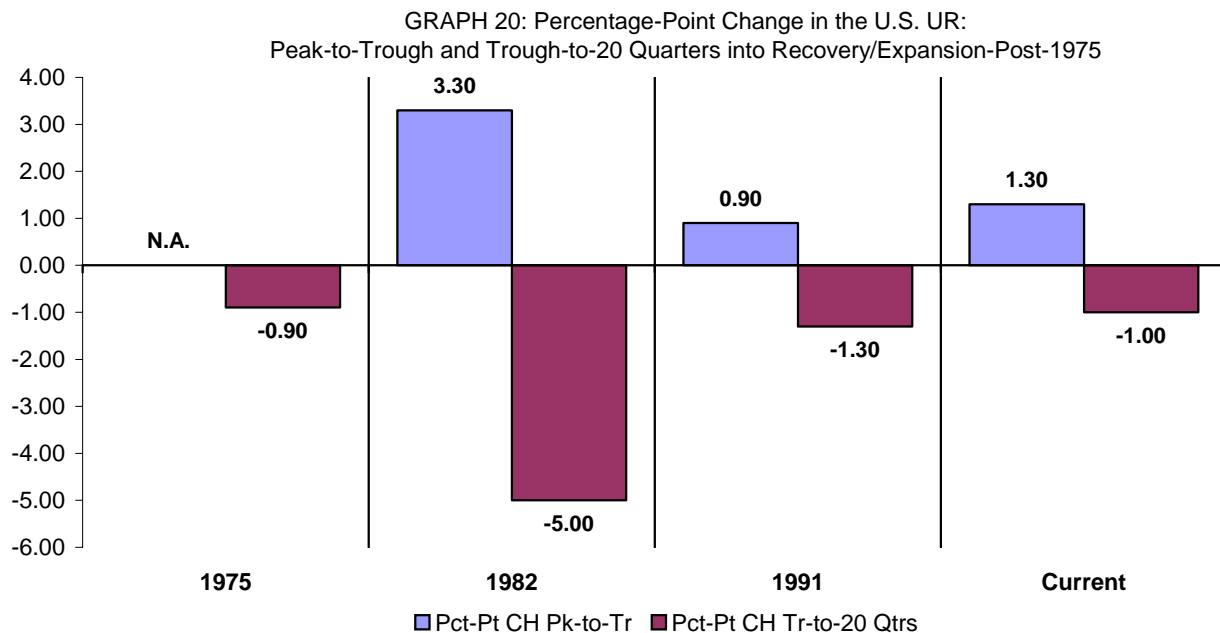
Graph 20 presents the percentage-point increase in the UR, from peak-to-trough, and trough-to-20 quarters into recovery/expansion. Again, there is no data available for the 1974 peak. For the Post-1975 cycles, the 1982 Cycle had the largest percentage-point swing in the UR. The smallest rise was over the 1990-91 Recession, and the smallest decline was over the first 20 quarters 1975 Recovery/ Expansion. However, it should be noted that by the 20th Quarter, the 1975 Expansion had ended, and the 1980 Recession was already five months old.

Compared to the 1982 Cycle, 1991 and current cycle have had muted responses in the UR over the cycle. The percentage-point spread of the peak-to-trough change and 20 quarters into recovery/expansion, for both cycles, is 2.3 percentage points. By contrast, the spread was 8.3 percentage points over the 1982 cycle. Again, there is not enough data available to calculate the spread for the 1975 Cycle.

Graph 21 shows the number of unemployed at the peak, trough, and 20 quarters into recovery/expansion for the 1975, 1982, 1991, and current cycle. The severity of the 1982 Recession is starkly illustrated, as the Number Unemployed reached 11.8 million at the trough of the downturn. This significantly exceeds the 8.3 million and 8.0 million of the 1990-91 and 2001 recessions, which were measured off of larger labor forces. This, of course, is reflected in the discussion on the UR above.

GRAPH 21: Level of the Number of U.S. Unemployed: Peak, Trough, and 20 Quarters into Recovery/Expansion-Post-1975 Recovery/Expansions
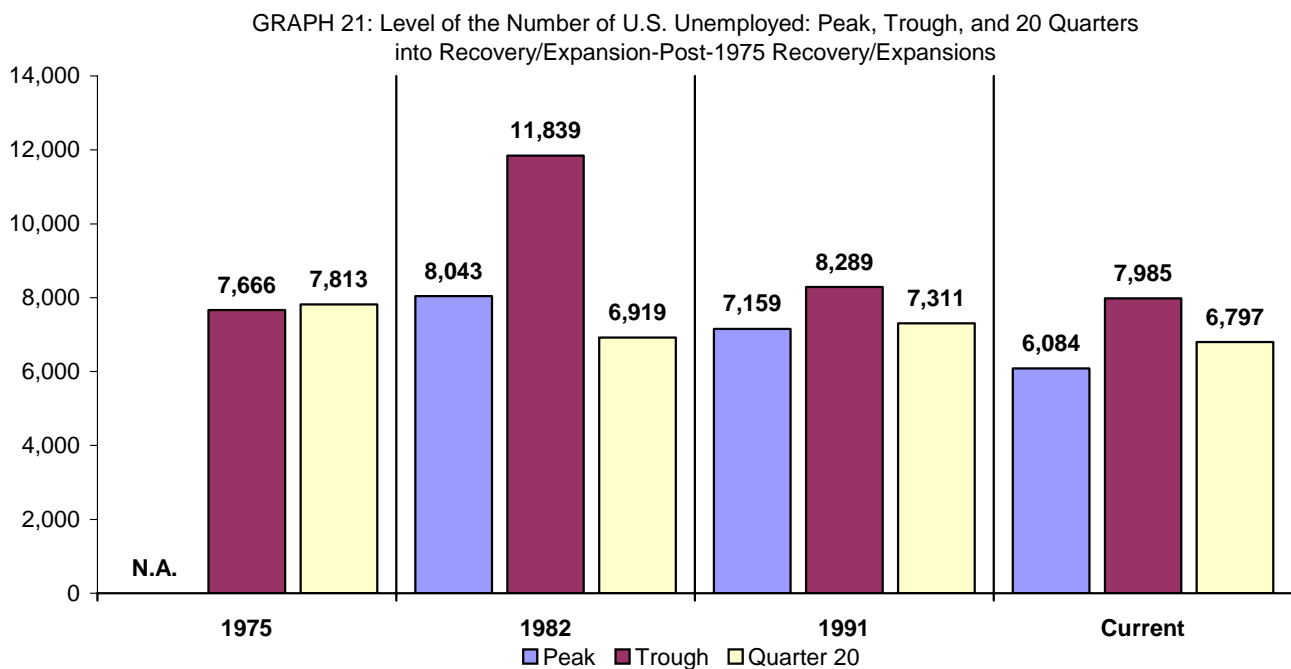
Graph 22 picks up the relative change in the Number Unemployed, from peak-to-trough, and trough-to-20 quarters out. Again, the data limitations show up as the "N.A." value for the peak-to-trough over the 1975 Cycle. Again, the severity, as well as, the volatility of the 1982 Cycle stands out. After increasing by 47.2%, the Number Unemployed declined by a strong 41.6% by 20 quarters out from the trough of the 1982 Recession, a percentage-point spread of 89. The percent-increase in the number of unemployed in the 1990-91 Recession, at 15.8%, was only one-third that of the 1982 Recession, and half that of the 2001 Recession. However, the 14.9% decline in the number of unemployed over the first 20 quarters of the current recovery/expansion was a little stronger than the 11.8% decline over the comparable period for the 1991 Cycle. Based on the percentage-point spread, the current cycle has been slightly more volatile than the 1990's cycle: 46.2 percentage points versus 27.6.

**GRAPH 22: Change in the Number Umemployed: Peak-to-Trough and
Trough-to-20 Quarters into Recovery/Expansion-Post-1975 Recovery/Expansions**
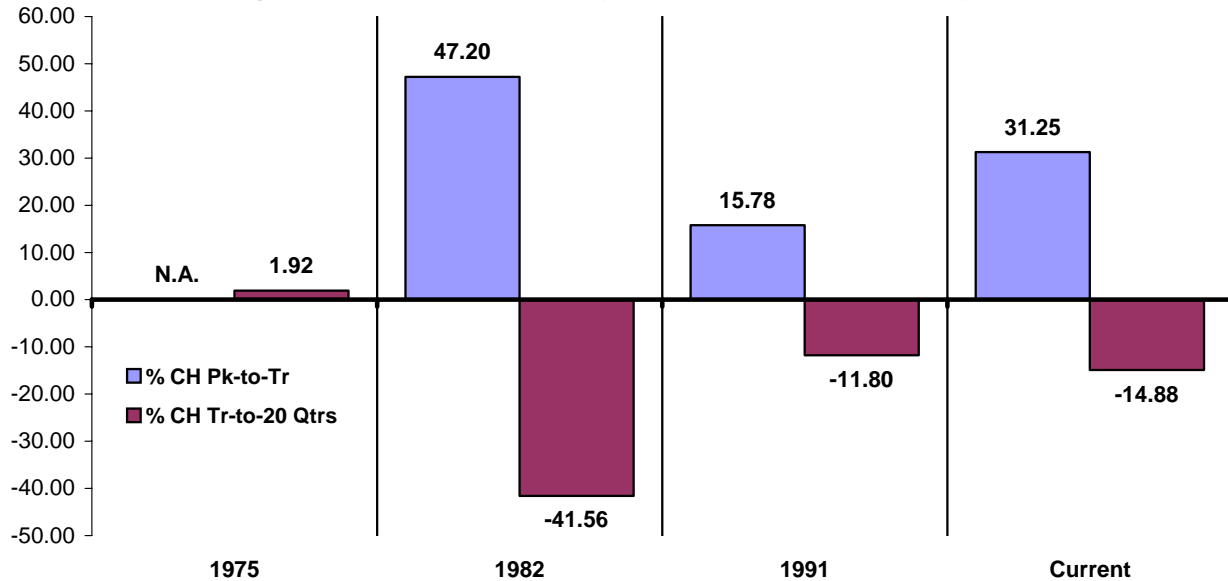
4. Population and Labor Force Growth

Graph 23a and 23b show the growth, and percent-growth, in the Non-Institutionalized, U.S. Population, 16 years old and older, and the Labor Force over the first 20 quarters of recovery/expansion for 1975, 1982, 1991, and the current cycle. Again, due to data limitations, the values for the 1975 Recovery/Expansion underestimate the actual growth in population and the labor force. Given that, the numbers still are larger than for any subsequent cycle. Even more impressive is that this growth is coming off of a much smaller population and labor-force base. This can be seen in the relative growth numbers in Graph 23b. The 11.8 million-

GRAPH 23a: Growth in U.S. Poulation and Labor Force-First 20 Quarters of
Recovery/Expansion: Post-1975 Recovery/Expansions
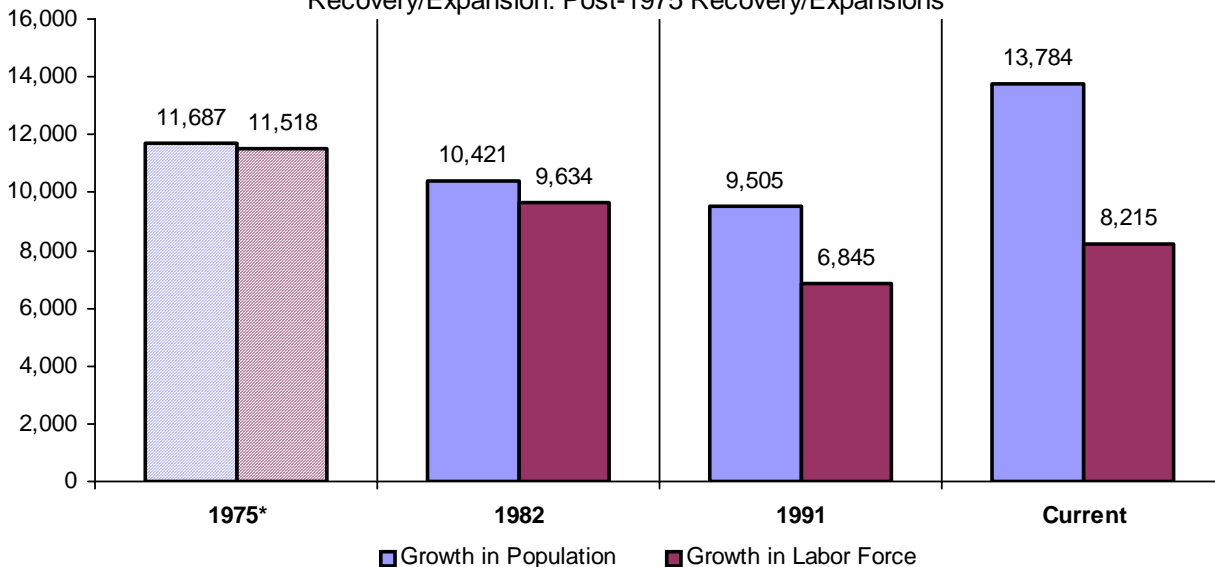
increase in the population over the first 20 quarters of recovery/expansion that began in 1975, probably matched, or even exceeded the 13.8 million-increase over the current cycle. And, even with the data limitations, the 1975 Recovery/ Expansion still exceeds the current recovery/expansion's labor-force-growth (11.5 million versus 8.2 million).
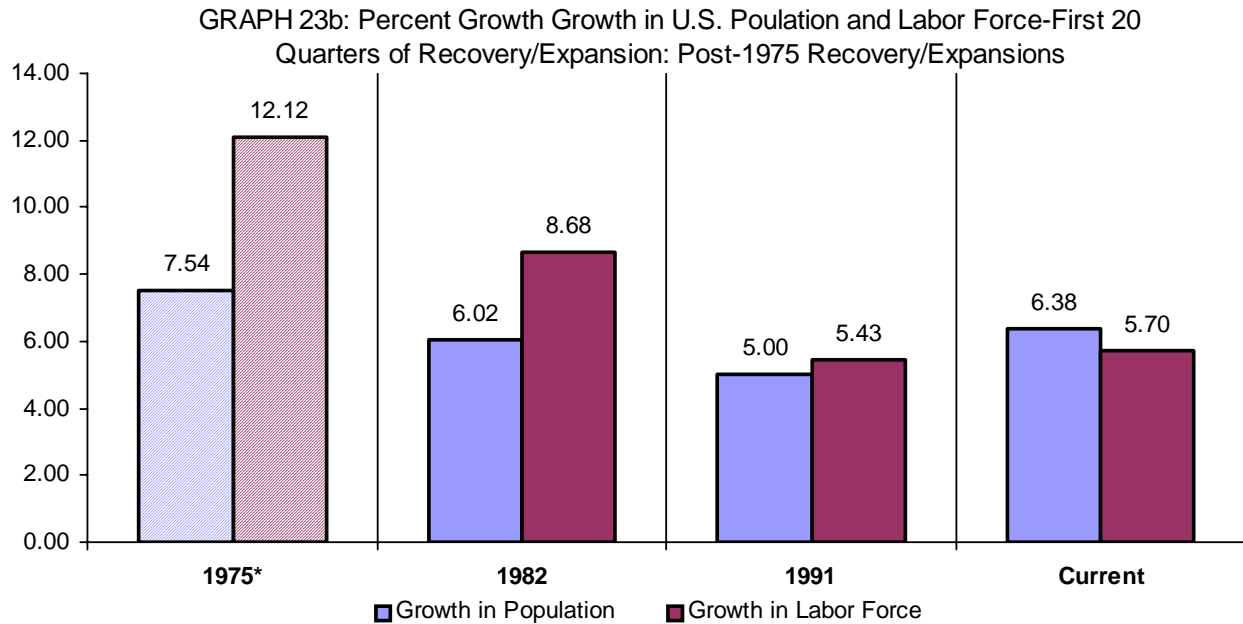
GRAPH 23b: Percent Growth Growth in U.S. Poulation and Labor Force-First 20 Quarters of Recovery/Expansion: Post-1975 Recovery/Expansions

Year	Growth in Population	Growth in Labor Force
1975*	7.54	12.12
1982	6.02	8.68
1991	5.00	5.43
Current	6.38	5.70

■ Growth in Population   ■ Growth in Labor Force

Appendix: The 2006 Benchmarking of Non-Farm Employment[9]

In January 2007, the U.S. Bureau of Labor Statistics (BLS) introduced its annual revision of national estimates of employment, hours, and earnings from the Current Employment Statistics (CES) monthly survey of Non-Farm establishments.

Each year, the CES survey realigns its sample-based estimates to reflect more currently available universe counts of employment—a process known as benchmarking. Comprehensive counts of employment, or benchmarks, are derived primarily from the Unemployment Insurance (UI) Tax reports that nearly all employers are required to file with State Workforce Agencies.

The March 2006 benchmark level for total Non-Farm employment was 134,868,000, a figure that is 752,000 above the NAICS sample-based estimate for March 2006, an adjustment of 0.6%. This year's revision is large by recent historical standards. BLS examined potential error sources in both the CES estimates and the QCEW-based employment benchmark. Both series are subject to non-response and imputation error, and reporting error. Additionally for the CES estimates, sampling error and the business birth/death modeling errors are a factor.

BLS researched the potential sources identified for the large CES benchmark revision to the extent possible since the preliminary magnitude of the revision was announced in October 2006. A small portion of the benchmark revision can be traced to CES estimation of employment for September-October 2005 for the areas impacted by Hurricane Katrina. A larger portion of the benchmark is linked to error in the CES model-based estimation process for birth employment. The largest portion of the revision likely results from an accumulation of differences from several other error sources.

The under- or overestimation of births and deaths is more likely to occur when the economy is at a turning point, or inflection point. Since this played a role in the revisions, it will be helpful to briefly describe the birth/death modeling process. The CES uses a two-step method to estimate net business birth/death employment:

> **Step 1:** uses business deaths to impute for births that cannot be picked up in the sample on a real time basis.

> **Step 2:** is an ARIMA-based model intended to estimate the residual net birth/death employment not accounted for by Step 1.

Only the Step 2 error is directly measurable. Error from this component is measured by comparing the actual residual from March 2005-06 once it becomes available, with the model-based estimate. The error for the 2006 benchmark-year at approximately 300,000 was larger as compared with the most recent two years, each of which measured an error of approximately 100,000. For 2006 these larger errors were concentrated in July and October, months where the actual birth/death residual measured from the QCEW differed substantially from prior years, and consequently was not forecast accurately by the model.

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[9] This section draws heavily from Eickman, Michele, *Possible causes of the CES-QCEW difference*, U.S. BLS (January 2007): Washington

Current Conditions and Outlook for
the Connecticut Economy:
2007-2009

CURRENT CONDITIONS AND OUTLOOK FOR THE
U.S. AND CONNECTICUT ECONOMIES: 2007-2009

I. INTRODUCTION

What follows is the outlook on the Connecticut Economy, which is prepared by the Office of Research, Connecticut Labor Department, to set the assumptions for the next round of Short-Term Connecticut, Industry-Employment Forecasts to the fourth quarter of 2008. A companion outlook for the U.S. Economy was also prepared, as the National Economy will, of course, directly affect the course of the State's Economy.

Due to time and resource constraints, this outlook focuses on the performance of growth and output, investment spending, and resource utilization, both physical and human, over the current recovery/expansion. There is a particular emphasis on labor markets, given that setting the assumptions for the Connecticut Short-Term Employment Forecasts is the motivation for both, the U.S. and Connecticut economic outlooks. The current cycle's performance is compared to that of the Post-1975 business cycles. The comparisons are restricted to the Post-1975 Era because of the significant shifts in the World Economy since then. In August 1971, Richard Nixon announced that the U.S. would no longer honor dollars for gold. This effectively ended the Bretton Woods System. For the next two years attempts were made to patch it up. The attempt was given up in 1973, and that year, the gold-based world exchange regime officially ended. After the Yom Kipper War in 1973, OPEC imposed an oil embargo on the World, which ushered in the new energy realities. Thus, by the initial trough of the cycle beginning in 1975, the World Economy had undergone a significant structural shift. These factors have motivated the use of Post-1975 cycles as the reference for measuring the performance of the current recovery/expansion in this outlook.

The next section, Section II, looks at the performance of growth and output in the State's Economy. State Real GDP growth, available annually, is compared to the growth of U.S. GDP over the five years of the current, National recovery/ expansion. To measure the State Economy's output, the State's counterpart to the U.S. Manufacturing IPI, the Connecticut Manufacturing Output Index, along with Industrial Electric Sales are used. Section III investigates the current recovery/ expansion's utilization of resources. Since there is no available measure of capacity utilization for Connecticut, unlike for the U.S. Outlook, the Connecticut Outlook cannot assess the State Economy's use of its available physical resources. There are, of course, a number of measures of the State Economy's use of its human resources. To that end, the discussion focuses on the performance of Connecticut's labor markets.

II. SECTORAL DETAIL

a. Growth and Output

Connecticut State GDP and Manufacturing Output

The state counterpart to U.S. GDP is **State Gross Domestic Product** (State GDP). GDP for a state is derived as the sum of the GDP originating in all the

industries in the State.[10] ***Real GDP*** is an inflation-adjusted measure of each state's gross product that is based on national prices for the goods and services produced within that state. However, U.S. GDP is released on a quarterly basis, whereas, state GDP is released only on an annual basis. Further, state GDP is released with a one-year lag between the release date and the reference date. This means that GDP is not useful for assessing current output over the business or employment cycle. So in order to gauge the performance Connecticut's growth and output over the current recovery/expansion, another measure must be employed.

The Connecticut counterpart to the U.S. IPI for Manufacturing is the ***Connecticut Manufacturing Production Index*** (CMPI) produced by the Office of Research, Connecticut Labor Department, and is published every month in the *Connecticut Economic Digest*.[11] The CMPI must also be viewed with the same cautions discussed in regard to Real CT Non-Farm Earnings. The CMPI also uses BEA's Quantity Index for GDP to obtain a measure of real output for Connecticut's Economy, this produces the same series discontinuity in 1997 that was flagged in the discussion on real earnings.

i. Connecticut GDP Growth

Until October 2006, the state counterpart to GDP was ***Gross State Product*** (GSP). GSP for a state was derived as the sum of the GSP originating in all the industries in the state. *Real GSP* was an inflation-adjusted measure of each state's gross product that is based on national prices for the goods and services produced within that state.[12] However, as of the October 2006 Release, the Bureau of Economic Analysis (BEA) announced the name-change of its Gross State product (GSP) series to ***Gross Domestic Product*** (GDP) by state. As of the December 2004 comprehensive revision, the State GDP Series became consistent with the national measure of GDP. The new name, *GDP by State*, is also consistent with terminology used by statistical agencies in most other developed countries. However, while U.S. GDP is released on a quarterly basis, State GDP, like its predecessor GSP, will still be released only on an annual basis.[13] GSP was released with a two-year lag between the release date and the reference date, whereas State GDP is to be released with a one-year lag between the release date and the reference. This, of course, still does not provide a current series for a state's output measure. Nevertheless, the performance in Connecticut's GDP-growth can be tracked over the first five years of the U.S. Expansion, beginning in 2001. Between 2001, the beginning of the current U.S. Expansion and 2005, the last year of available data for the State GDP Series, U.S. Real GDP grew by 12.25%. Even though this was less than spectacular, compared with previous U.S.

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[10] U.S. Bureau of Economic Analysis, "Definitions", *News Release: Gross State Product*, October 26, 2005

[11] Joo, Charles J., *Introducing the Connecticut Manufacturing Production Index*, CONNECTICUT ECONOMIC DIGEST, June 1999

[12] U.S. Bureau of Economic Analysis, "Definitions", *News Release: Gross State Product*, October 26, 2005

[13] *The Connecticut Economy*, published by the University of Connecticut, Economics Department, as part of its Connecticut State GDP forecast, does convert BEA's annual State GDP series to quarterly using the Chow-Lin reference-series method.

recovery/expansions, it still outperformed Connecticut's Economy. Between 2001 and 2005, Connecticut's Real GDP grew by an anemic 6.86%. However, there was one strong year over the period when the growth in Annual, Real Connecticut GDP even outpaced U.S. growth. In 2004, Connecticut Real GDP grew by 4.44%, which outperformed the 4.15% growth in U.S. Annual, Real GDP. Why in 2004, and, further, why *only* in 2004, is explored below.

GRAPH 1: US and CT Annual Real GDP Index: Current Recovery/Expansion
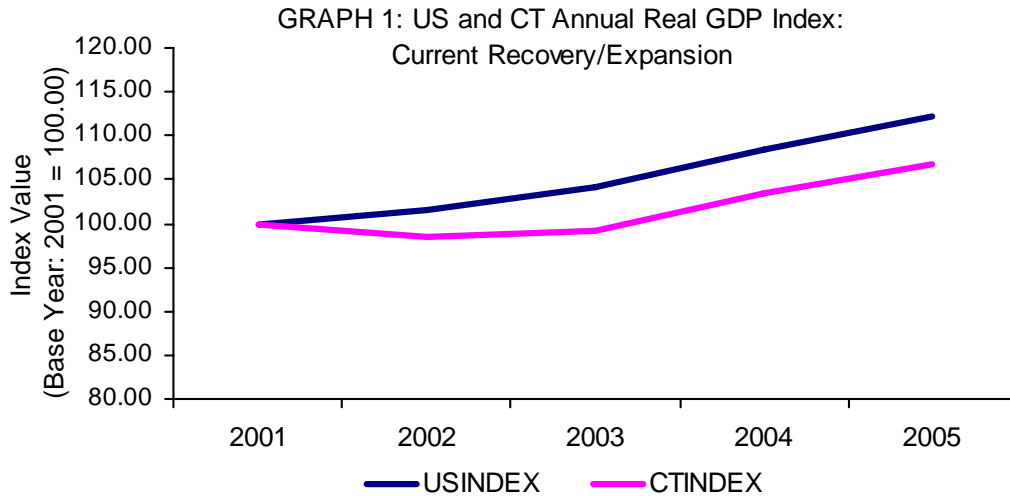
Graph 1 tracks an index of Real, Annual GDP-growth for the U.S. and Connecticut for the years 2001 to 2005, over the current recovery/expansion. Connecticut's Real, Annual GDP-growth has lagged behind that for the U.S. throughout the current expansion. Is it typical for Connecticut to lag behind U.S. growth four years into a recovery/expansion? Graph 2 explores this question. The first four years of annual RGDP growth for the U.S. and Connecticut are presented for the Post-1975 recovery/expansions. One note on the data in Graph 2: RGDP are not available for the State GDP Series before 1977. Therefore, only the last three years of the 1975 Expansion are tracked in Graph 2.
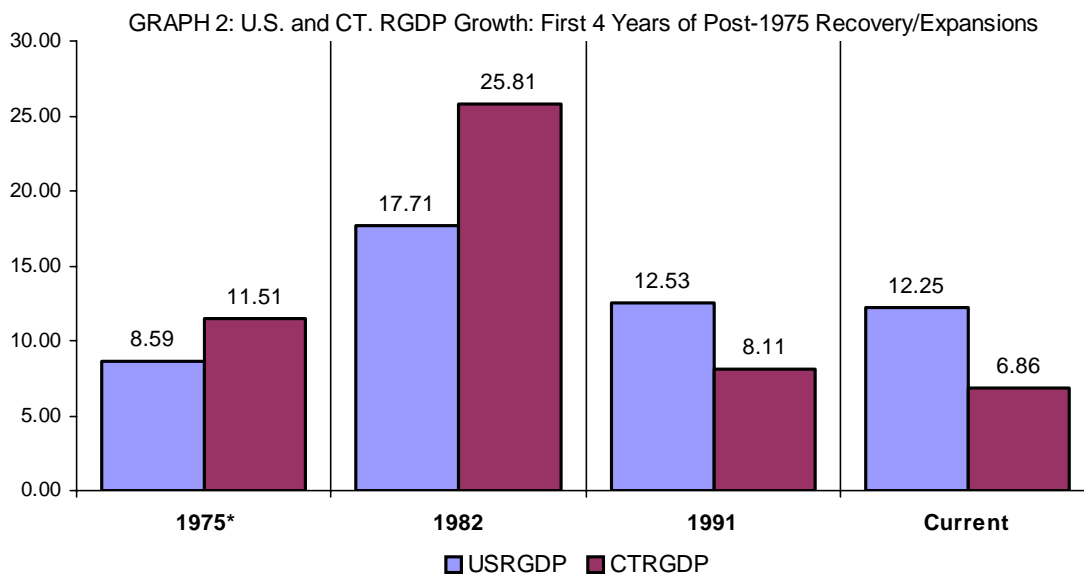
GRAPH 2: U.S. and CT. RGDP Growth: First 4 Years of Post-1975 Recovery/Expansions

It is apparent that Connecticut's economic growth was stronger than that of the U.S. in both of the Cold-War recovery/expansions depicted in Graph 2. But, in the Post-Cold War Era, the tables are turned. Connecticut's RGDP growth lagged behind U.S. growth over the first four years of the current, as well as, the 1990's Recovery/Expansion. And, it is apparent that Connecticut received a disproportionate benefit from the Reagan defense build-up, as Connecticut's economic growth was far stronger than National growth, at least over the first four years of expansion, during the 1980's.

Returning the focus to the current cycle, and Connecticut's growth-spurt in 2004, Graph 3 takes a year-by-year look at Connecticut's GDP-growth. Again, the surge in growth discussed above, can be clearly seen when viewing the Year-to-Year (YTY) growth-rate in Annual, Real GDP. Connecticut's Real GDP growth outperformed U.S. RGDP growth in 2004. It was the only year so far, in this recovery/expansion that Connecticut's economic growth surpassed that of the U.S. But, what was behind this surge in GDP-growth? To look at the contributions to growth, Current-Dollar GDP growth between 2003 and 2004 is used to avoid the problems encountered when trying to add together Chained-Dollar components. Those components, with a high-growth-rate, but also contributing $1 billion or more to annual, Nominal GDP-growth will be considered. Between 2003 and 2004, Connecticut annual, Nominal GDP grew by $12.2 billion, or 7.19%. What contributed to that growth?

GRAPH 3: US and CT Annual Growth-Rate in Real GDP: Current Recovery/Expansion
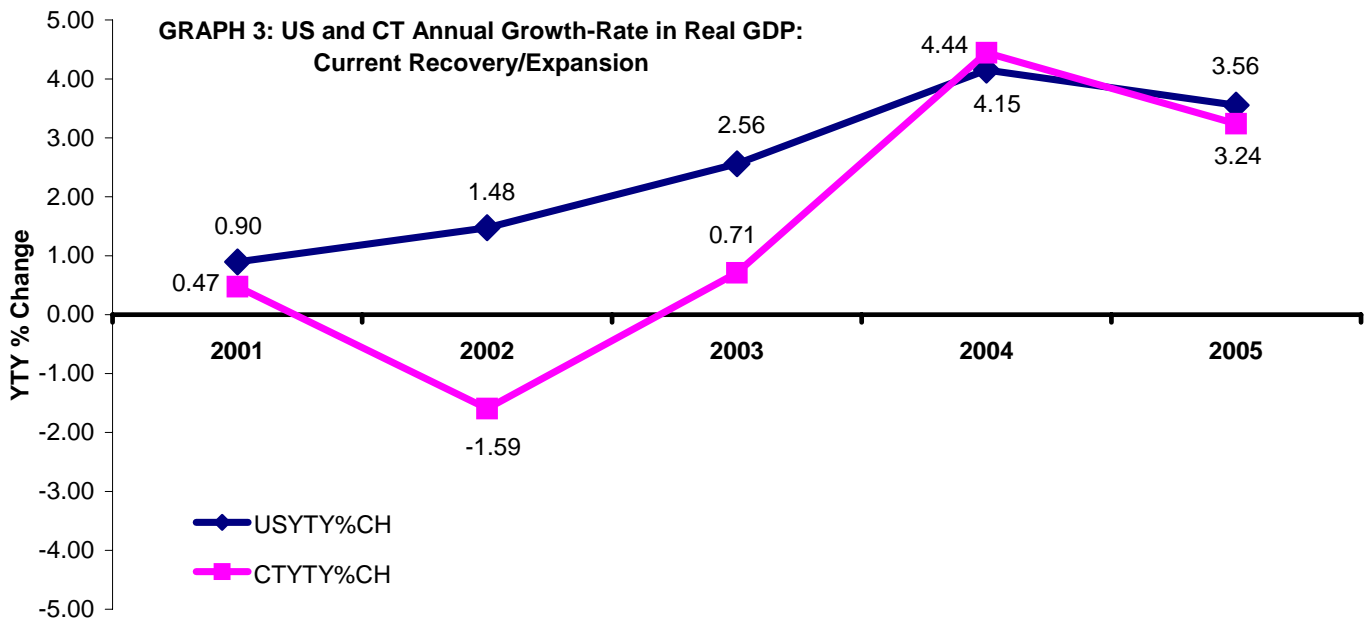
The largest single contribution to Connecticut's annual, Nominal GDP growth in 2004 was Real Estate Rental and Leasing, which grew by 7.7% and added $1.8 billion to Connecticut's growth in output that year, $1.7 billion of that was from the Real Estate portion. The Real Estate Sector accounted for nearly 18% of the growth in State GDP. Finance and Insurance accounted for another 13.5% of GDP-growth, contributing $1.7 billion to the increase in annual final output. The largest
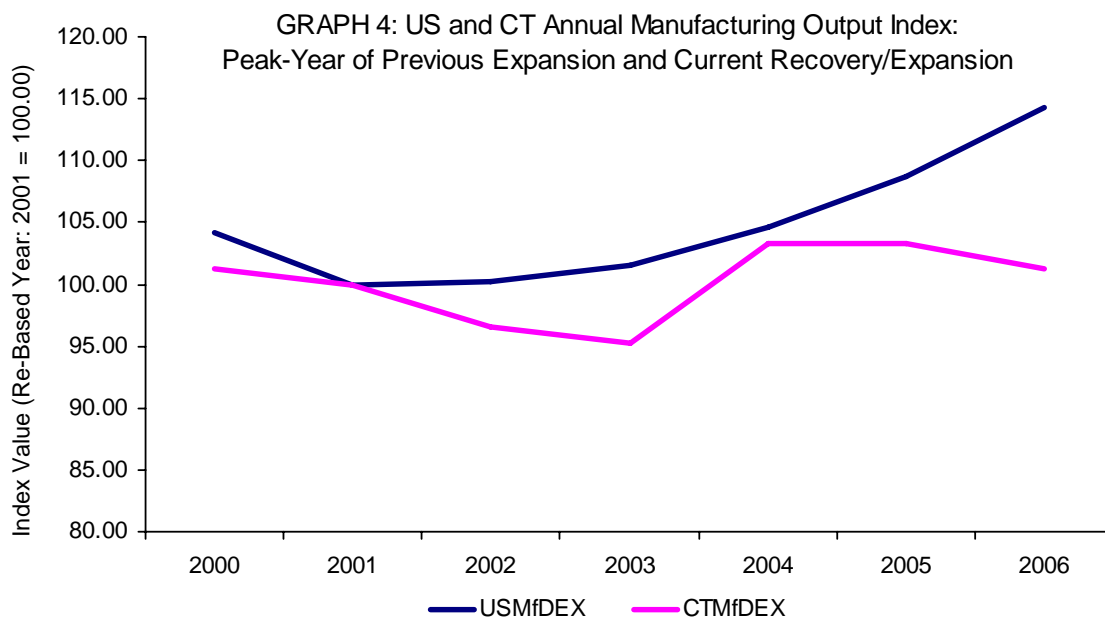
relative jump of a major contributor to growth was Chemical Manufacturing, which includes pharmaceuticals, an industry with a heavy presence in Connecticut. Output increased by 65%, or $1.5 billion, and accounted for 12.4% of Connecticut's economic growth in 2004. The Manufacturing Sector, as a whole, contributed $1.5 billion to growth that year. Detailed data for 2005, and the preliminary data for 2006 will not be available until May 2007, so following up on changes in Connecticut's GDP-growth, since then, cannot be tracked at this point.

ii. Growth in Connecticut Manufacturing Output

Industrial Production is another measure of growth and output of the economy. But, GDP, at the National level, and its counterpart, GDP, at the state level, are based on different methodologies than Industrial Production. GDP and State GDP are calculated on a *net output* basis (i.e. Value Added). They exclude the double counting of the intermediate inputs of purchased goods and services that are used to produce final output. Whereas, Industrial Production is calculated on a *gross output* basis that includes the intermediate inputs of purchased goods and services used in the production of final output. In the U.S. Outlook, the *Manufacturing Industrial Production Index* (IPI) is used rather than the Total IPI. In addition to leaving out utilities that can be influenced by the weather rather than the underlying forces driving the economy, Manufacturing, despite its decline in importance in the U.S. Economy, still has a significant direct effect, and wide secondary and tertiary ripples throughout the economy, as the indirect effects, in conjunction with its strong induced effects, due to the high-paid workforce, stimulates substantial secondary production and a greater per-worker spending impact than most other sectors of the economy. This is also true at the state level In fact, more so for Connecticut, since 9.0% of Non-Farm Employment is in Durable Goods Manufacturing, compared to 6.8% for the U.S.[14]

GRAPH 4: US and CT Annual Manufacturing Output Index: Peak-Year of Previous Expansion and Current Recovery/Expansion
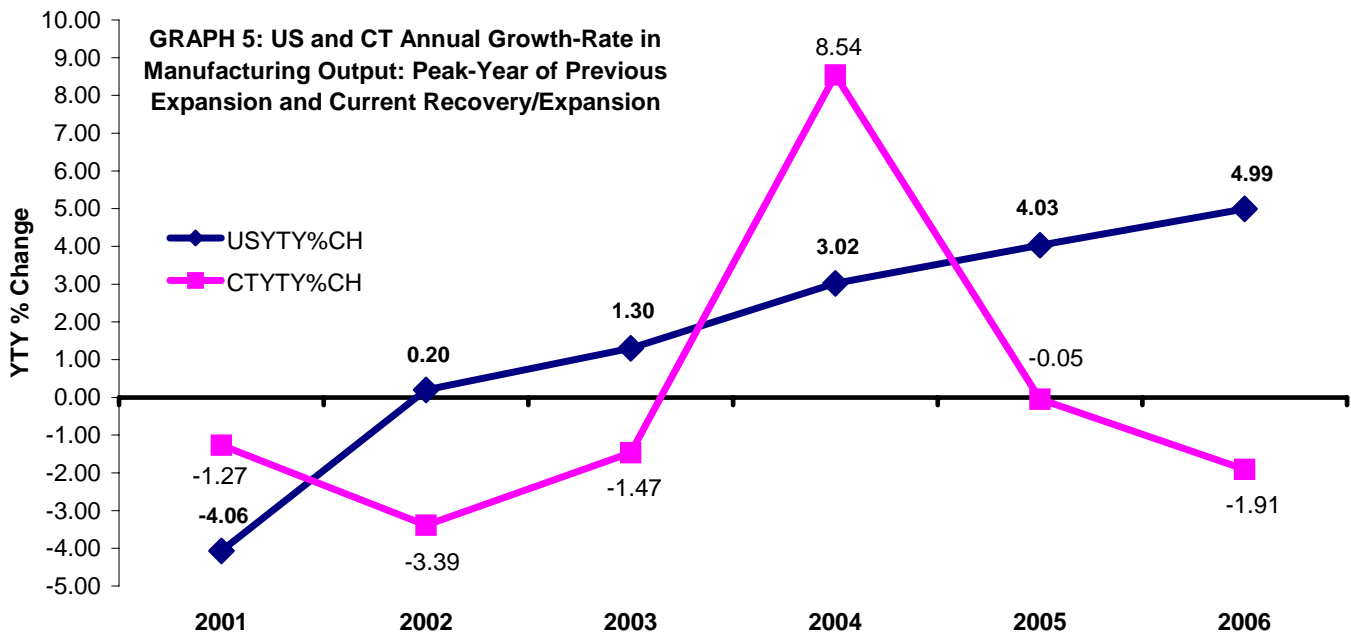
[14] See Kennedy, Daniel W., *JOBS AND CYCLES: Historical Patterns in Connecticut's Employment Behavior* CONNECTICUT ECONOMIC DIGEST, November 2005.

The Connecticut counterpart to the U.S. IPI for Manufacturing is the **Connecticut Manufacturing Production Index** (CMPI) produced by the Office of Research, Connecticut Labor Department, and is published every month in the *Connecticut Economic Digest*.[15] Because of the SIC-NAICS break in the U.S. BEA data in 1997, detailed real-values data below the aggregate level becomes more problematic. Therefore, Graph 4 tracks U.S. and Connecticut, annualized indices for manufacturing output from the peak of manufacturing activity over the last U.S. expansion (July 2000) to 2006.
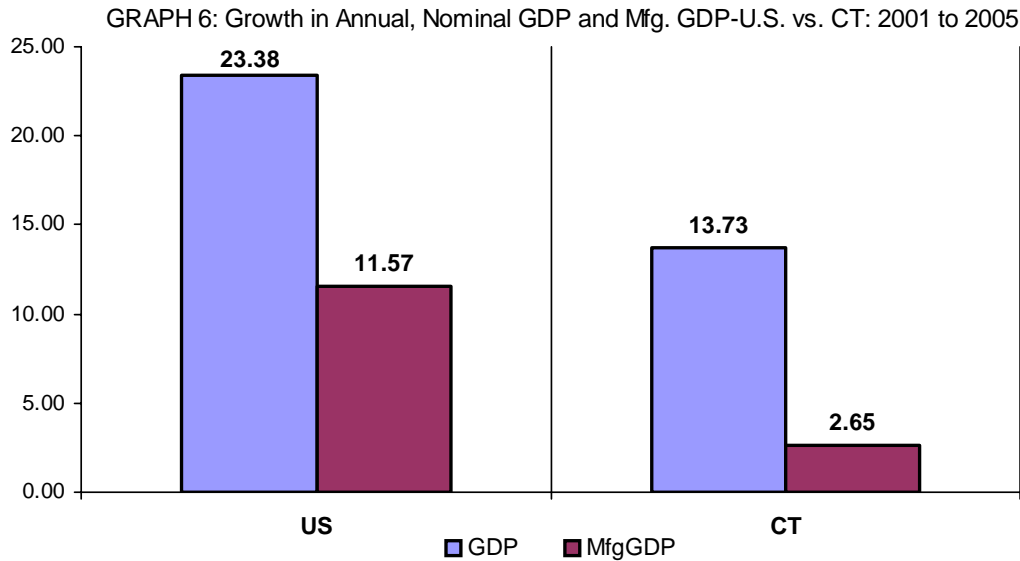
Connecticut's output growth has lagged behind that of the U.S. throughout the current recovery/expansion. But, interestingly enough, the 2004 growth-spurt noted in the discussion of Connecticut GDP-growth above, shows up in the CMPI too. It then shows the State's growth in manufacturing output decelerates from 2004 to 2006, again, paralleling the behavior of GDP-growth. Graph 5 presents the YTY, percent-growth in annual, manufacturing output for the U.S. and Connecticut. Again the growth-spurt observed in the GDP data, but even more pronounced. This implies that the Manufacturing Sector may have played a role in the deceleration in State GDP-growth after 2004. In fact, as shown in Graph 6, annual Nominal GDP growth and Manufacturing GDP-growth for Connecticut and the U.S. over the 2001-2005 Period shows that while the growth in Manufacturing GDP lagged behind the growth in Total GDP in both the U.S. and Connecticut, the slower manufacturing growth in Connecticut was much more pronounced. The State's manufacturing output grew only one-fifth as much as U.S. manufacturing output between 2001 and 2005.

GRAPH 5: US and CT Annual Growth-Rate in Manufacturing Output: Peak-Year of Previous Expansion and Current Recovery/Expansion

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[15] Joo, Charles J., *Introducing the Connecticut Manufacturing Production Index*, CONNECTICUT ECONOMIC DIGEST, June 1999.

GRAPH 6: Growth in Annual, Nominal GDP and Mfg. GDP-U.S. vs. CT: 2001 to 2005

US: GDP 23.38, MfgGDP 11.57

CT: GDP 13.73, MfgGDP 2.65

b.   Resource Utilization

As for the National Economy, an important indicator about the health of a state's economy is resource utilization. If there are underemployed or unemployed resources, or both, then the state economy is not "firing on all cylinders". Unfortunately, there is not as much data available, particularly with regard to physical resources, on the use of capacity, or adding capacity. Thus, this section for Connecticut, unlike for the U.S. Outlook, will focus exclusively on the utilization of the labor-input by the Connecticut Economy.

Turning now to the measure of the economy's use of human resources, there are two major series that are released in the monthly jobs report. The monthly jobs report is one of the most anticipated of the economic indicators. For the average household employment is the primary source of income. In addition, there are intangible benefits to having a job such as feelings of self-worth and dignity.[16] From the macroeconomic standpoint, consumer spending accounts for between two-thirds and 70% of aggregate demand in the U.S. Economy. Income growth, and particularly growth in the Wages and Salary source of income is the primary basis for sustainable consumption.

The Connecticut Department of Labor (CTDOL) releases a state counterpart to the U.S. *Employment Situation* put out by the U.S. Bureau of Labor Statistics (BLS). It is called the *Labor Situation* and it reports the current levels, and month-to-month and year-to-year changes, in Non-Farm Employment [***Establishment Survey***, part of the Current Employment Statistics (CES) Program] and Household, or Residence Employment [***Current Population Survey* (CPS) of Households**, which provides data for the Local Area Unemployment Statistics (LAUS) Program].

Establishment Survey

The Establishment, or Payroll Survey is part of the Current Employment Statistics

[16] Frumkin (2004), p. 207

(CES) Program. The sample for the Establishment Survey is drawn from the Unemployment Insurance (UI) Tax-Reporting Database, known as the Quarterly Census of Employment and Wages (QCEW), formally known as the ES-202 Program. CTDOL's Office of Research includes 5,000 business establishments and government agencies in their sample, which captures all government workers and about 430,000 private sector workers, or approximately 30% of all private sector non-farm employment.

The Establishment Survey covers all full-time and part-time jobs for non-farm businesses, non-profit groups, and Federal, state, and local government offices. Non-Farm Employment is a geographic-location concept. That is, it counts jobs within the geographic boundaries of Connecticut, regardless of where the workers come from to work those jobs. Thus, the jobs worked by workers living in Connecticut, or coming into Connecticut from New York, Massachusetts, or Rhode Island, or any other state, are counted in the Establishment Survey. The only groups excluded from the Establishment Survey are farm-workers, the self-employed, and domestic help.

Household Survey
Information for the Household Survey is collected from the Current Population Survey (CPS) conducted jointly by the U.S. BLS and the U.S. Census Bureau. It is the CPS that provides the data on Household, or Residence (Total) Employment, the Number Unemployed and the Unemployment Rate, Current Population, Labor Force, and other statistics on persons in, and out, of the labor force. Each month, the CPS contacts 1,100 households in Connecticut, a population that includes farm, as well as, non-farm workers, the self-employed, domestic workers, and multiple jobholders. It counts persons with jobs, regardless of how many, as opposed to the Establishment Survey, which counts jobs, not persons. Further, while Non-Farm Employment is a geographic-location concept, Household Employment is a residence-based concept. Thus, in the case of the Household Survey, or CPS, Connecticut residents who work in Connecticut, and Connecticut residents who commute out of state to surrounding states to work would be counted in the Connecticut portion of the Household Survey of persons in the labor force, and employed. Whereas, those Connecticut residents working in New York, Massachusetts, Rhode Island, or some other state, would be excluded from the Establishment Survey. The discussion now turns to the use of human resources, or the labor-input factor of production, over the current recovery/expansion, and how it compares with the comparable stage of previous cycles.

i. CAPITAL: Capacity and Capacity Utilization

As discussed above, since there is no measure of capacity or capacity utilization below the National level, there is no way of gauging the performance of those variables for the Connecticut Economy.

ii. LABOR: The Labor Force and Labor Markets

As for the U.S. Economy, labor is an important factor-input into producing the
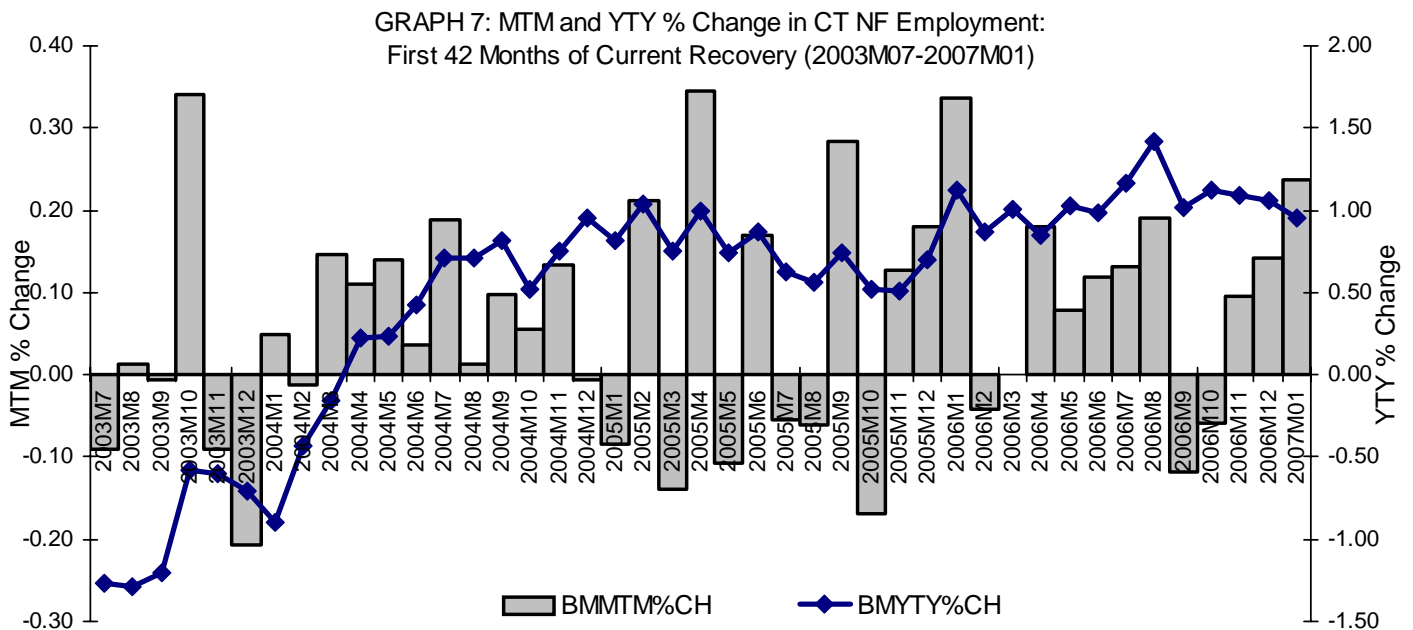
State economy's output. And, as for the capital input, if the economy is not using all of the labor-input available to it, then it is "not firing on all cylinders". But, if the economy is not using all of its resources, and using them efficiently, to produce the maximum possible output, then society is forgoing output, which can never be recovered. Thus, the *Output Gap* has an opportunity cost.

There are many dimensions to the labor market and the utilization of human resources by the economy, and this is reflected in the numerous measurements of labor-market activity that gauge the strength or weakness of the supply of, and demand for labor, both, at a point in time, and over time. The most well known indicator of the health of the Connecticut labor market is the monthly jobs report put out by the CTDOL. The "top-line" number released in the *Labor Situation* is the number of jobs created over the previous month. This is the report on **Connecticut Non-Farm Employment.** Thus, the discussion begins with the number of jobs created in the Connecticut Economy over the current expansion, and how it compares to past expansions.

1. Establishment Survey Employment: Job Creation

Based on March 2007 benchmarked data, Graph 7 presents the Month-to-Month (MTM) percent change (bars; left scale), and the Year-to-Year (YTY) percent change (line; right scale) in Connecticut Non-Farm Employment for the first 42 months of the current recovery/expansion in jobs, which began in July 2003, and up to January 2007. On a MTM basis, Connecticut had nine consecutive months of job-gains, beginning in March 2004, and ending in November. This is consistent with the observed spurt in Connecticut's GDP-growth and Manufacturing Output-growth in 2004 (see Section II-a "Growth and Output", above). YTY growth turned positive in April. However, the State's Economy could not produce back-to-back, monthly job-gains again until the three consecutive MTM gains of November and

GRAPH 7: MTM and YTY % Change in CT NF Employment: First 42 Months of Current Recovery (2003M07-2007M01)

December 2005, and January 2006. April 2006 began another streak of job-gains, after a deceleration in growth in May, job-growth, on a MTM basis, accelerated until August. The latest MTM run in jobs-increases began in November 2006, and ran through the latest month of data February 2007 (not shown on graph). However, growth decelerated in February.

As mentioned above, on a YTY basis, Connecticut Non-Farm Employment-growth turned positive in April 2004. YTY growth accelerated until February 2005, when YTY, Connecticut Non-Farm Employment grew by 1.04%. YTY growth then decelerated until November 2005. Growth then accelerated again until August 2006, when, on a YTY basis, Connecticut jobs grew by 1.42%. YTY growth has decelerated since then. Baring a surge in job-growth in 2007, August 2006 could be the global maximum for YTY growth over this cycle.

Performance of Connecticut Non-Farm Employment: Current vs. Post-1975 Recovery/Expansions

Like the first part of the 1990's Recovery/Expansion, the current recovery began as a "jobless recovery". However, as Faberman has pointed out, the two jobless recoveries were not the same.[17] Analyzing Job Creation and Destruction from the Business Employment Dynamics (BED) data, Faberman found that the 1990's job-recovery was muted because the Job-Destruction Rate (JDR) remained at its recession levels long after the end of the 1990 Recession, even though the job-Creation Rate (JCR) had recovered. The opposite was true for the Current cycle. Though the JDR returned to pre-recession levels after recovery began, the JCR took a long time to return to pre-recession levels. Thus, though the recession officially ended in November 2001, it was 2003 before the job-market recovered (at least as measured by the Non-Farm Employment Series). For Connecticut, the JC and JD rates both declined significantly after 1997, indicating a more broadly-based loss of dynamism going into the last half of the 1990's Recovery/Expansion.

To see how the current cycle measures up against previous cycles, in terms of labor-market performance, Graph 8 shows the first 42 months of Connecticut's recovery/expansions in Non-Farm Employment-growth for the four Post-1975 cycles. Note the strength in job-growth over the two Cold-War recovery/expansions. The 1975 Recovery/Expansion exceeded growth of 15% in non-farm employment over the first 42 months since the trough of the previous recession, and grew 13% over the 1983 Recovery/Expansion.[18] Though the second half was of the 1990's Recovery/Expansion was much stronger, non-farm jobs still grew by 4.4% by the 42nd month, which still outpaced the 3.0% growth in jobs over the current cycle. Note too, the progressively weaker growth-rates in the jobs recoveries. Whether compared to the average of the four recoveries, or the average, with the current cycle netted out, the two Post Cold-War recovery/expansions are far weaker than both, the Cold War cycles, and the average cycle, no matter how it's defined.

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[17] Faberman, Jason *Job Flows and the Recent Business Cycle: Not All "Recoveries" Are Created Equal* (February 2006) WORKING PAPER 391, U.S. Bureau of Labor Statistics: Washington.

[18] Jolly, Nicholas and Daniel W. Kennedy, CONNECTICUT'S LABOR-MARKET DYNAMICS: Job Creation, Destruction, and Reallocation, OCCASIONAL PAPER (August 2006): CT Labor Dept.
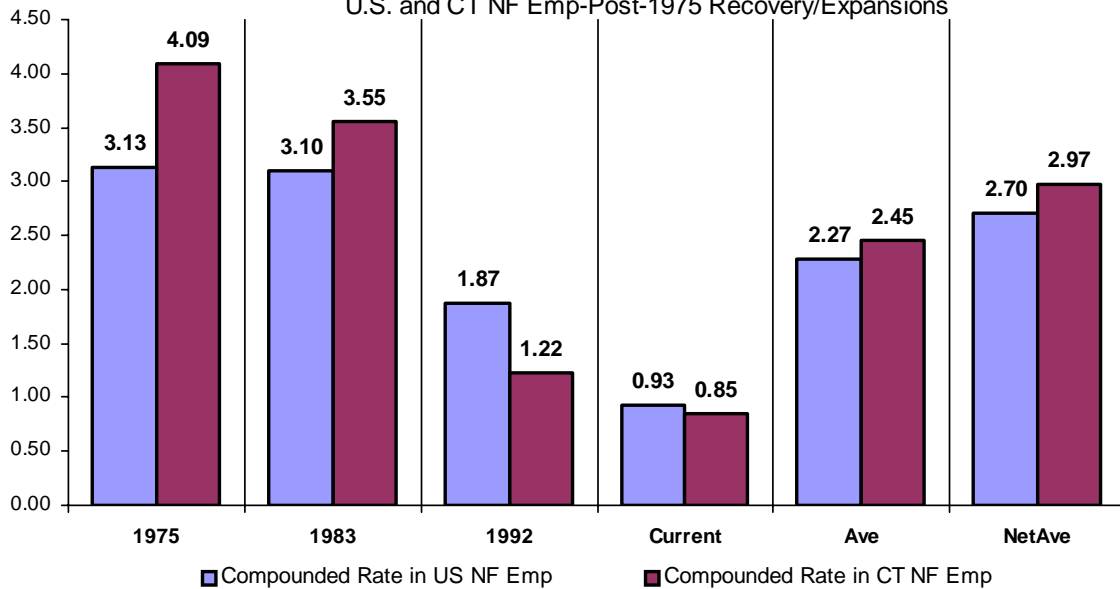
GRAPH 8: % Change in CT NF Emp-First 42 Months of Post-1975 Recovery/Expansions

Year	Value
1975	15.05
1983	12.99
1992	4.35
Current	3.02
Ave	8.85
NetAve	10.80
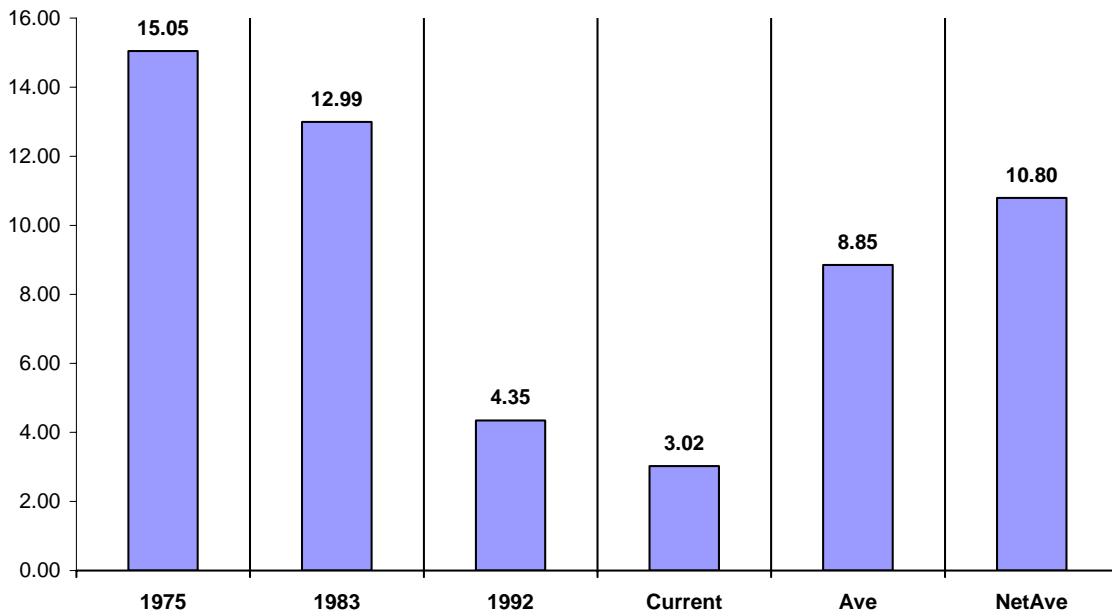
To get a sense as to how Connecticut compares to the U.S in its job-creation performance over the recovery/expansion period for Post-1975 cycles, Graph 9 compares the compounded, annual growth-rates of U.S. and Connecticut Non-Farm Employment over the four Post-1975 cycles. Due to the differing lengths of the U.S. and Connecticut recovery/expansion phases, both job-growths had to be standardized to a compounded, annualized growth-rate[19] so that a meaningful comparison could be made.

**GRAPH 9: Compounded Annual Growth-Rates of
U.S. and CT NF Emp-Post-1975 Recovery/Expansions**

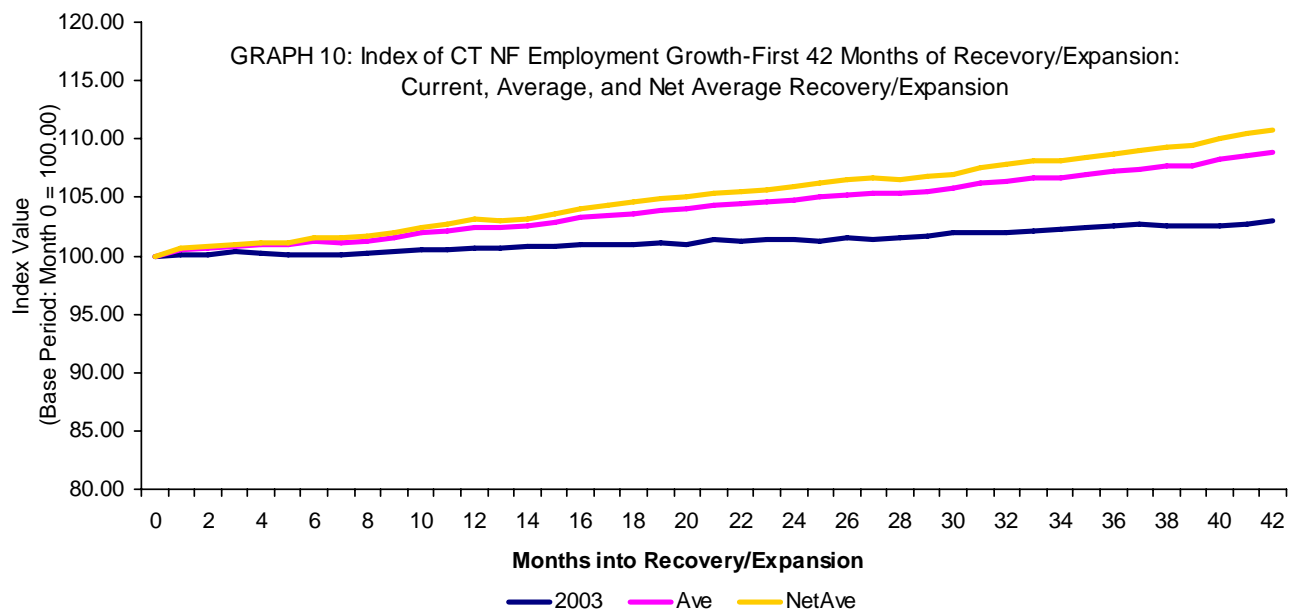|	1975	1983	1992	Current	Ave	NetAve
Compounded Rate in US NF Emp	3.13	3.10	1.87	0.93	2.27	2.70
Compounded Rate in CT NF Emp	4.09	3.55	1.22	0.85	2.45	2.97

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[19] The current U.S. Recovery is measured from November 2001, the NBER date of the trough of the 2001 Recession, which, as of February 2007 is 63 months. Connecticut's cycle is measured from the point of turn-around in jobs-growth, which is July 2003, which, as of January 2007 is 42 months (43 months as of February).

Note in Graph 9 how U.S. employment-growth, unlike that of Connecticut, is equally strong over the two Cold War cycles, but like Connecticut, U.S. job-growth weakens from the Cold War to the Post Cold War Era. Also note that Connecticut's annualized, compounded growth-rate in jobs was stronger than that for the U.S. over the two Cold War cycles, even though it declined slightly from the 1975 to 1983 (1982 for the U.S.) recovery/expansions. But then, in the Post Cold War Era, Connecticut's job-creation rate falls below that of the U.S. Interestingly, Connecticut's job-growth was so strong, relative to that of the U.S. during the Cold War, that the overall average, no matter how defined, is stronger for Connecticut. One thing is clear, both the U.S. and Connecticut job-creation rates are the weakest over the current cycle.

To get a sense of how employment-growth unfolded over the 42-month period of the current recovery/expansion, Graph 10 tracks an index of Connecticut Non-Farm Employment from the trough of the previous recession (using Non-Farm Employment as the reference series) to the 42nd month into recovery/expansion for the current cycle, the average of the four recovery/expansions since 1975, and the average, net of the current cycle. The index value is equal to 100.00 in Month 0, the trough of the previous recession, and the base period. From Graph 19, it is apparent that growth over this recovery/expansion has been weaker than the Post-1975 average and net average throughout the entire 42-month period. As discussed above, as the newly benchmarked data show, Connecticut's employment-growth has picked up in the last half of 2006, when it outpaced that of the Nation. However, there was a deceleration in February's growth-rate, up only by 800 jobs. Year-to-Year (YTY) growth was still strong as jobs were up 17,600, or 1.1%, from February 2006. The big gainers, YTY, were Education and Health Services, up 6,300, and Professional and Business Services, up 4,300.
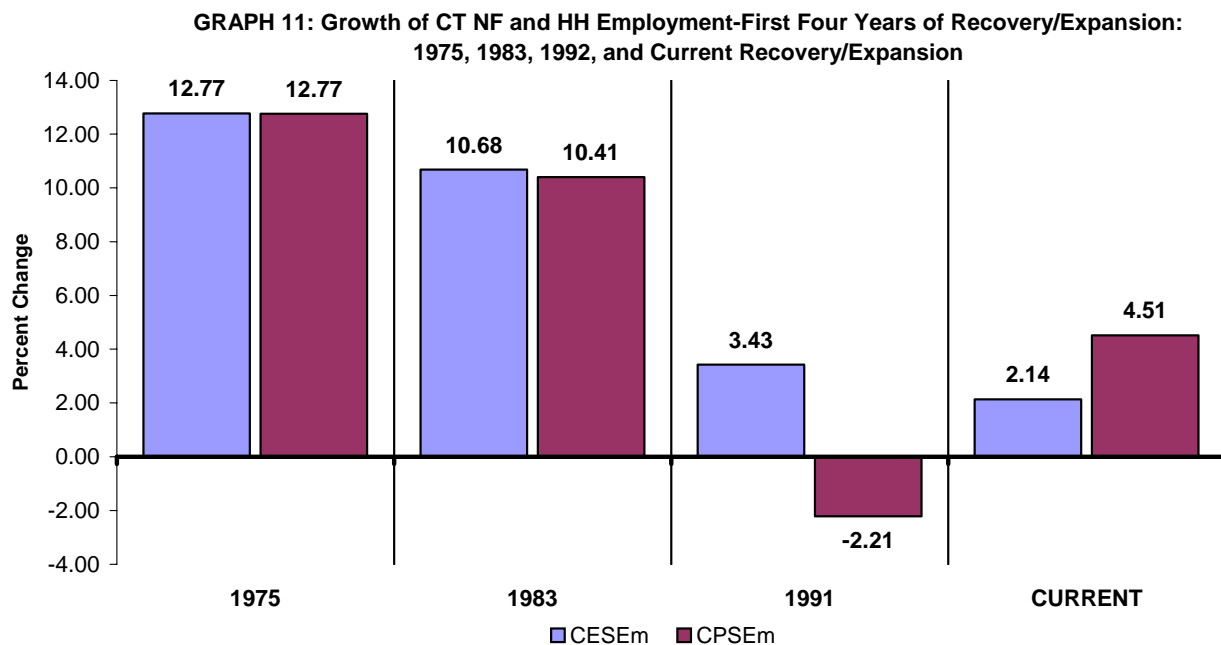
GRAPH 10: Index of CT NF Employment Growth-First 42 Months of Recevory/Expansion: Current, Average, and Net Average Recovery/Expansion

2.   Household Survey Employment: Persons Working

Issues surrounding the differences in the National Establishment and Household surveys notwithstanding, for a small state like Connecticut, especially with the largest employment center in the U.S. just over the border, differences between the two should not be a surprise. Significant inter-state commuting can result in differences between the number of jobs created in Connecticut, versus the number of State residents who are employed, regardless of where they work.

Graph 11 presents the growth in Connecticut Non-Farm Employment (geographic-based Establishment Survey) and Household Employment (residence-based Household Survey) over the first four years of recovery/expansion for Post-1975 cycles. Interestingly enough, the growth in the number of jobs and, the growth in the number of residents employed pretty much matched each other over the Cold War recovery/expansions. It is in the Post Cold-War Era when the two diverge for Connecticut. In fact, growth in Household Employment was negative in the 1990's Recovery/Expansion, and it has grown faster than Non-Farm Employment over the current cycle. What happened? In the 1990's, Connecticut's population declined, at least for the first half of the decade. The Household Survey (Current Population Survey) Employment is not directly benchmarked like Non-Farm Employment from the Establishment Survey. The population number from the Household Survey is benchmarked once a year to the population estimates, and once a decade to the Decennial Census. The employment numbers are, in turn, pegged off of the population benchmarks.[20] Connecticut's population loss in the 1990's is reflected in the contraction of residence-based employment over that decade. A stronger growth in Connecticut's Household Employment, compared to Non-Farm

**GRAPH 11: Growth of CT NF and HH Employment-First Four Years of Recovery/Expansion:
1975, 1983, 1992, and Current Recovery/Expansion**

Percent Change

	1975	1983	1991	CURRENT
CESEm	12.77	10.68	3.43	2.14
CPSEm	12.77	10.41	-2.21	4.51

Employment, over the current recovery/expansion can be explained by the fortunes of Connecticut's economic base visa vie New York City's economic base. With the defense cutbacks following the end of the Cold War, and the subsequent reorganization of the insurance industry Connecticut's economy has experienced much slower growth. On the other hand, New York City (NYC) has benefited from the rise of finance as a dominant sector of the economy (it should be noted that this has also benefited Fairfield County).[21] These two developments could explain the observed faster growth in Connecticut's Household Employment, compared to the growth in Non-Farm Employment, over the current cycle. Nevertheless, the issues discussed in the U.S. Outlook apply to Connecticut as well, particularly the statistical aspects.[22] Connecticut's Establishment Survey includes 6,000 worksites, while the Household Survey includes 1,100 households. Thus, the statistical error is smaller for the Establishment Survey than for the Household Survey.

The Growth in Self-Employment and Part-Time Employment over the Current and Past Cycles

Also obtained from the Household Survey, as part of the ***Current Population Survey***, conducted jointly by BLS and the U.S. Census Bureau, is data on the self-employed and part-time and Full-time employment. Graph 12 shows the growth-rate in annual Total Non-Agricultural Employment broken out by Wage and Salary (W&S) and Self-Employed over the first five years of recovery/expansion (i.e., from the year containing the trough to five years out), for the four recovery/expansions since 1975.

GRAPH 12: Growth of CT NF, HH, and Self-Employment-First Four Years of Recovery/Expansion: 1975, 1983, 1992, and Current Recovery/Expansion

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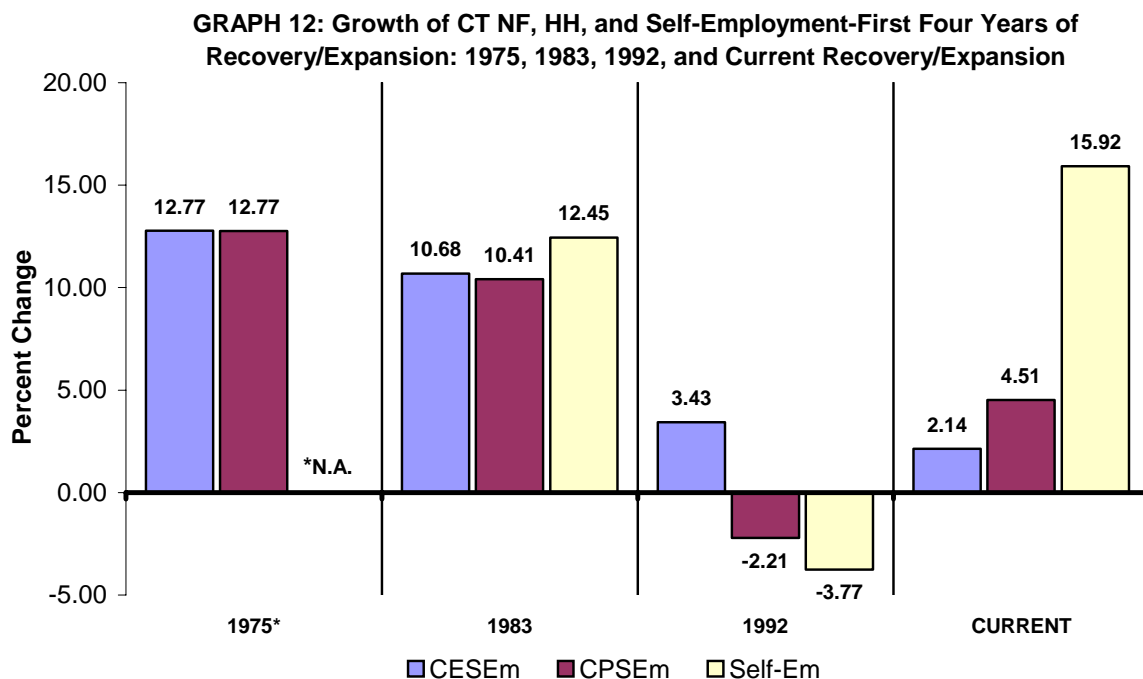
[21] See Dyer, Lincoln, *Connecticut's Investment Employment Rising* (March 2007) CONNECTICUT ECONOMIC DIGEST (12): 3, CT Departments of Labor-Wethersfield and Economic and Community Development-Hartford
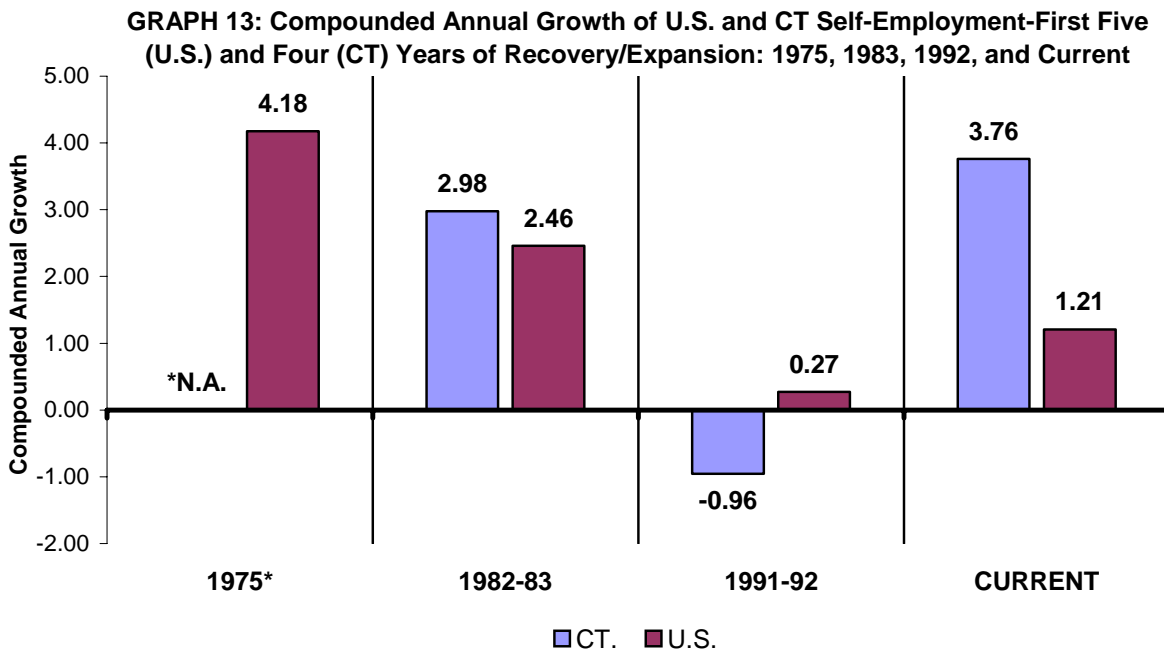[22] See Kennedy, Daniel W., CURRENT CONDITIONS AND OUTLOOK FOR THE U.S. ECONOMY: 2007-2009 (March 2007) Connecticut Labor Department-Wethersfield

Graph 12 compares the growth in Connecticut's self-employed to Non-Farm and Household employment-growth over the Post-1975 cycles. Again, there is incomplete data available over the 1975 Cycle. Nevertheless, data on Non-Farm and Household Employment is available and, as discussed above, the growth in Non-Farm and Household Employment was in sync over the 1975 and 1983 cycles. Though there is no data on self-employment for the 1975 Cycle, it is apparent that self-employment outpaced even the strong growth in Non-Farm and Household Employment over the recovery/expansion that began, for Connecticut, in 1983. Both Household and Self-Employment declined over the 1990's Recovery/ Expansion. What is notable is the strength in the growth of self-employment over the current recovery/expansion. Despite the anemic growth in both Non-Farm and Household Employment, Self-Employment has put in a strong performance, growing by nearly 16%. But how does this compare to the U.S.?

Graph 13 presents the answer to that question. Since the U.S. recovery/ expansions have historically started before Connecticut's, there is a difference in the "comparable" periods over the two sets of expansions. To put the comparison on a standardized basis, Graph 13 shows the compounded, annual growth-rates of U.S. and Connecticut self-employment over their respective recovery/expansions over the Post-1975 Era. Connecticut outperformed the U.S. in self-employment growth over the recovery/expansion that began in 1982 for the U.S., and in 1983 for Connecticut. Again, Connecticut's self-employment contracted in the 1990's. But, when compared to the U.S., the growth in self-employment over Connecticut's current recovery/expansion is three times that of the U.S., on a compounded, annual basis.

GRAPH 13: Compounded Annual Growth of U.S. and CT Self-Employment-First Five (U.S.) and Four (CT) Years of Recovery/Expansion: 1975, 1983, 1992, and Current

Most of the growth in Connecticut's self-employed has been over the last two years of recovery/expansion. After contracting by nearly 10%, or 11,000, in 2004,

the self-employed grew by 11,000, or 11%, in 2005. In 2006, the growth in the number of self-employed jumped by 18,000, or 16%. This is highlighted in Graph 14 which tracks an index of self-employment growth over the first five years of recovery for the 1983, 1992, and current recovery/expansions (no data is available for 1975). The surge in the growth in self-employment can be seen for Year 2 (2005) and Year 3 (2006), where Year 0 is 2003 the year Connecticut's (and the U.S.) recovery in employment began.

GRAPH 14: Index of Self-Employment Growth-First Four Years of Recovery/Expansion: 1983, 1992, and Current (No Data Available for 1975)
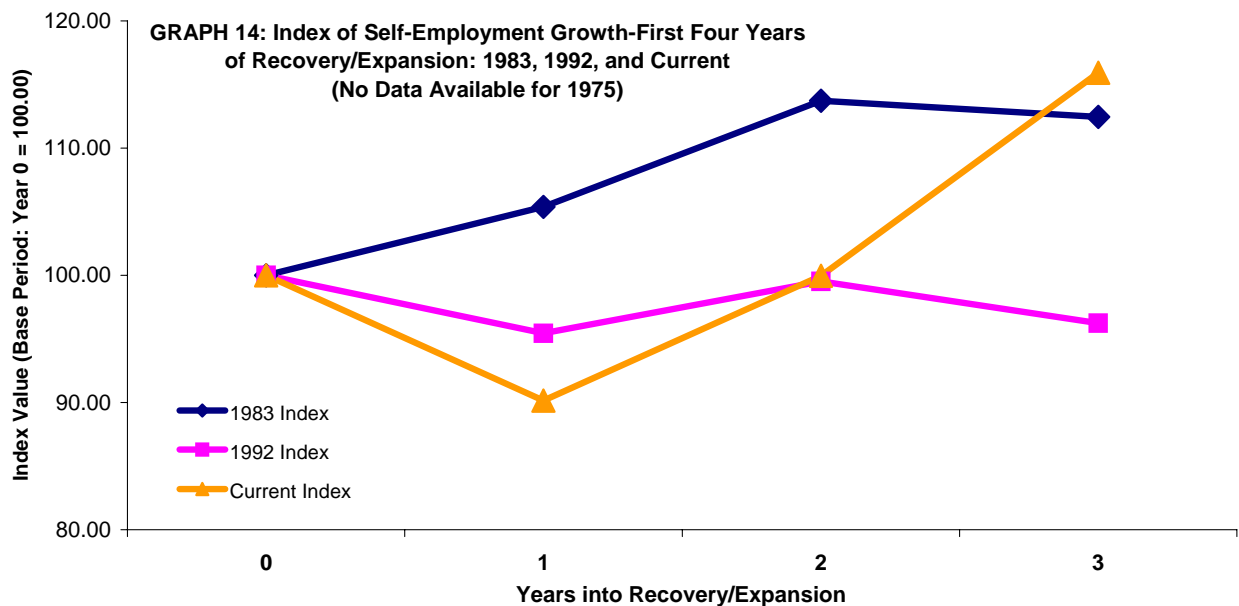
However, many of these newly self-employed do not seem to be growing to the point where they are adding employees. That is, the growth in the number of worksites, required to register with the Unemployment Insurance (UI) Tax database has had much lower growth-rates over the same period. During the boom/bubble years of the late 1990's, Connecticut's net-growth in establishments (measured fourth quarter-to-fourth quarter) was averaging 1,100 per year, or 1.09%, compounded annually. Over the three years after the bust (2000 to 2003), annual net-growth in new establishments dropped to 221 per year, 0.39%, compounded annually. This improved somewhat between 2003 and 2005, the first two years of recovery. Net new establishment formation averaged 795 per year, or 0.75%, compounded annual growth. And, net new establishment growth increased to 1,023, or nearly 1% in 2005. However, this falls far short of the growth of 11,000 self-employed in 2005, an 11% increase. That is, not unless the average new, or opening establishment that came on line created on average 11 new jobs. That would seem rather high for establishments with zero employment for the previous year, given that seasonal employment has been accounted for, by measuring growth from the same quarter, year-to-year.

A more likely scenario is that many of these newly self-employed are those who were unemployed due to their jobs being downsized, or outsourced. Consulting would be a way out of unemployment, and is consistent with research-findings on

job-loss and self-employment.[23] Anecdotal evidence suggests that in many instances, those providing technical, professional, and managerial services may be consultants to their former employers. Another explanation lies in the smaller, one-person operation in the Construction industry, especially in the skilled trades, and particularly on the residential side, where "firms" tend to be smaller and quickly assembled and disassembled at the beginning and end of projects. In fact, NAICS sectors with large numbers of self-employed, like construction, played a significant role in the 2007 Benchmark of Connecticut Non-Farm Employment (discussed below).

3. Unemployed and the Unemployment Rate

Graph 15 presents the level of the Unemployment Rate (UR) for the previous cycle, the trough of the recession, and the end of the first 40 quarters of recovery/ expansion for the Post-1975 cycles. As for previous discussions involving Household Survey data for the 1975 Cycle, only the level of the UR 20 quarters into recovery/expansion is available for that cycle. As can be seen, the trend is for progressively lower UR's at the peaks of the previous expansion. For Connecticut, at the trough of both, the 1983 and 1992 recessions, the level of the UR stood at 7%. Over Connecticut's last recession, the UR peaked at 5.5%, one and one-half percentage points lower than for the previous two recessions. There is a wide range of UR-levels after 20 quarters of recovery/expansion. At 5.4%, the UR-level was the highest at that point over the 1975 Cycle, while, at 3.8%, it was the lowest over the 1983 Cycle. Since the 1990's Cycle boom did not begin until the second half of the recovery/expansion, the UR-level was still up at 5.3% twenty quarters into Connecticut's long recovery period over the decade. As of the fourth

**GRAPH 15: Level of the CT UR: Peak, Trough, and 20 Quarters into Recovery/Expansion-
Post-1975 Recovery/Expansions**
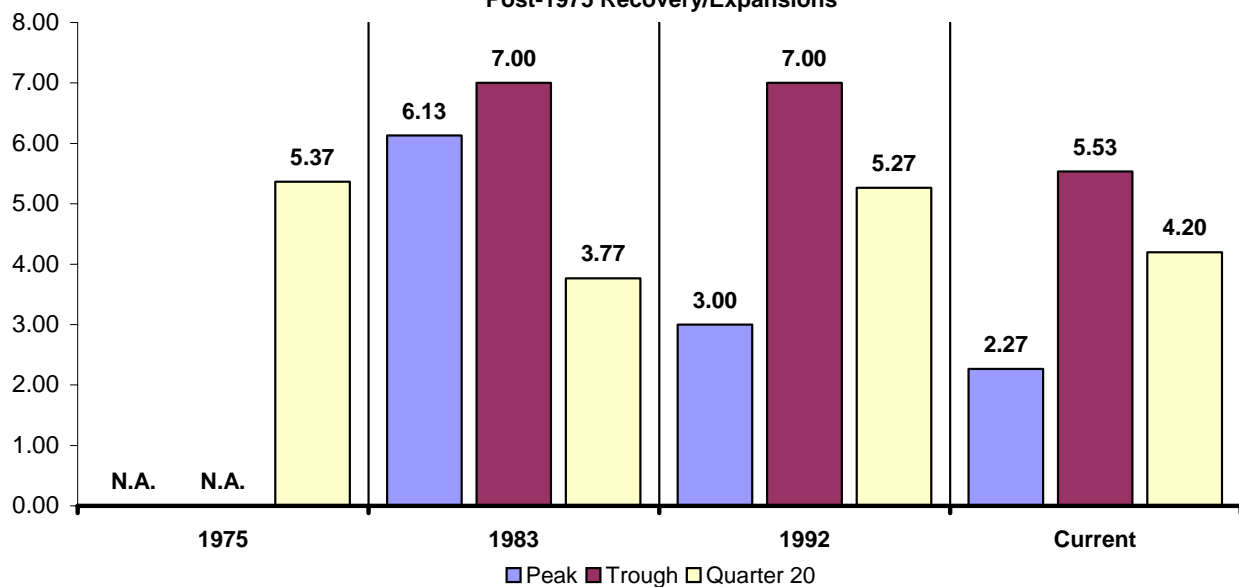
[23] Audretsch, David B., Max C. Keilbach, and Erik E. Lehmann, ENTREPRENEURSHIP AND ECONOMIC GROWTH (2006) Oxford University Press: New York.

quarter 2006, 20 quarters into the current recovery/expansion, the UR was 4.2%, the second lowest of the Post-1975 cycles.

Compared to the U.S., Connecticut's UR at the peaks of the previous cycle was lower for all three Post-1975 cycles with complete data. At the trough of the early 1980's recession (1982 for the U.S. and 1983 for Connecticut), Connecticut's UR was 3.7 percentage points lower than the U.S. 10.7% UR. In 1992, at its trough in the fourth quarter, Connecticut's UR was 0.4 percentage points higher than the 6.6% U.S. UR at its trough in the first quarter of 1991. The Connecticut UR in the trough of the last recession was at the National UR of 5.5%. For the Cold War cycles, Connecticut's UR-level was at least two percentage points lower than the U.S. rate at 20 quarters into the recovery/expansion phase of the cycle. For the 1990's recovery/expansion, it was right at the U.S. rate of 5.3%. However, as of the fourth quarter of 2006, 20 quarters into the State's current recovery/ expansion, Connecticut's UR is 0.2 percentage points below the National rate.

GRAPH 16: Percentage-Point Change in the CT UR:
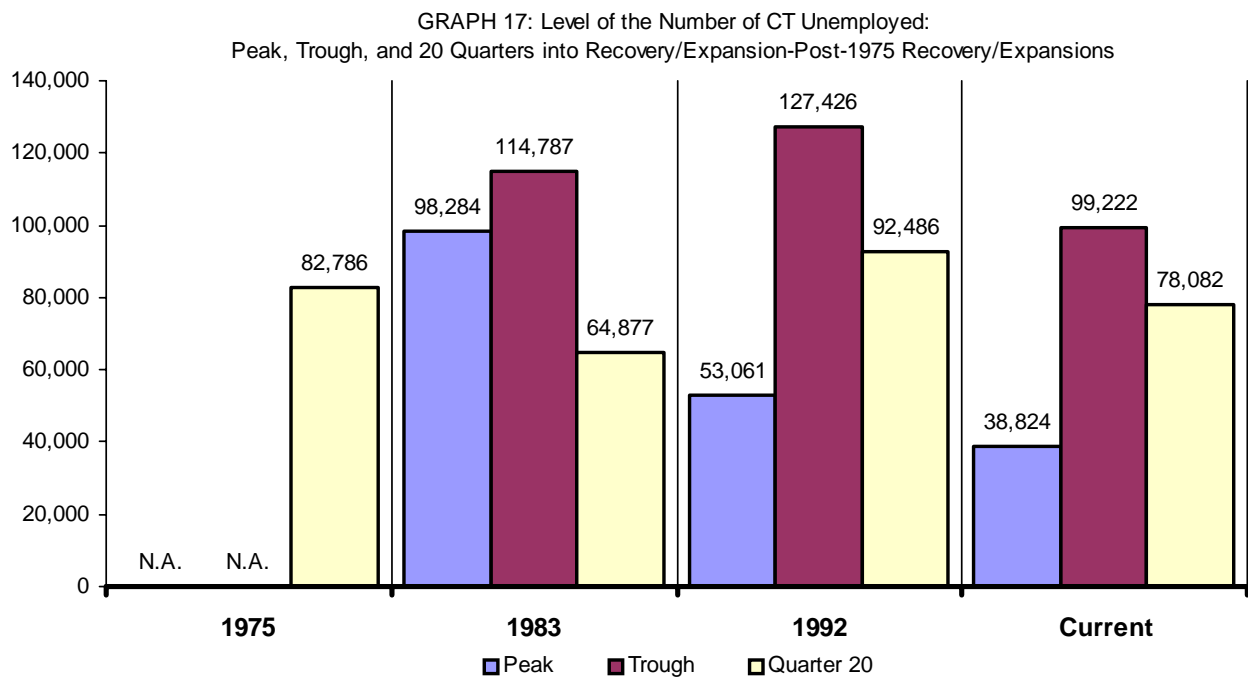**Peak-to-Trough and Trough-to-20 Quarters into Recovery/Expansion-Post-1975**
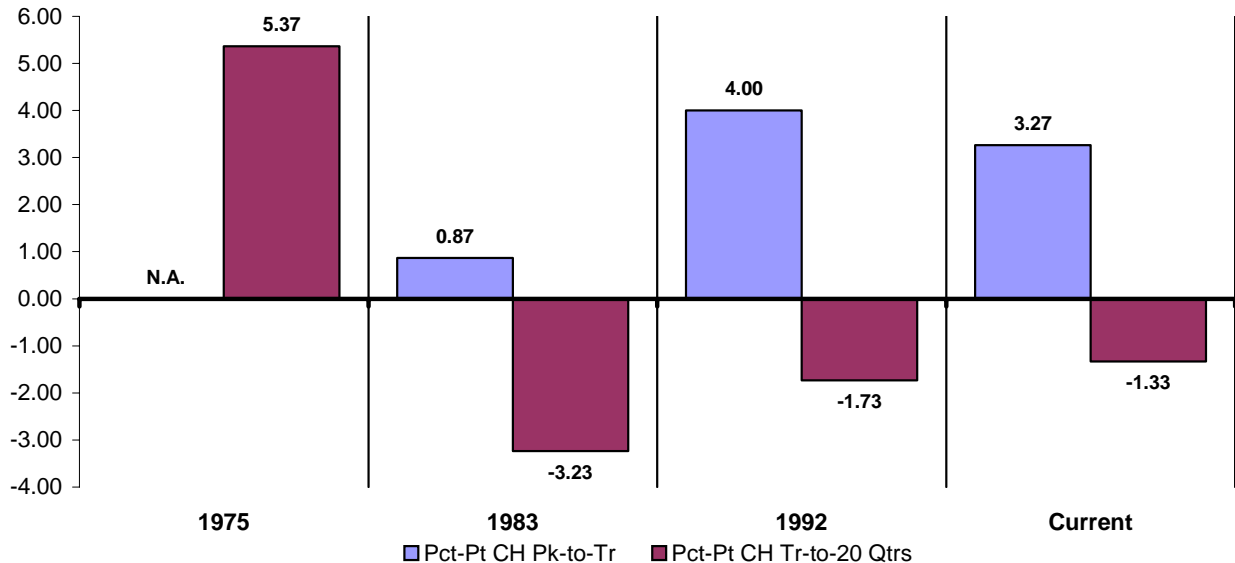
Graph 16 depicts the percentage-point increase and decline of the UR over the cycle for the Post-1975 Era. It shows the percentage-point increase in the UR from the peak of the previous cycle to the trough of the recession, and the percentage-point decline in the UR from the trough to 20 quarters into recovery/expansion. What is notable in Graph 25 is that it is clear that, unlike the trend for the U.S., the volatility in Connecticut's UR is not declining, even though, save the 1992 Cycle, the level of the State's UR is lower than the National rate over the cycle. Though the swings in Connecticut's rate never approached the eight percentage-points, difference in the U.S. rate had over the 1982 Cycle, it has stayed around five percentage-points over the 1992 and currents cycles. Over Connecticut's 1983 Cycle, the swing in the UR was four percentage points.

Graph 17 shows the number of unemployed at the peak, trough, and 20 quarters

into recovery/expansion for the 1975, 1983, 1992, and current cycle. Once again, the data for the 1975 Cycle is limited, especially at sub-national levels. The severity of the 1983, and especially the 1992, Connecticut recessions is apparent by the levels the Number Unemployed reached. It is the troughs of those two recessions when the number of unemployed in Connecticut exceeded 100,000. As discussed above, due to the aborted 1980 Recovery, the previous peak to the 1983 Recession began with nearly 100,000 unemployed, the highest of the Post-1975 cycles. Twenty quarters into recovery/expansion, the number of unemployed had been reduced to 65,000 over the 1983 Cycle, the lowest level of the cycles appearing in Graph 17. Again, demonstrating the severity of the 1992 Cycle, the number of unemployed after 20 quarters of recovery, though not expansion, stood at 92,000 actively looking for work. As of the fourth quarter of 2006, 20 quarters into the current recovery, the Connecticut number of unemployed was 78,000.

GRAPH 17: Level of the Number of CT Unemployed:
Peak, Trough, and 20 Quarters into Recovery/Expansion-Post-1975 Recovery/Expansions
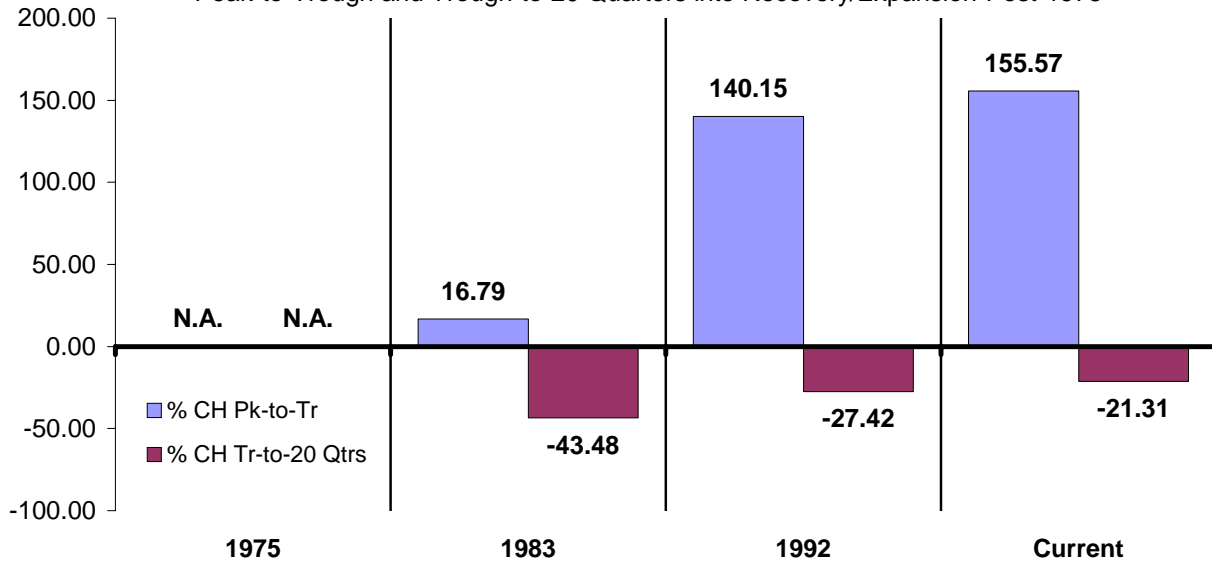

Graph 18 picks up the relative change in the Number Unemployed, from peak-to-trough, and trough-to-20 quarters out. Again, the data limitations show up as the "N.A." value for the peak-to-trough over the 1975 Cycle. Interestingly, the percent-change in the number of unemployed is the highest for Connecticut's current cycle. The relative jump in the number of unemployed from the previous peak to the trough of the State's recent recession even exceeded the increase in the 1992 Cycle. In both cycles, the jump was large: 140% for the 1992 Cycle and 156% for the current cycle. In addition, the relative reduction in the number of unemployed, 20 quarters into recovery has been much lower in the current and 1992 cycles, than it was over the 1983 Cycle. The volatility of the last two cycles, in terms of the number of unemployed, also stands out. Thus, the Post Cold-War, Connecticut Economy seems to be characterized by large relative swings in the number of unemployed over the cycle.

GRAPH 18: Change in the Number of CT Umemployed:
Peak-to-Trough and Trough-to-20 Quarters into Recovery/Expansion-Post-1975
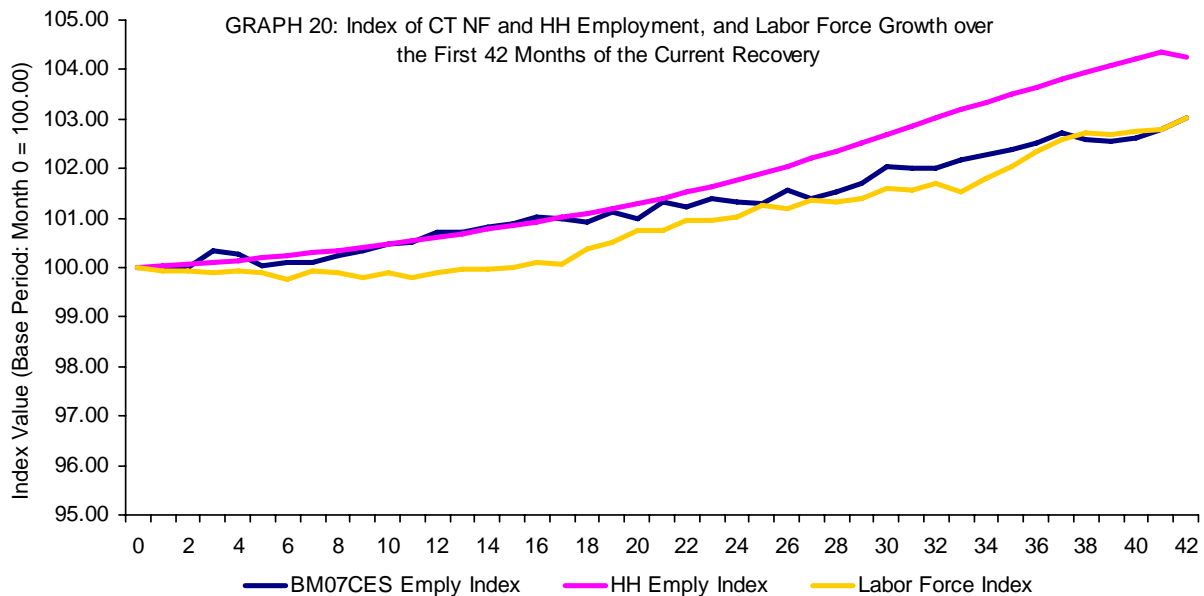

4. Labor Force Growth

Graph 19 shows the percent-growth, over the first 42 months of recovery/ expansion of Connecticut Non-Farm Employment (Establishment Survey) and Residence or Household Employment and the Labor Force (Household Survey) for the Post-1975 cycles. As for the U.S., the Baby-Boomers' entrance into the LF, as well as increasing participation rates by women resulted in strong growth in the State's Non-Farm (NF) and Residence (Household, HH) Employment and Labor Force (LF) over the 1975 Cycle. In the 1980's Cycle, though not as strong as in the

GRAPH 19: Growth in CT NF and HH Employment, and Labor Force-First 42 Months of Recovery/Expansion: Post-1975 Cycles
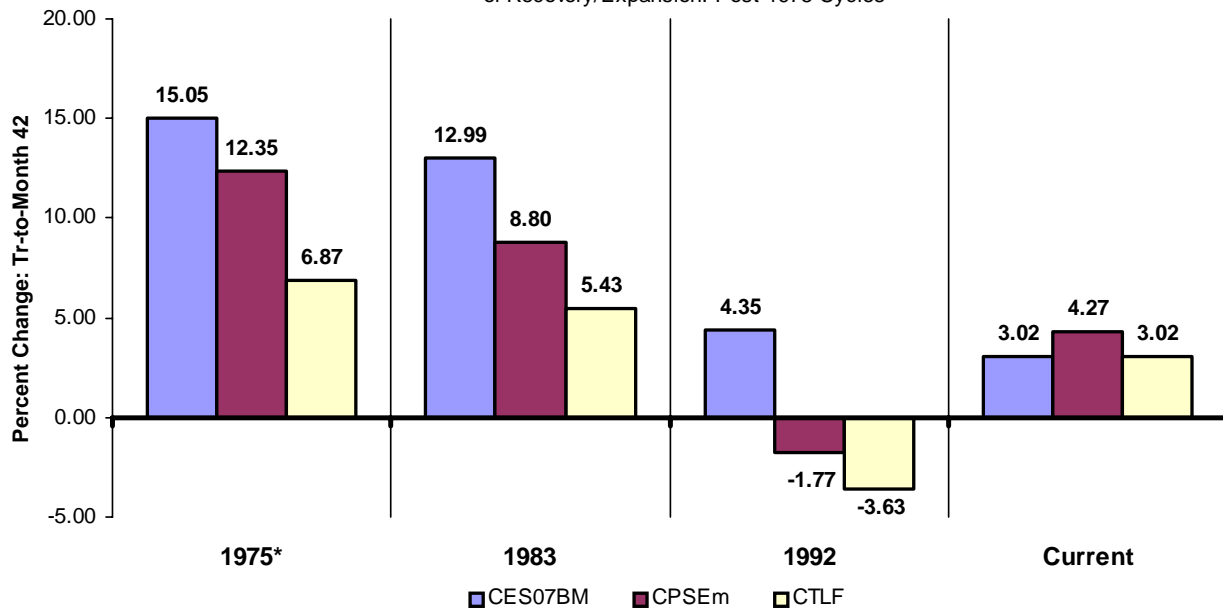
1975 Cycle, demographic forces, as well as the Reagan Defense Build-Up, produced relatively strong growth in these three important economic indicators in the 1980's as well. However, with the end of the Cold War stimulus to the State's economy, in conjunction with the "Baby-Bust" demographic trend and out-migration, NF Employment-growth was weak over the first 42 months of recovery from the 1992 Recession, and HH Employment and the LF both declined in Connecticut. Over the current recovery, NF and HH Employment and the LF have all grown over the first 42 months into recovery, but NF Employment has grown at the weakest pace of all the Post-1975 cycles, and save the 1992 Cycle, HH Employment and the LF have grown much more slowly than for the Post-1975 cycles.

GRAPH 20: Index of CT NF and HH Employment, and Labor Force Growth over the First 42 Months of the Current Recovery

BM07CES Emply Index — HH Emply Index — Labor Force Index

Graph 20 tracks indices of growth for Connecticut NF and HH Employment and the LF for the current recovery. The base period is July 2003, Month 0, which equals 100.00. The State's Residence, or HH Employment has grown faster than NF Employment or the LF over the current recovery. This could be attributed to Connecticut's slower economic growth, in conjunction with the strong growth in the New York City Economy driven by the growth in the Financial Sector, an important part of the City's Economy. The result would be modest job-growth in the State's Economy, coupled with stronger growth in residence employment driven by cross-border commuting from, especially Fairfield County, into New York. And, in fact, Connecticut's Residence Adjustment for Personal Income is positive, indicating that the State is a net exporter of labor services.

iii.   UI Claims

The weekly claims data was converted from weekly to monthly data, so the last period considered is January 2007, 41 months into the current Connecticut recovery. Also, due to the noise in the data (even at the monthly frequency), especially the Initial Claims data, the following discussion uses the 12-Month

Moving Average (MMA). Graphs 21-A and 21-B present the percent-increase, from the previous peak, and percent-decrease, from the trough of the recession to 42 months into recovery for the 1992 and current cycles. Claims data for previous cycles is not available at the sub-national level. The relative increase in both, Initial Claims (IC) and Continuing Claims (CC) for the 1989-1992 Connecticut Recession (using Non-Farm Employment as the reference series) was double that of the recent 2000-2003 Recession. However, the decline in IC's was only slightly greater over the first 42 months of the current recovery compared to the 1992 recovery/expansion. And the decline in CC's was actually steeper over the comparable period of the 1990's Recovery (27% versus 23%).

GRAPH 21-A: CT Initial Claims (12 MMA)-% Ch Peak-to-Trough and Trough-to-Month 41: 1992 Recovery/Expansion vs. Current
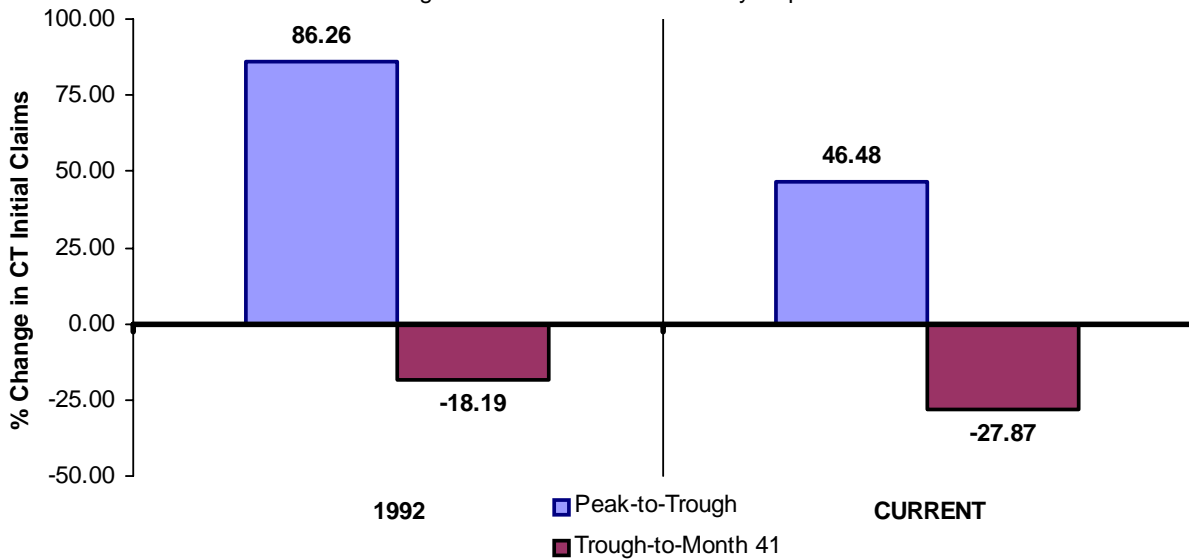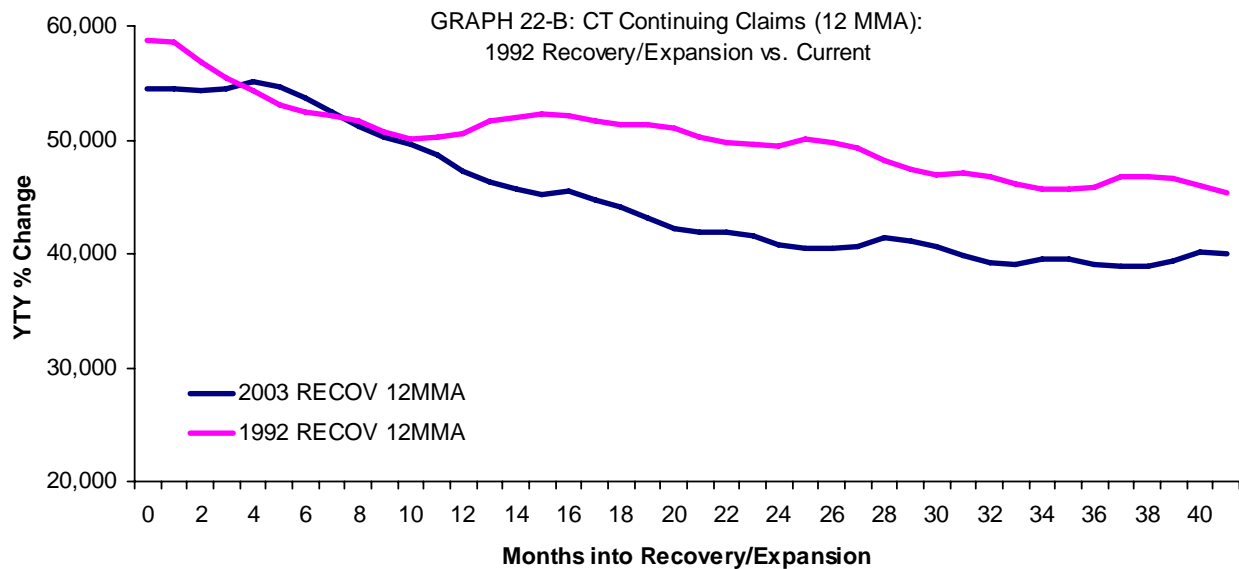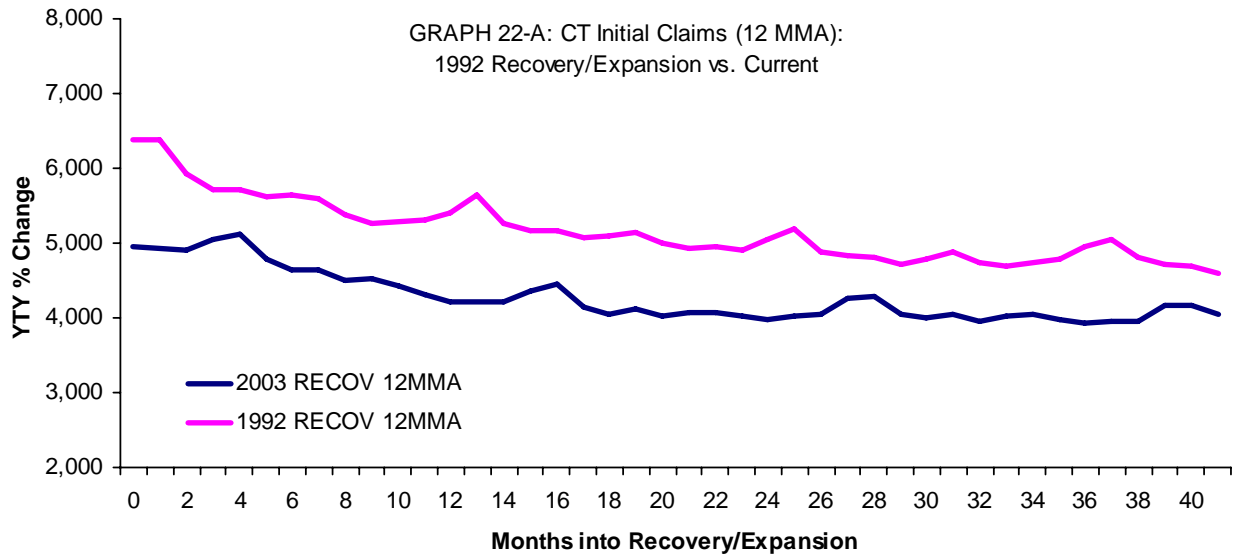

GRAPH 21-B:CT Continuing Claims (12 MMA)-%Ch Peak-to-Trough and Trough-to-Month 41: 1992 Recovery/Expansion vs Current
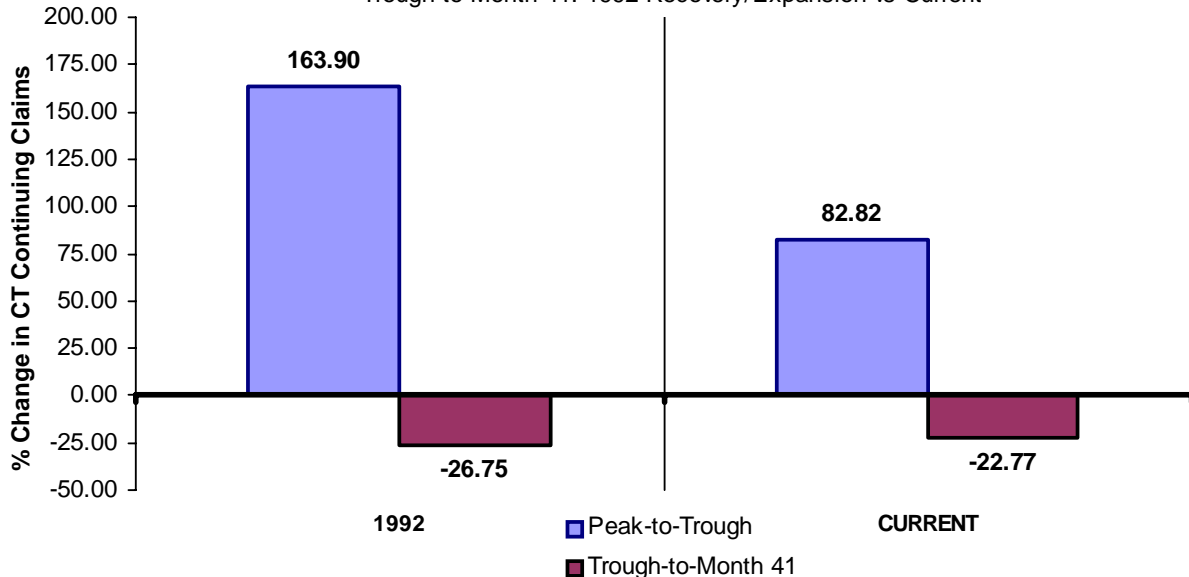
Graphs 22-A and 22-B track the actual level of IC's and CC's over the current and previous cycles. Clearly IC's remained at a higher level over the 1990's Cycle than over the current cycle. The average level of the 12 MMA over the previous cycle was 5,164 claims, compared to 4,276 over the current cycle. From the fourth to the ninth month of the current recovery, CC's were actually at a higher level than they were over the comparable period during the 1990's Recovery/Expansion. From the 10th month of recovery on, the level of CC's was lower over the current recovery. The 12 MMA of the level of Continuing Claims has averaged 44,808 over the first 42 months of the current recovery, compared to 50,172 over the comparable period of the 1992 Recovery/Expansion.

GRAPH 22-A: CT Initial Claims (12 MMA):
1992 Recovery/Expansion vs. Current

GRAPH 22-B: CT Continuing Claims (12 MMA):
1992 Recovery/Expansion vs. Current

Appendix: March 2007 Benchmarking of Non-Farm Employment

Connecticut's Non-Farm Employment Series is produced under the Current Employment Statistics (CES) Program. The monthly job-count series is the product of a sample of establishments drawn from the Unemployment Insurance (UI) Tax database, which is the population frame for the survey of employers. Every year the sample is checked against the population and, any divergence between the two is rectified, by adjusting non-farm employment so that it is consistent with the UI Tax database known as the Quarterly Census of Employment and Wages (QCEW). Thus, every March the Non-Farm Employment Series is benchmarked to the QCEW Database (formally known as the ES-202). The first three quarters of the previous calendar year, and the fourth quarter of the year-before are revised (e.g., the 2007 BM revised the data for the fourth quarter of 2005, and the first three quarters of 2006). The March 2007 revision of Connecticut's Non-Farm Employment Series was larger than usual. The last sizable revision was in 2004.

Table 1 shows the 2005-06 percent and jobs changes by major NAICS sector for pre-benchmarked (BM) and BM data. The sectors with the two largest revisions were Construction, revised upward by 2,600 and Management of Companies and Enterprises, revised upward by nearly 2,000. Health Care and Social Assistance had an upward revision of 1,700, and Educational Services and Accommodation and Food Services were each revised upward by more than 1,000. The total change, from 2005 to 2006, in the annual average for Connecticut Non-Farm Employment was revised upward 7,450, from 10,175 to 17,625.

TABLE 1: March 2007 Revisions

NAICS Sector	2005-06 Change in Annual Avg. Employment (DIFF = BM -- Pre-BM)			
	BM	Pre-BM	DIFF	%DIFF
Mining	5	67	-62	-92.50
Construction	1,017	-1,542	2,558	-165.95
Manufacturing	-1,533	-1,925	392	-20.35
Wholesale Trade	1,108	758	350	46.15
Retail Trade	-983	-475	-508	107.02
Transportation and Utilities	233	333	-100	-30.00
Information	-467	-433	-33	7.69
Finance and Insurance	1,658	1,533	125	8.15
Real Estate and Rental/Leasing	242	342	-100	-29.27
Professional, Scientific, and Technical Svcs.	3,025	1,042	1,983	190.40
Management of Companies and Enterprises	-600	-17	-583	3492.81
Admin. and Support/Waste Mgmt./Remediation	2,050	2,058	-8	-0.40
Educational Services	1,942	850	1,092	128.43
Health Care and Social Assistance	4,650	2,950	1,700	57.63
Arts, Entertainment, and Recreation	-283	242	-525	-217.24
Accommodation and Food Services	3,025	1,675	1,350	80.60
Other Services (except Public Admin.)	717	250	467	186.67
Public Administration	1,858	2,467	-608	-24.66

TABLE 2: CT Revision vs. U.S. Self-Employed

NAICS Sector	CT AbsRev	US Self-Em
Mining	62	10
Construction	2,558	1,910
Manufacturing	392	326
Wholesale Trade	350	201
Retail Trade	508	938
Transportation and Utilities	100	428
Information	33	120
Finance and Insurance	125	330
Real Estate and Rental/Leasing	100	511
Professional, Scientific, and Technical Svcs	1,983	1,164
Management of Companies and Enterprises	583	828
Admin. and Support/Waste Mgmt./Remediation	8	0
Educational Services	1,092	194
Health Care and Social Assistance	1,700	964
Arts, Entertainment, and Recreation	525	398
Accommodation and Food Services	1,350	288
Other Services (except Public Administration)	467	1,076

NOTE: The U.S. Self-Employed are in thousands

Though the information is not available for Connecticut, Table 2 matches the annual average number of self-employed by the 19 NAICS private sectors for 2006, at the National level, with the absolute value of the Connecticut 2006 Revision for Non-Farm Employment by the corresponding NAICS sector. Not only does the match look close, the correlation between the two is +0.75.

Thus, at least one explanation of the recent significant revisions could lie in those sectors with a large number of self-employed, assuming the distribution of Connecticut's self-employed, among the 19 private NAICS sectors, is similar to that for the U.S. If job-creation picks up, and the self-employed add an employee, they would not show up in the previous year's establishment sample. This would be especially true if the economy were at a turning point, as was the case for the last significant revision in 2004. This same scenario would apply to the model for births and deaths of firms. If the economy is approaching a peak, it will overshoot the estimates of births, and underestimate deaths. The opposite will pertain if the economy is approaching a trough.

As discussed earlier (see above), Construction had the largest revision in Connecticut Non-Farm Employment for 2006. This sector, especially the residential part, has many small operations that appear and disappear at the start and end of projects. Professional, Scientific, and Technical Services is another sector with many self-employed that can upsize or downsize, depending on the current set of

economic circumstances. And, as discussed above, it is when the economy is approaching a turning point, or inflection point, that the establishment survey will miss the changes in jobs activity. It is when the economy is continuing along a given track, whether expansion, or contraction, that the estimates will pick up most of the job-changes over the previous year in the State's Economy. Again, when the economy changes direction, then the revisions tend to be larger. Nevertheless, the relative size of Connecticut's 2006 BM revisions, was still less than half that for the U.S. ★