

Chapter 7

Fiscal Architecture of Connecticut

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Executive Summary

The economic and demographic structure of every state in the Union affords state and local governments a number of opportunities and challenges when it comes to public finances. In Connecticut, over the past three decades, the landscape of economic activity has been defined by quite different activities—from manufacturing and defense procurement to finance and banking. Certain types of manufacturing have fallen off in many states including Connecticut and the finance and insurance industry has struggled to reach pre-Great Recession levels. In looking for a current or medium term comparative advantage, the state is investing in the development of the knowledge economy, including industries such as high tech medical and advanced manufacturing while not ignoring important general investments including education and infrastructure.

These large-scale changes in the economic structure of the state are accompanied by important changes in demographic and institutional factors that influence Connecticut's fiscal structure. Population growth is slower in Connecticut relative to the U.S. and the State's population is older. Several other characteristics provide the State with challenges and opportunities in terms of long-term fiscal sustainability. In this report, trends in the main demographic and economic characteristics are analyzed with respect to their potential impact on the Connecticut's state and local revenues. The main findings are highlighted here.

There are a number of overarching trends that will have substantial impact on public finances in Connecticut in the coming decades. The trends and their general impact on finances are as follows:

- Population growth is slower than the U.S. average
 - Reduced natural growth in tax bases
- Connecticut's population is older than the average state
 - Reduced buoyancy in the income tax¹

¹ Buoyancy refers to the growth of revenue relative to the growth in the economy (GDP, income, etc.). A tax with more buoyancy will grow faster with the economy than one with less buoyancy.

- Reduced buoyancy in the sales tax
- Continued pressure related to pension liabilities
- High median personal income, increasing disparity in income
 - Pressure on the acceptance of skewed income tax burden
 - Reduced sales tax buoyancy
- Employment landscape restructuring: “natural” growth in relatively low wage service professions, potential comparative advantage and government focus on knowledge based industries
 - Reduced tax handles for income tax²
 - Reduced tax handle for sales tax (consumption moves toward services)
 - Reduced buoyancy of income tax due to relative growth in lower wage jobs
- Globalization and technology: competition will continue to increase—international as well as local for employment, residents, economic activity
 - Dampens ability to raise taxes on business-related income and capital investments
 - Reduction in wage share in income tax base
 - Increase in ability to avoid tax through shelters, transfer pricing, etc. reduce the buoyancy of business income-related taxes, individual income taxes, and sales taxes
- The state’s infrastructure including roads, will need to respond to government’s priority areas of growth and development and residents’ demands (education, transportation, health care)
- The state’s institutional infrastructure presents some unique challenges to adapting to demographic and economic change:
 - The local governments have little fiscal space to adapt to the sub-state changes in architecture due to high property tax burdens and relatively low levels of autonomy in the intergovernmental system
 - The state is fiscally constrained due to the previous underfunding of long-term pension liabilities and debt

² “Tax handles” refer to the relative ease of taxing certain sectors.

Introduction

Public finances, revenues and expenditures of government, are directly affected by economic and demographic characteristics as well as institutional structures. Demographic, economic, and institutional trends define the “fiscal architecture” of state and local governments on which public finances are developed. Changes in these trends put pressure on expenditures and revenue sources of state and local governments and may constrain options for reforming public finances. The trends include demographic changes (e.g., growth and age composition of the population, sizes of households, life expectancy) and economic changes that affect the structural mix of the state’s economy (e.g., employment level, distribution of income, the mix of sectors). How institutions and organizations change also constrains and frames the nature of revenue and expenditure pressures and options, e.g., the way citizens communicate among themselves about their government and how governments communicate and become accountable to their citizens, federal government interventions in the form of expenditure mandates and preemptions of the revenue base, and the intergovernmental implications of federal, state, local, and, in this era of rapid globalization, other nations’ policies.

As a result, what state and local governments can and cannot do in terms of what makes “fiscal sense” is based on the fiscal architecture of those governmental units and the projections of changes. The institutional structures including those that give rights over some revenue streams to one level of government but not another affect the ability of state and local governments to respond to changes in their architecture. For example, states might see fiscal value in imposing import duties as globalization opens world markets, but they are constitutionally prohibited from doing so because taxation of imports falls under the purview of the federal government. Fiscal competition from other states or countries may preclude taxing capital. Entitlement programs

cannot typically be altered without federal approval even in the face of increased demand associated with demographic change. These are just a few examples of the impact of overarching institutional arrangements.

Connecticut's changing fiscal architecture shares some similarities with other states in the U.S. In general, states are seeing an increasingly older population, the manufacturing sector of economies has diminished, and infrastructure demand remains strong throughout the country. At the same time, there are a number of uniquely Connecticut aspects—the decreased concentration in the high-wage financial and insurance industry, proximity to New York and Massachusetts, and well above average household income that has become more disparate. This report focuses on those trends that, arguably, will have the most influence on the future of the Connecticut's finances.

The report does not provide original forecasts of data but relies on data and information from the *Economic Report of the Governor*, Connecticut Office of Policy and Management, the Connecticut Department of Labor, and other sources as noted. Federal sources are also used from the Bureau of Economic Analysis (BEA), the Bureau of Labor Statistics (BLS), and the U.S. Census. The focus of the report is not on revenue forecasting but it seeks to provide insight into how best to align Connecticut's revenue system to best serve its population over the coming decades given important economic and demographic trends.

The characteristics analyzed in this report and the forecasts analyzed are not exhaustive. The interactions among many of the economic and demographic characteristics are difficult to pin-down. Therefore, in this report, the major trends are generally evaluated as independent trends but in the last section of the report, an attempt is made to bring together the “big picture” of the myriad trends in the form of Table 11.

Officials from the state of Connecticut have been very helpful in providing data and insights that were necessary to prepare this report. In particular, thanks go to the officials from the Department of Labor, the Connecticut Office of Policy and Management, and to the Department of Revenue Services.

The report is structured as follows. The next three sections highlight demographic and economic changes and institutions that affect finances. In each section, the general impact of these factors is presented and the trends in the major factors are discussed. The sections are summarized with a perspective on the potential implications of the trends on Connecticut revenues.³ The concluding section presents a matrix of trends, impacts and potential options for consideration to better align Connecticut's revenue system with the changes in its demographics and economy. Since forecasts of many demographic and economic changes are tenuous, in some cases more than one "future" scenario is presented.

³ Expenditures are heavily affected by the trends presented in this report and where they are important, they are noted in the report.

Demographics

Overview

Population changes in terms of overall growth and distribution by age, race, and family size are among the variables that best identify a state and have potential impacts on state revenue.

Highlights of this section include:

- **Population growth:** Connecticut has witnessed reduced growth in population since the 1970s. Current projections suggest the state will gain slightly more than 100,000 residents over the next ten years (2.8 percent growth). The relatively slow pace of growth may signal sluggish growth in revenues including income tax. It is important to analyze accompanying changes such as the racial/ethnic mix, age and income distribution, and the level of education and health status.
- **Age distribution:** The aging of the population has been an important demographic for the past two decades. Connecticut is no stranger to the aging trend. Between 2015 and 2025, the aged dependency ratio will increase from 23.9 percent to 31.9 percent.⁴ An aging population demands specialized services including healthcare, accessible transportation, and recreational facilities. This demographic change could reduce the natural growth in tax bases that exclude pension and retirement income and health and medical supplies. Throughout the U.S., life expectancy is slowly increasing, which means that the future's elderly will be much older on average than in the past—continuing pressure for health care and related services.
- **Family size and composition:** The structure of Connecticut's households is relatively stable and similar to the U.S. (2.52 people per household). Household size and composition (dual or single wage earner, dual or single care giver) do influence the overall fiscal architecture of a government. Smaller families may consume differently than larger families, although this is directly linked to income as well.
- **Race and ethnicity:** The racial and ethnic composition of the population can affect the population via the type and variation in public service demands. Consumption patterns are also influenced by race and ethnicity, which can affect sales tax bases. Connecticut is currently more homogenous in this regard than the average U.S. state, but global movements of people and businesses could change this in the future.
- **Health:** Health status is inextricably linked to income distribution, labor supply, and population growth among other important characteristics of a state. Health status has direct implications for public expenditures and may also affect revenue potential. One of the overarching health trends is the increased incidence of obesity, especially among children which may affect income potential in the future.

⁴ Aged dependency ratio is measured as the ratio of those 65 and older to those over 17 and younger than 65 (Office of Policy and Management, 2015).

In the sections below, the trends and potential impacts of these characteristics on public finances are explored.

General Population Characteristics

Connecticut has experienced lower than average population growth since the mid-1970s. There are a variety of contributing factors to this trend including a reduction in production associated with the close of the Vietnam War, general migration to the South, and a temperamental financial market in the region. According to the Connecticut Data Collaborative, the state is expected to gain about 101,000 people between 2015 and 2025—a 2.79 percent increase. The U.S. Census projects U.S. population growth over the same period of 8.08 percent. The slow growth in the population is similar to that of the New England region and may well reflect the long term trend of economic expansion in the South and West. In some respects, the relatively slow growth affords Connecticut some room to hone its fiscal structure. In states in which population is growing very rapidly, there is a concern that demands on the public sector come at the public sector quickly and may be increasingly heterogeneous—leaving less time for thoughtful planning. However, slow population growth may also be associated with slow growth in revenues.

Migration has also played a role in the changing population of Connecticut. Between 2006 and 2011, the Economic Report of the Governor reports net outmigration of 49,771 people (about 10,000 people per year on average). According to the Census, in 2013, about 91,600 people left Connecticut for other states, while 88,351 migrated into Connecticut from other states in the U.S.⁵ New York, Massachusetts, Florida, Pennsylvania and California were the biggest recipients of

⁵ See <https://www.census.gov/hhes/migration/data/acs/state-to-state.html>; Connecticut received immigrants from abroad and lost residents to other countries but the latter is not fully identified in the Census data and therefore not reported here.

Connecticut expatriates in 2013.⁶ While one year does not make a trend, there may be some slowing down of net outmigration between Connecticut and other states as the economies of the region settle post-Great Recession.

One question often asked is whether domestic migrants into Connecticut are of higher income than those who have left the state. Data from two reputable sources suggest somewhat different income characteristics associated with migrants. The Internal Revenue Service Statistics of Income provides migration data based on reported residence of federal tax returns.⁷ These data report the number of returns, exemptions, and adjusted gross income. These data show that the net change in adjusted gross income from domestic migration in 2011-12 is a loss of \$1.96 billion for Connecticut and a loss of \$1.64 billion in 2012-13. However, nearly all of the loss is attributable to adjusted gross income in Florida; \$1.34 billion in 2011-12 and \$1.1 billion in 2012-13. Migration between Connecticut and New York netted an *increase* in adjusted gross income in Connecticut of \$111 million in 2011-12 and \$555 million in 2012-13.

The Census data demonstrate a slightly different income-migration pattern. Since 2011, the average wage of those migrating into Connecticut is larger than for those leaving Connecticut. For example, in 2013, the average wage for those leaving Connecticut was \$38,640 and for those entering Connecticut was \$44,956. The average household income for migrants was \$101,663 for those entering Connecticut in 2013 and \$95,359 for those leaving the state. These data seem somewhat at odds with the IRS data. However, adjusted gross income does not include full pension and Social Security income and place of reporting may be sensitive to one-time capital gains. Also, Census reports individuals and households, neither of which are exactly the same as a tax return unit. In addition, if we look a bit deeper at the Census data, we find that, among the households

⁶ <http://www.theday.com/article/20150124/NWS12/301249945>

⁷ <https://www.irs.gov/uac/SOI-Tax-Stats-Migration-Data>

with the highest reported wages (above the 90th and 95th percentile), there are slightly more out-migrants than in-migrants—5.51 versus 4.59 percent for the 90th percentile and 2.64 versus 2.51 for the 95th percentile. Based on these data, it appears that there is some migration out of Connecticut that affects the income tax base, but most of that migration is to Florida and not to Connecticut’s close neighbors.

The population density in Connecticut is very high, with 738 persons per square mile, compared to 87 persons per square mile density across the nation and is expected to grow further to 764.6 versus 94.7 persons per square mile by 2020 in Connecticut and the U.S. accordingly, increasing the difference between Connecticut and the average U.S. state of 670 persons per square mile. This doubtless has particular impact on human behavior and choices and therefore, on revenues and expenditures of the state – it affects residential property values, education choices and business development patterns as some of the examples. There are some economies of scale in production and distribution of public services associated with density. The expected increase in density in the coming two decades could eventually outpace the economies of scale and over the long-term, could increase the cost of service provision in Connecticut relative to less dense states. This is not likely to happen in the medium term.

The specific characteristics of the population are critically important to forecasting the impact of population demographics on public finances. Connecticut’s profile is characterized by a relatively older population (median age of 40.2 versus a U.S. average 37.3 in 2013), racially homogenous (81.6 percent white versus a U.S. total of 77.7 percent for those reporting one race⁸), and 32.18 percent of housing units are rented in Connecticut versus 35.06 in the U.S. Connecticut’s population trends of relatively slow growth and increasing elderly population have

⁸ Census Quickfacts, <http://www.census.gov/quickfacts/table/PST045214/00>

been developing for the last two to three decades. The homogeneity of the population (relative to the U.S.) is also long-standing. Table 1 highlights some of the differences in basic demographics between Connecticut and the rest of the U.S. which will be discussed further in the sections below.

Table 1. Basic Demographic Differences: Connecticut and the U.S., 2010-2015

	Connecticut	U.S.	Difference (CT-U.S.)
Population growth rate (2010-2015) percent	0.7	2.5	-1.8
Median age	40.2	37.3	2.9
Average household size	2.55	2.63	-0.08
Average family size	3.14	3.22	-0.08
Percent Non-family households	33.4	33.6	-0.2
Percent Owner occupied	67.8	64.9	2.9
Percent Renters	32.18	35.06	-2.88
Percent White	81.6	77.7	3.9
Percent Black	11.3	13.2	-1.9
Percent Hispanic	14.7	17.1	-2.4

Source: U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, American Community Survey, Census of Population and Housing, State and County Housing Unit Estimates, County Business Patterns, Nonemployer Statistics, Economic Census, Survey of Business Owners, Building Permits

Age Distribution

From the perspective of public finances, one of the important demographic details of Connecticut is the age distribution of the population. The composition of population in terms of age and particular trends in its distribution are important determinants of the state's fiscal opportunities. Relative to the U.S., Connecticut's population is older. Table 2 presents details of the changing age distribution in Connecticut, New England, and the U.S. from 1990 to 2010. Connecticut's concentration of school-age population (5 to 17 years) is closer to the distribution of the average U.S. state versus New England states while the youngest population concentration is more like New England. School-aged population has declined in absolute terms since 2004-05

(Connecticut State Department of Education 2013-14).⁹ The school-age population is forecast to continue to decline from 2015 to 2025.

Connecticut was one of the seven states with median age of 40 and over in 2010, along with Pennsylvania, Florida, New Hampshire, West Virginia, Vermont, and Maine; Utah ranked as the youngest with a median age of 29.2.¹⁰ The percent of population over 64 is expected to grow to 782,848 people, or comprise 20.9 percent of total population by 2025 (up 4.9 percentage points from 2015), increasing the age-dependency ratio by over 33 percent between 2015 and 2025¹¹. This group is expected to comprise 19 percent of total population across the United States by the same year (14.9 percent in 2015). Table 3 provides the detailed forecast of the age distribution in Connecticut from 2015 to 2025.

⁹ Link:

http://www.sde.ct.gov/sde/lib/sde/pdf/board/boardmaterials040615/iii_c_receipt_of_the_report_on_the_condition_of_education_2013_14.pdf

¹⁰ <http://www.usa.com/rank/us--median-age--state-rank.htm> and

U.S. Census Bureau (2011), “Age and Sex Composition: 2010 Census Briefs”. May, 2011

¹¹ FY 2016 – FY 2017 Biennium Economic Report of the Governor. Office of Policy and Management, Budget and Financial Management division. February 2015.

http://www.ct.gov/opm/lib/opm/budget/2016_2017_biennial_budget/budget/economicreportofthegovernor.pdf

Table 2. Age Distribution in Connecticut, New England and the United States, 1990-2010

	<u>1990</u>		<u>2000</u>		<u>2010</u>	
	Population (thousands)	Share of Total Population	Population (thousands)	Share of Total Population	Population (thousands)	Share of Total Population
Connecticut						
All ages	3,287	100.0 %	3,406	100.0 %	3,574	100.0 %
Under 5 years	233	7.1 %	233	6.8 %	202	5.7 %
5 to 17 years	520	15.8 %	618	18.1 %	615	17.2 %
18 to 24 years	349	10.6 %	272	8.0 %	327	9.1 %
25 to 44 years	1,093	33.3 %	1,133	33.3 %	905	25.3 %
45 to 64 years	648	19.7 %	790	23.2 %	1,019	28.5 %
65 years and over	444	13.5 %	470	13.8 %	507	14.2 %
Median age	34.4		37.4		40.0	
New England						
All ages	13,207	100.0 %	17,184	100.0 %	14,445	100.0 %
Under 5 years	938	7.1 %	865	5.0 %	797	5.5 %
5 to 17 years	2,137	16.2 %	2,484	14.5 %	2,354	16.3 %
18 to 24 years	1,494	11.3 %	1,570	9.1 %	1,429	9.9 %
25 to 44 years	4,399	33.3 %	7,262	42.3 %	3,451	25.5 %
45 to 64 years	2,477	18.8 %	3,111	18.1 %	4,136	28.6 %
65 years and over	1,762	13.3 %	1,892	11.0 %	2,042	14.1 %
Median age	33.7		N/A		40.6	
United States						
All ages	248,710	100.0 %	281,422	100.0 %	308,745	100.0 %
Under 5 years	18,758	7.5 %	19,176	6.8 %	20,201	6.5 %
5 to 17 years	45,166	18.2 %	53,118	18.9 %	53,980	17.5 %
18 to 24 years	26,942	10.8 %	27,143	9.6 %	30,672	9.9 %
25 to 44 years	80,595	32.4 %	85,041	30.2 %	82,135	26.6 %
45 to 64 years	46,169	18.6 %	42,666	15.2 %	81,489	26.4 %
65 years and over	31,079	12.5 %	34,992	12.4 %	40,268	13.0 %
Median age	32.9		35.3		37.2	

Source: U.S. Bureau of Census, Demographic and Housing Estimates: 2009-2013 American Community Survey http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?pid=ACS_13_5YR_DP05&src=pt and www.ct.gov/eecd/lib/eecd/ct_market_data/md04_5-3.xls

Notes: N/A – Figures not available

Table 3. Projections of Connecticut's Population by Age (percent of total)

Age Group	2015	2020	2025
0-19	891.8 (24.5)	852.5 (23.0)	822.9 (22.0)
20-44	1,107.6 (30.4)	1,129.4 (30.5)	1,143.9 (30.5)
45-64	1,062.9 (26.2)	1,049.7 (28.4)	996.5 (26.6)
65 and over	582.2 (16.0)	671.0 (18.1)	782.8 (20.9)
85 and over	94.6 (2.6)	94.9 (2.6)	96.4 (2.6)
Total	3,644.5	3,702.5	3,746.2

Source: Office of Policy and Management, February 2015

The age distribution of Connecticut's population is interesting in terms of public finances. School-age children are not large direct contributors to the income tax base but are directly or indirectly related to consumption and property tax bases. General consumption patterns show that households with children age 6 to 18 spend slightly more of their budget on entertainment, housing, education, insurance, apparel, and food than the overall family on a per household basis.¹² To the extent that these items are taxable in Connecticut (taxable items include some entertainment, education supplies, and some apparel), if the youth population were growing, Connecticut would see increased growth in sales tax revenue due to consumption demand for the youth. Since there is forecasted reduction in this age group in Connecticut, we expect a slowing of sales tax revenue (all else equal). On the expenditure side, this age cohort naturally serves to demand educational services, so as the population of school-age children declines, there may be less pressure for educational expenditures associated with the population to be served (technology and other issues aside). Connecticut's public education system receives high marks already, which provides a solid

¹² BLS, Consumer Expenditure Survey, Expenditure Tables: <http://www.bls.gov/cex/csxstnd.htm#2011>.

expenditure base for education, which is not true in many states.¹³ As noted below, a changing mix of students in terms of ethnicity and socio-economic status may increase demand for specialized programs thus countering the potential decrease in demand associated with a smaller school-age population.¹⁴

The cohort aged 20 to 44 represents a different kind of revenue potential. On the consumption side, this cohort is more likely than the average consumer unit to spend their budget on items including: food away from home, rent, personal services, apparel, transportation, and pensions and social security, and less on: cash contributions¹⁵, health care, and utilities. The forecast for this age group is relatively stable in Connecticut as a share of total population and we might expect sales tax revenue to be stabilized by the activities of this cohort after a recent decade of significant decline (2000 to 2010). In addition, this is the prime working aged population and as such, we would expect relative stable income tax revenue associated with the stability of this age group over the next ten years. There is, however, a concern is that as this cohort ages into retirement, they are not being replaced by a younger cohort according to population forecasts for the state.

The continued aging of Connecticut's population is arguably the most certain scenario for the future. The relatively stable "labor years" of 20 to 44 and the past years' trend of aging in Connecticut may provide a soft landing in terms of the projected impact of the growth in the elderly population on tax bases versus other states where the aging of the population is a somewhat newer

¹³ Consistent comparisons of public schools among states are hard to come by. One source is the popular U.S. News and World Report ranking, which lists Connecticut third in the country: <http://www.usnews.com/education/best-high-schools/articles/how-states-compare>.

¹⁴ For example, the State Department of Education reports that the percent of public school children on free and reduced lunch was 37.1 percent in 2013-14 compared to 26.6 percent in 2004-05.

¹⁵ Cash contributions are listed as an expenditure item in the Consumer Expenditure Survey. It is important to note this expenditure category in this discussion because cash contributions reduce potentially taxable consumption. This is a relatively unique characteristic of this age cohort.

phenomenon (Alaska, Idaho, Colorado, Georgia, for example). The elderly tend to consumer higher shares of goods that are non-taxable: healthcare, utilities, household operations and supplies, and they spend less on food away from home, apparel, and transportation.¹⁶ The elderly also receive more income that is partially exempt from income tax (military pensions and social security under Connecticut’s personal income tax code).

As a high wealth state, one might ask if the elderly of Connecticut are markedly different from the “average elderly.” To gain a bit more insight on the economic activity associated with the older population in Connecticut, we report the average value of gross receipts reported for the federal estate tax. This by no means is a definitive measure of the wealth of the elderly population of the state, but it provides interesting information on the magnitude of those wealthy enough to be in the estate tax net. As seen in Table 4, the average gross estate for Connecticut residents is very similar to the simple average across the U.S. There is no evidence of Connecticut trending higher or lower than the U.S. average from 2000 to 2013. These data suggest that, based on the taxable estates of Connecticut residents, the wealth of the elderly in the state are not markedly different than the average state.

Table 4. Federal Estate Tax Returns

Average Gross Estate for Tax Purposes (000’s)			
	2000	2010	2013
Connecticut	\$1,978	\$7,737	\$13,893
U.S.	\$2,007	\$8,571	\$13,125

Source: IRS Statistics of Income, Tax Stats: <http://www.irs.gov/uac/SOI-Tax-Stats-Estate-Tax-Statistics-Filing-Year-Table-2>

Notes: Gross estate is the value of the estate before any deductions or exemptions.

¹⁶ Consumption analysis based on data from the U.S. Bureau of Labor Statistics, Consumer Expenditure Survey for 2011, <http://www.bls.gov/cex/csxstnd.htm>.

Households, Family Composition, and Fertility

The number of households and household size affect the level of demand for services. Fertility gives us some indication of the direction of change in family and household size as well as the future size of the population. Household characteristics in Connecticut are only slightly different than what is found nationally. As reported above, the average household and family size in Connecticut is slightly smaller than that found in the average state. The largest difference in housing demographics is the percent owner occupied, which is 67.5 percent in Connecticut compared to 64.9 percent in the U.S. The fertility rate for the U.S. has fallen over the last two decades, and the Centers for Disease Control estimate the rate to be 62.5 births per 1,000 women age 15-44 in 2013.¹⁷ The same source estimates Connecticut's fertility rate to be 52.7 births per 1,000 women age 15-44 in 2013. The number of households in Connecticut increased by 5.3 percent from 2000 to 2010—a smaller growth rate than the U.S. average.

To sum up, Connecticut's households are slightly smaller than the U.S. average with more owner occupied than rental housing. The forecasted trend for the U.S. and Connecticut is for slight declines (nearly stable) in household size (associated with fertility rates). The average size of a family has its own implications for consumption and possibly income tax bases. Larger families consume more of certain goods such as basic foodstuffs, but not necessarily more on a per capita basis. Economies of scale can influence household consumption and larger (smaller) families could be equated to smaller (larger) levels of per capita consumption. Given the stability in household size, it is difficult to identify this demographic characteristic as affecting revenue sources in a measurable way. There is uncertainty around this demographic as it can be substantially affected by foreign immigration.

¹⁷ http://www.cdc.gov/nchs/data/nvsr/nvsr64/nvsr64_01.pdf

The above-average owner-occupied housing trend in Connecticut may continue, but a combination of other factors may mean a different picture of owner-occupied relative to potential impacts on property tax. In a report done by BJJ Planning for the Connecticut Housing Finance Authority, the authors conclude that there will continue to be growth in owner-occupied housing in the state through at least 2017.¹⁸ Relatively slow population growth coupled with the increasing concentration of elderly (and reduction in the number of school aged children) suggests movement toward smaller homes. In addition, growing income disparity and projected employment growth in relatively low income industries reduces the demand for high price owner-occupied housing. These factors could dampen the growth of property tax revenues.

Race and Ethnicity

Diversity is a complicated demographic characteristic to analyze. The population of Connecticut is less racially diverse than the average state in the U.S. measured via race. However the share of foreign born population increased from 8.5 percent in 1990 to 13.6 in 2010. There are various ways to measure race and ethnicity, but using the Census definition of race for those reporting one race, 81.6 percent of the population identify as white (including Hispanic), 11.3 as black, and 14.7 as Hispanic in Connecticut. For the U.S., the percentages are 77.7, 13.2, and 17.1. Interestingly, some of Connecticut's cities are notably among the most diverse in the country, including Bridgeport, Stamford, Hartford, New Haven, and Waterbury.¹⁹ Connecticut's percent foreign born population is 13.6 percent compared to the U.S. average of 12.9 percent. The origin region of the foreign born is somewhat different in Connecticut than across the U.S. with most migrants coming to Connecticut from Latin America and Europe. Across the U.S., the

¹⁸ http://www.ct.gov/opm/lib/opm/hhs/interagency_council_on_affordable_housing/meeting_2013_12-03/final-report-11-12-13.pdf

¹⁹ Wallethub rates cities diversity using data on race and ethnicity, language diversity, and regional of birth, <http://wallethub.com/edu/cities-with-the-most-and-least-ethno-racial-and-linguistic-diversity/10264/>.

concentration of Latin American and Asian foreign born populations are larger than in Connecticut. According to the 2013 American Community Survey, a large share of Latin American populations often live in the cities, whereas the Asian immigrants are more likely to live in the suburbs. The trends in foreign born are likely to continue into the next decade unless there are major changes in national immigration policy.

Table 5: Percent of Foreign Born by Origin Region (2009-2013)

Origin	Connecticut	U.S.
Europe	27.3	11.9
Asia	23.0	28.8
Latin America	42.2	52.5
Africa	3.9	4.1

Source: <http://www.census.gov/acs/www/data/data-tables-and-tools/narrative-profiles/>,
<http://www.census.gov/acs/www/data/data-tables-and-tools/narrative-profiles/>

The diversity of the population in terms of race and ethnicity presents some challenges to the expenditure side of the budget in terms of specialized demands for educational services (second language support in schools for example). The impact of ethnicity on tax compliance has been studied, but the results are not consistent regarding the impact of ethnicity on compliance. All else equal, however, revenues that are easier to understand would likely see higher compliance in a heterogeneous population.

Health

Health characteristics also affect both the revenue and expenditure side of government finances – they impact transportation and medical services on one side and through the health level of the population, labor potential, and income and consumption tax revenues on the other of the budget. The population in Connecticut is relatively healthy based on data from the Centers for Disease Control.²⁰ Connecticut’s obesity level among children is 12.3 percent versus the U.S.

²⁰ <http://www.cdc.gov/sortablestats/>

average of 13.7 percent. Among adults, the obesity rate in Connecticut is 25.6 percent while it is 28.1 percent in the U.S. However, according to the Connecticut Department of Health, obesity has increased in the state for the past decade and is particularly prevalent among adults and adolescent males and while Connecticut is healthier than the average of the U.S. if we look at obesity, the level is still high by international standards.²¹ A dated study of the costs of obesity (Finkelstein et al 2009) estimates health related costs across the U.S. of over \$147 billion per year. There are signs that obesity among the youngest is beginning to decline in the U.S., but expectations are that health related costs will remain high.

Among U.S. states, Connecticut has lower rates of teen pregnancy (15.1 births per 1,000 females ages 15-19 versus 29.4 nationally), and less incidence of heart disease and stroke deaths than the U.S. (155.1 and 28.3 for heart and stroke in Connecticut versus 173.1 and 37.9 respectively). These statistics may change in the future as Connecticut continues to age and the disparity in income grows.

Regarding the link between health status and public finances, arguably the most important trend in Connecticut is that of the rise of obesity. If this trend in obesity of children continues, it potentially shifts more of the sales tax base toward non-taxable consumption (health and medical supplies) in addition to affecting the long-term prospects for higher education and productive labor supply. Connecticut's relative health status suggests that health demographics (obesity and heart disease) will play less of a role on the state's fiscal health than might be expected in the average state in the country. Health Statistics estimated average life expectancy at birth to be 78.7 years in 2010, up from 73.7 years in 1980, 75.4 years in 1990, and 76.8 years in 2000. As life spans continue

²¹ <http://www.worldobesity.org/resources/overweight-obesity-region/> ; Connecticut Department of Health (2014).

to increase nationally, this trend will impact retirement, social security, pension systems, health care, and other similar requirements.

Economic Characteristics

Economic factors are no less important to the state's fiscal structure as are demographic characteristics. There are a number of economic factors to consider and their implications are as follows:

- The employment and output (GSP/GDP) structure. A government's revenue base is largely determined by the structure of industry and the output produced, and the composition of employment that goes along with production. Property taxes make more sense as a sustainable revenue source for non-service oriented economies; consumption (sales and excise) taxes may be more dependable in a service-based economy if the sales tax base were broadly defined. Connecticut like many states has seen a decline in manufacturing activity and an increase in services. The state would like to capitalize on infrastructure developed around the defense industry also taking advantage of its strong universities. Production is likely to become less labor intensive and more capital and technology intensive. Taxation of this landscape is different and in some respects more difficult than taxing a "traditional" manufacturing base.
- Composition and distribution of income. Capital is a mobile factor of production which makes it a difficult subject of taxation. Competition and globalization have only made that more difficult. Transfer payments (in the form of pension and retirement income as well as public welfare payments) typically fall outside of the income tax net. Increases of these components relative to other income would reduce the natural growth of the income tax. Connecticut's personal income level is high and capital and transfer payments comprise an important share of the base. Transfer payments including social insurance are likely to rise in the coming 10 to 15 years. Connecticut's income distribution is increasingly disparate which may increase scrutiny of the distribution of tax burdens.
- Globalization. Greater globalization means that consumers and producers have fewer barriers to conduct business throughout the world. Competition for labor and capital and consumer markets means that it needs to consider reaction to its fiscal decisions from near and far. Global real estate capital is also looking for a home that is understandable and predictable. Globalization and competition also increases the need to produce public goods competitively to attract and keep residents and businesses.
- Technology. Internet commerce continues to challenge state and local governments' sales tax revenue. Increased ease of doing business and investing on-line will increase the administrative burden of collecting income taxes as well as sales taxes. Technology will also affect how industries work—how collaboration happens (remotely), the relative capital to labor ratios, the types of output produced, how much and where

inventory is kept, and marketing of products. As more economic activity occurs remotely, tax handles²² become more scarce.

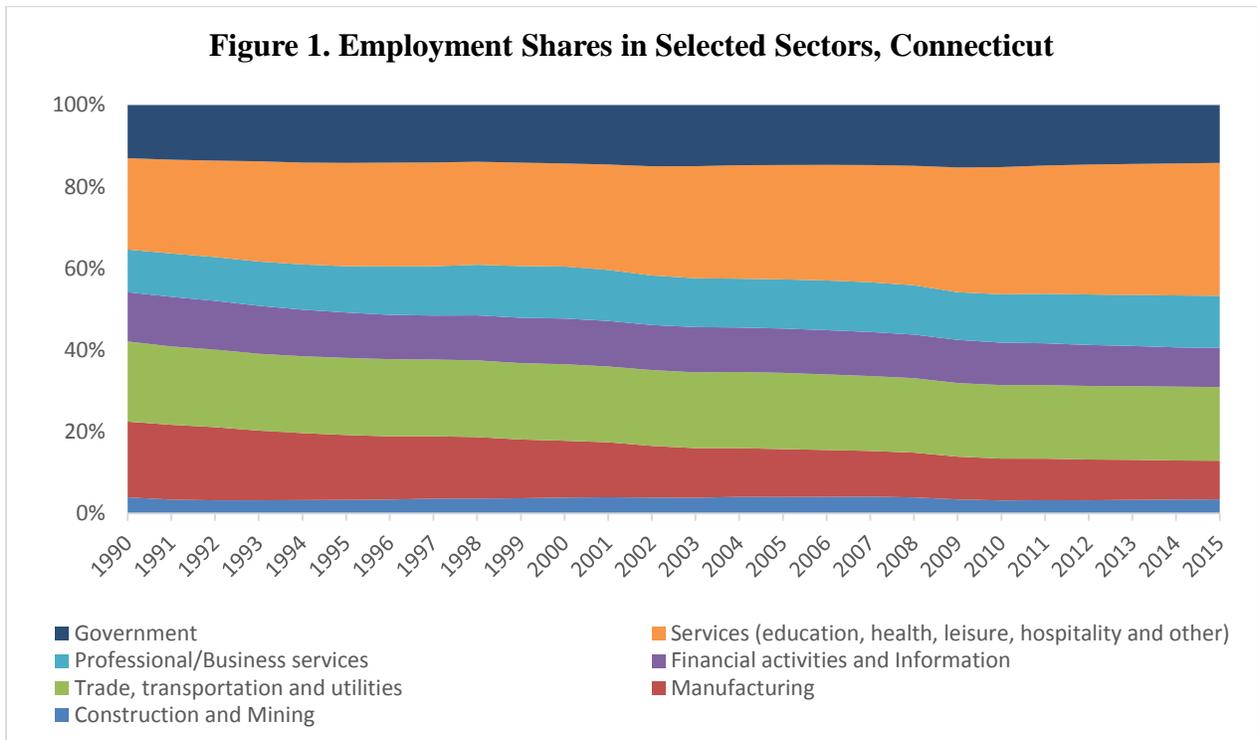
Employment and Output

Employment and output (production) are important drivers of the public finance system. The composition and trends of these factors affect the level of compensation (affecting tax revenue), consumption (and sales tax), as well as the demand for public services. A rapidly changing concentration of employment and output could signal a healthy economy that is taking advantage of changes in worldwide economic trends. Such trends could also signal substantial human capital and infrastructure needs to support sustained growth. Some kinds of economic activity are associated with strong tax handles (meaning an easier identification of taxable economic activity—think manufacturing) versus weaker tax handles (services and internet commerce). All else equal, it is less costly for the tax administration to identify and value physical output and assets than it is when the produced good is a less tangible service.

Connecticut's employment and output composition have changed substantially over the past thirty years. Other studies in this series (including Srivastava and Wasylenko) document the long-term and recent trends in employment pre and post-recession. They find that manufacturing has decreased more as a share of economic activity in Connecticut than in the average state while government and finance and insurance (through 2010) increased more in Connecticut as a share of employment than in other states. Connecticut shares the trend of reduced concentration in manufacturing and increase in employment in the service sector with most states in the U.S. Figures 1 and 2 document the changing distribution of employment by major sector. As seen in Figure 1, service sector employment has grown from 22.41 percent to 32.55 percent of overall

²² Tax handles refer to the ability to identify the taxable activity or income. Poor tax handles reduce the ability of tax administration to identify tax bases as well as taxpayers.

employment between 1990 and 2015 while manufacturing has declined from 18.58 percent to 9.48 percent.

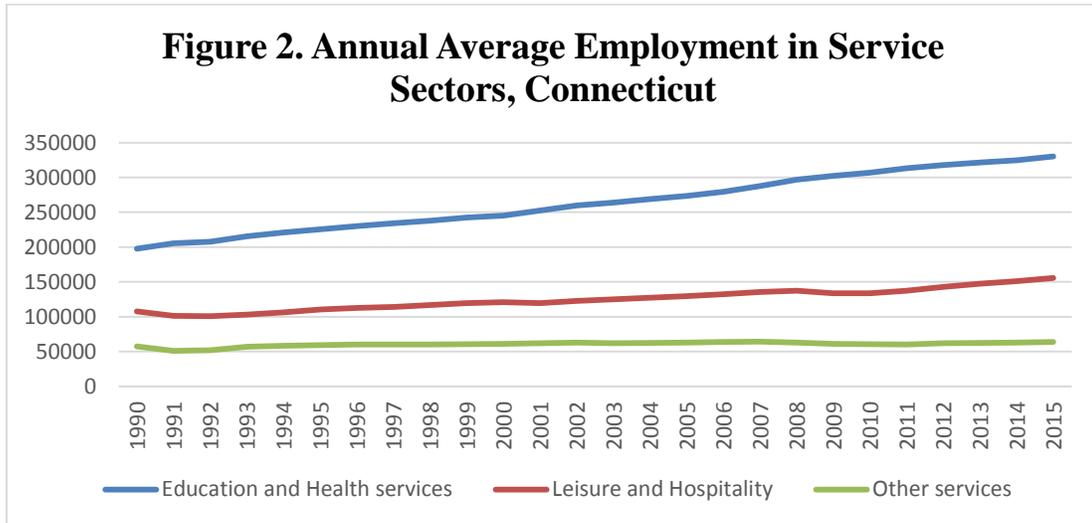


Source: Connecticut Department of Labor

Notes: The employment data is seasonally adjusted and based on annual average employment in selected sectors.

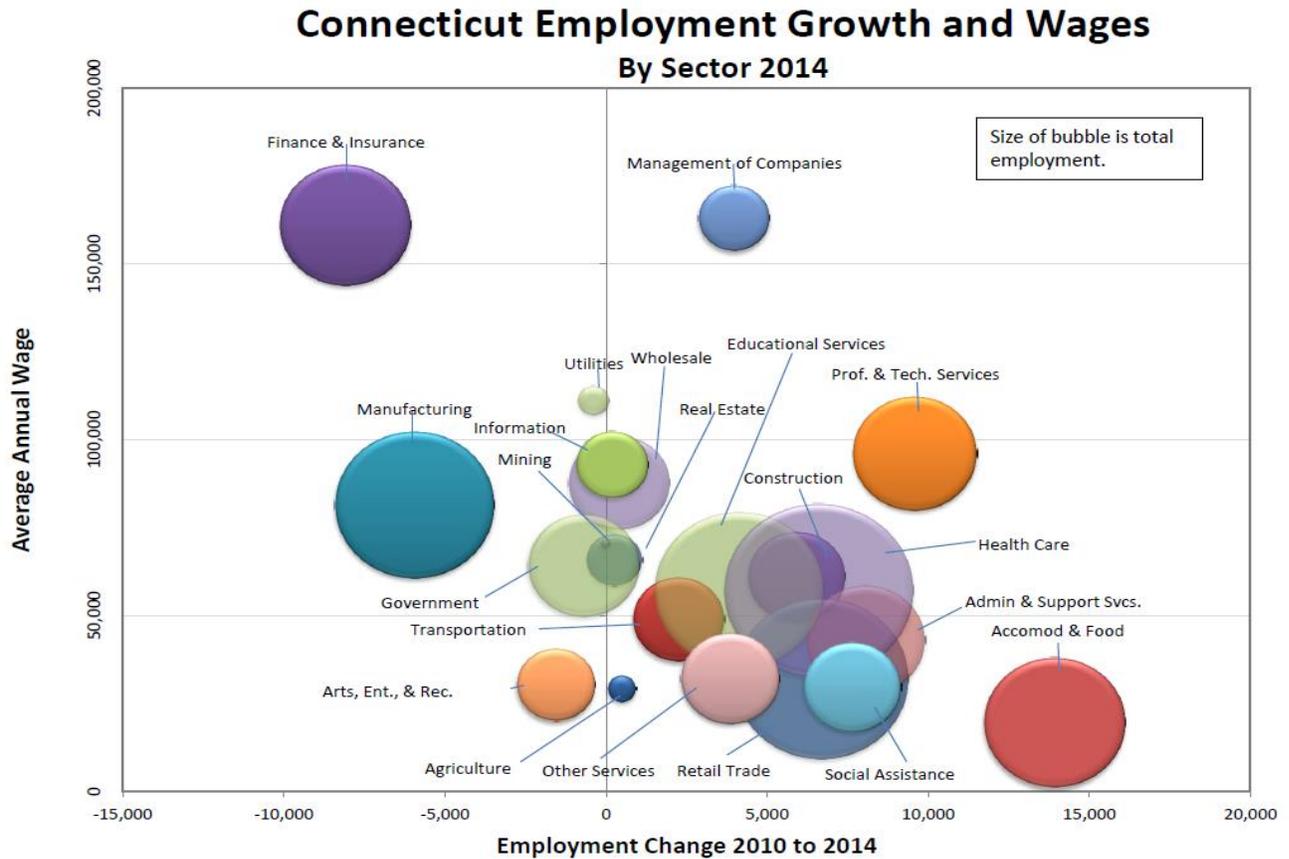
Given the major changes associated with the Great Recession in terms of economic activity and government finance, it is useful to take a careful look at the changes in the composition of employment post-2009. Coming out of the Great Recession, job growth in Connecticut has been fueled by sectors with low average wages (health care and leisure and hospitality, see Figure 2). Finance and insurance and manufacturing growth in Connecticut post-recession lag the U.S. while management of companies in Connecticut is stronger than the U.S. average. Figure 3, provided by the Department of Labor, demonstrates very effectively what has happened to the composition of employment at the end of the Great Recession. The largest positive employment changes are for the Accommodation and Food industry, which is a relatively low-wage sector. Large losses in employment are seen in Finance and Insurance and in the Manufacturing industries. Finance and

Insurance are also among the highest paid—so big loses are associated with spending power and revenue raising capacity.



Source: Connecticut Department of Labor

Figure 3: Employment Growth in Connecticut, 2010-2014



Official state projections show that Connecticut’s real GDP is expected to grow 2.8 percent in FY 2015, and then decline to an annual average of 2.0 percent growth from FY 2016 to 2019.²³ Employment in Connecticut is expected to surpass its pre-recession peak by the second quarter of 2016. Connecticut’s unemployment rate is projected to decline to 6.3 percent by FY 2015 and drop down to 5.2 percent by the end of the forecast period in FY 2019.

According to projections, U.S. real GDP is anticipated to increase from \$13.6 trillion in 2012 to \$17.6 trillion in 2022, an annual growth rate of 2.6 percent.²⁴ The U.S. economy will be

²³ FY 2016 – FY 2017 Biennium Economic Report of the Governor. Office of Policy and Management, Budget and Financial Management division. February 2015.

²⁴ <http://www.bls.gov/opub/mlr/2014/article/consumer-spending-and-us-employment-from-the-recession-through-2022.htm>

dominated by an increased concentration of employment in education and health care services. Nationally, growth industries (measured by BEA forecasted expenditures) are service industries (versus goods producing) and among services, the fastest growing sectors will be information, with annual rate of change from 2012-2022 followed by retail trade and health care and social assistance (both 4.2 percent per year).²⁵

The employment forecast for Connecticut shows a continued growth in the service sector, not unlike that of the U.S. Based on Connecticut Department of Labor's 2012-2022 Industry Projections, construction, healthcare and social assistance and professional, scientific and technical services are expected to grow at higher rates with 22.8 percent, 19.9 percent and 19.6 percent growth respectively over the period 2012-2022 while agriculture and forestry will grow by 11.2 percent by 2022, mining and wholesale trade are expected to experience 13.9 percent and 9.9 percent growth respectively.²⁶ Manufacturing growth remains flat with total growth expected to be 0.8 percent over the ten year period. The resulting concentration of employment is heavily in the service sector—in particular in educational and healthcare services as summarized in Table 6.

²⁵ <http://www.bls.gov/opub/mlr/2014/article/consumer-spending-and-us-employment-from-the-recession-through-2022.htm>

²⁶ <http://www1.ctdol.state.ct.us/lmi/ctindustry2012.asp>

Table 6: Connecticut Concentration of Employment by Industry 2012 and 2022

	Construction	Manufacturing	Retail Trade	Finance/Insurance	Prof/Tech Services	Educational Services	Healthcare Services	Accommodation and Food Service	Government
2012	2.91%	9.31%	10.26%	6.45%	5.04%	10.29%	15.56%	6.63%	4.80%
2022	3.26%	8.57%	9.90%	6.08%	5.51%	10.33%	17.06%	6.61%	4.44%

Source: Calculations based on Connecticut Department of Labor Industry Projections

<http://www1.ctdol.state.ct.us/lmi/ctindustry2012.asp>

The employment and output trends present a few challenges for Connecticut’s fiscal structure. Coming out of the recession, Connecticut has seen most growth in relatively low wage industries including accommodation and food, social assistance, retail trade and health and education services. There has been some growth in management of companies (which is high paid) and professional and technical services. Through 2014, employment in the finance and insurance sectors has not fully recovered. The general shift in economic activity and projections for growth are in relatively low wage service sector industries. The service sector in general provides a weaker tax handle than does economic activity in goods producing sectors. Services are less transparent and can more easily bury their paper-trail of production relative to the production of hard goods. The growth in service sector jobs and output in the health and education sectors are also moderate-wage jobs (or low wage jobs) which may produce less buoyancy to the revenue system. An added issue arises with respect to attracting and keeping these employees.

Connecticut has invested in maintaining and attracting economic activity in the biotech industry, which may be a growth industry in the future. The presence of Yale University and the University of Connecticut provides the state with a potential comparative advantage in the biotech sphere. This and other knowledge-based industries are typically high-wage sectors and may generate very large multiplier effects due to their impact on other industries. Many of these industries are of the “new economy” and utilize sophisticated technology and tools to affect productivity in manufacturing, produce new medical procedures and interventions, and affect

commerce via the internet and other means. The potential growth in these sectors does not immediately translate into tax revenues as start up support for these industries is expensive and pay-offs may be long-term.

Wasylenko (2015) shows that the concentration of bio-tech employment in Connecticut is small (0.8 percent and down from 1.1 percent in 2000); in all knowledge-based industries it has hovered around 21 percent since 2000. This is above the U.S. level of 19 percent but lower than the regional leader, Massachusetts, at 25 percent. Connecticut’s NIH funding per capita exceeded the same by almost two-fold as is seen from the table below.²⁷

Table 7: Bioscience Performance Metrics

Metric	Connecticut	U.S.
Bioscience Industry, 2012		
Bioscience Employment	24,194	1,619,746
Bioscience Establishments	864	73,088
NIH Funding, FY2013		
Funding (thousands)	\$444,605	\$22,293,255
Funding per capita	\$124	\$70

Source: Biotechnology Industry Organization, and Batelle,
https://www.bio.org/sites/default/files/SP_Connecticut.pdf

Overall, the forecast of employment and output in Connecticut is that we would expect (with high probability) a continued increase in relatively modest-waged service sector jobs and economic activity. There is much less certainty around the growth in the knowledge economy, for which there will be demand but with substantial competition and long gestation periods. The growth in the service-sector economy will also give rise to increased demand for technical training in the areas of health and education (as well other service sectors) while the knowledge-industry growth will demand specialized infrastructure and the ability to attract and retain very highly skilled and educated workforce.

²⁷ https://www.bio.org/sites/default/files/SP_Connecticut.pdf Battelle/BIO State Biosciences Jobs, Investments and Innovation 2014.

Given the increasing use of technology in all facets of employment, Connecticut will also need to continue to invest in quality infrastructure to support the use of technology. Most all of the sectors of the economy rely more and more on digital communication and demand speed and quality in wireless and other communication. “Old infrastructure” of roads and bridges are still important, but new technology will compete more and more for public dollars.

One last issue that defines the architecture of Connecticut’s employment and revenue relates to the geographical proximity of Connecticut to other states with job opportunities. For example, according to the 2009-2013 5-Year American Community Survey Commuting Flows, 6.2 percent or 108,511 individuals out of 1,727,253 with residence in Connecticut worked in another state.²⁸ The wealthiest areas in Connecticut border New York. The potential draw of Connecticut residents to work in New York (and other surrounding states) has implications for the Connecticut income tax. The Department of Revenue Service has identified this as an issue because, while Connecticut residents are taxed on all income, Connecticut credits income tax paid to another state.²⁹ The allure of certain high-paid industries in the heart of New York City is expected to continue into the future, which may continue to cause a drain on the income tax net for Connecticut.

²⁸ U.S. Census Bureau, 2009-2013 American Community Survey
<http://www.census.gov/library/publications/2015/acs/acs-32.html>

²⁹ Connecticut Department of Revenue Services <http://www.ct.gov/drs/cwp/view.asp?a=1462&q=266294>

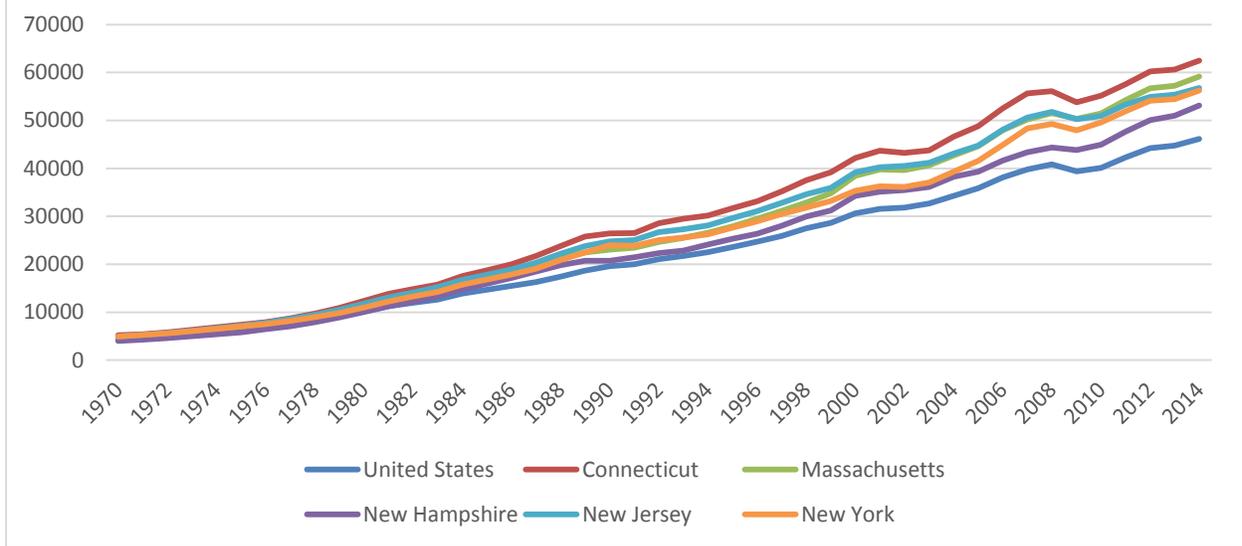
Income

Income is an important driver of revenues and expenditures at all levels of government. In Connecticut, revenues are largely driven by income, sales and property taxes, all of which are obviously affected by income. However, not all income is created equally in the eyes of tax policy. Retirement income is largely exempt for income tax purposes (some social security and military pensions and other transfer payments in Connecticut) and while income drives consumption, not all consumption is taxable. The distribution of income is also an important factor in determining the buoyancy of the tax system as well reflecting the variation in demand for public services (expenditures).

Connecticut is the highest ranking state in terms of per capita personal income at \$61,464 dollars per person relative to a U.S. average of \$45,384 in FY 2014.³⁰ Over the last three decades, income growth in Connecticut has outpaced that of its New England neighbors and the U.S. (see Figure 4). Over the last ten years, personal income (PI) and per capita personal income has been rising, with fast growth from 2005 to 2008 and a relatively strong income recovery post-recession (in 2010). From 2005 to 2008, personal income grew from \$167 billion to \$195 billion in Connecticut. Figure 4 illustrates this growth in per capita personal income since 1970.

³⁰ OPM (2015)

Figure 4: Per Capita Personal Income (dollars)



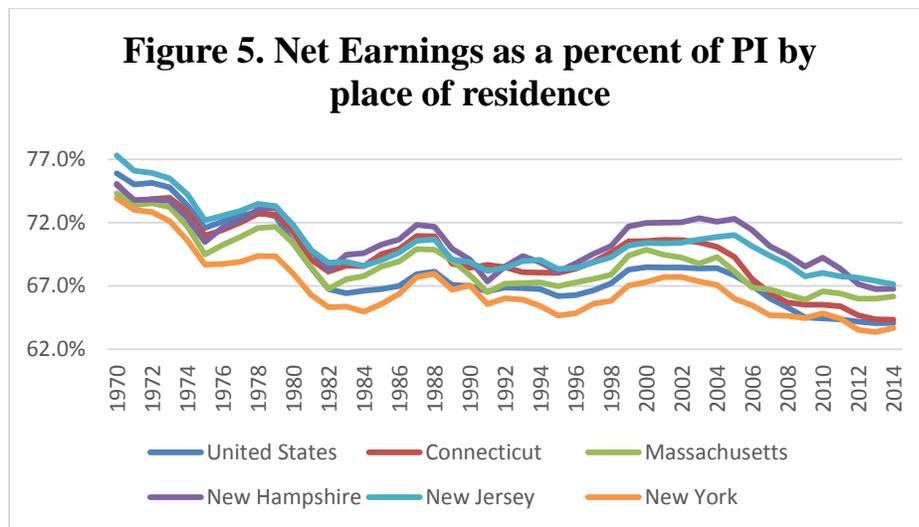
Source: BEA

Decomposition of personal income by its major components shows that net earnings remain the dominant component of personal income nationwide as well as in Connecticut and other New England states (see Figures 5, 6, and 7). The long-term trend demonstrates a decline in the share of wage income from 1970 to the early 1990s. In Connecticut, the net earnings share of personal income increased after 1992, but then fell precipitously after 2004 (as did other states). Net earnings are mainly comprised of wages, so its growth pattern is an important indicator of income tax revenue.

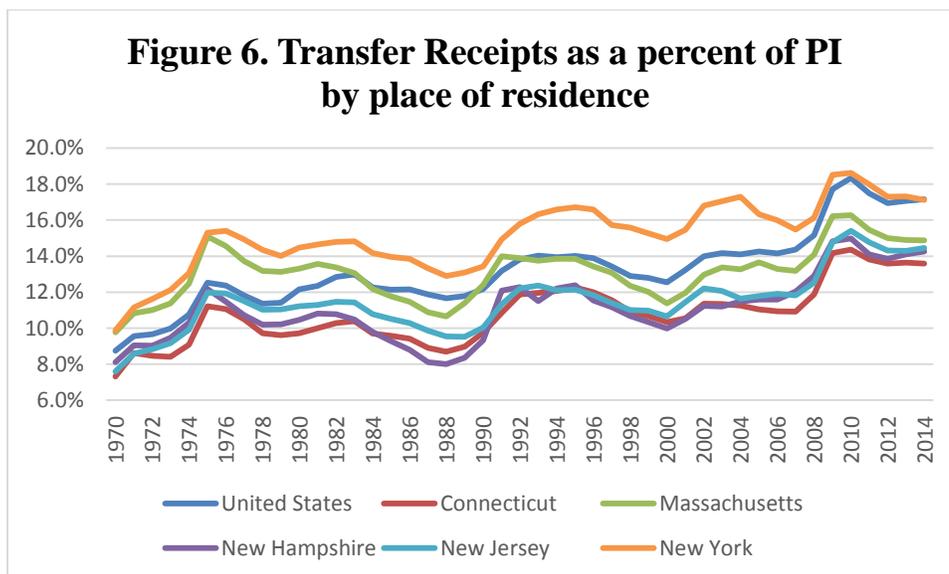
Between 1970 and 2014 personal current transfer receipts (Social Security, Medicaid, TANF, and the like) as a share of personal income increased from approximately 9 percent to 19.3 percent in the U.S. and from 7.5 percent to 13.6 percent in Connecticut, increasing in neighboring states as well. Transfer payments are less taxable under the income tax than wages so growth in transfer payments as a share of personal income will reduce income tax buoyancy. Connecticut's increase in this share could reduce income tax buoyancy, but it is not as dramatic as in neighboring

states or the U.S. Continued growth in the elderly population in Connecticut could increase this share in the future.

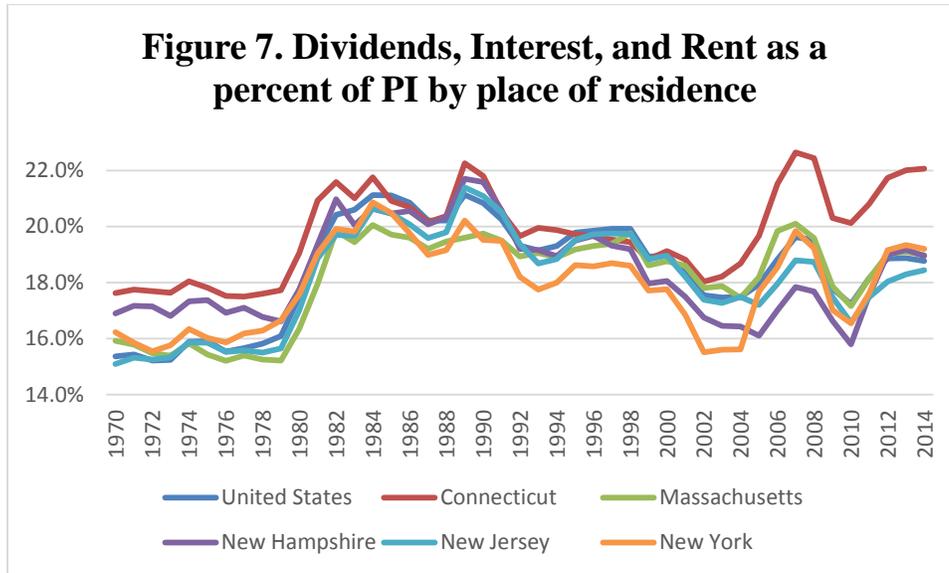
Capital income in the form of dividends, interest, and rent as a share of personal income was rising steadily till 1990 and then started to decrease (Figure 7). Connecticut’s share is particularly large—rising to 22.3 percent in 1989 and then to 22.6 percent in 2007. Largely taxable, but typically more volatile, Connecticut’s capital income base will continue to support tax revenue to the extent that high income individuals remain in the state (including post-retirement).



Source: BEA

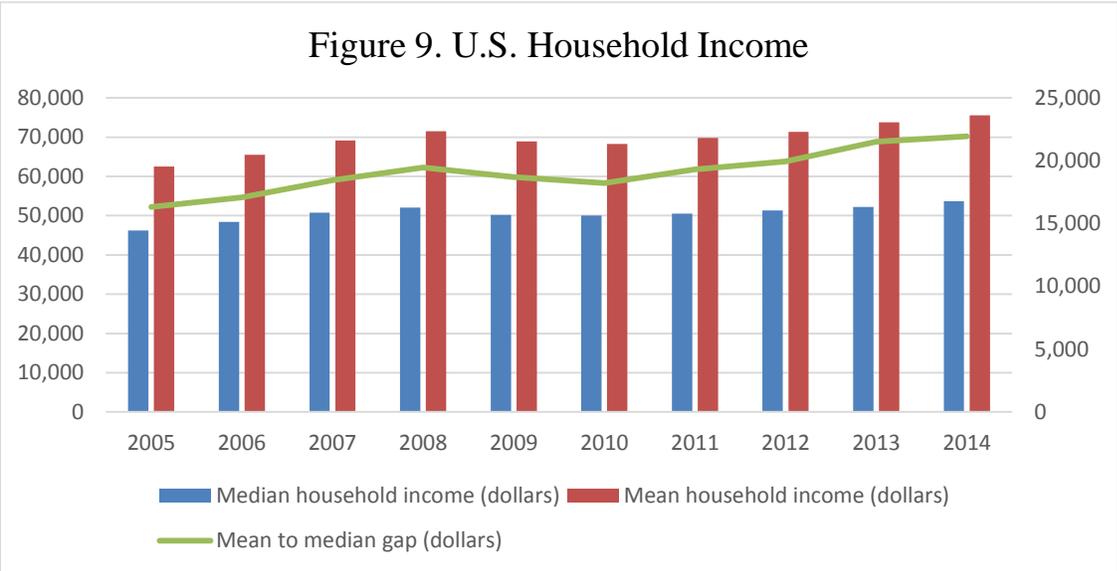
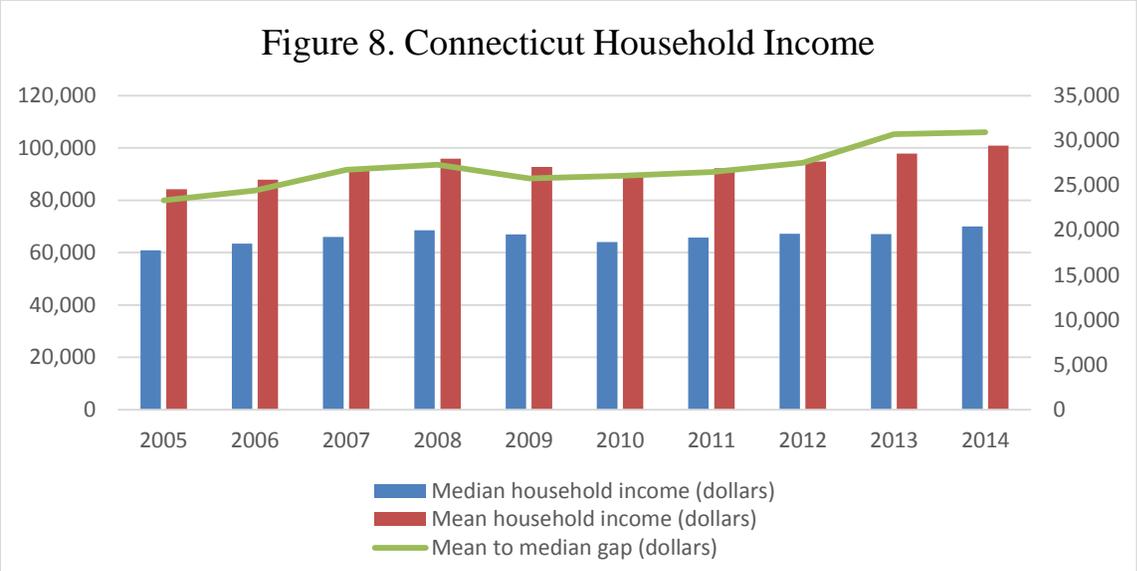


Source: BEA



Source: BEA

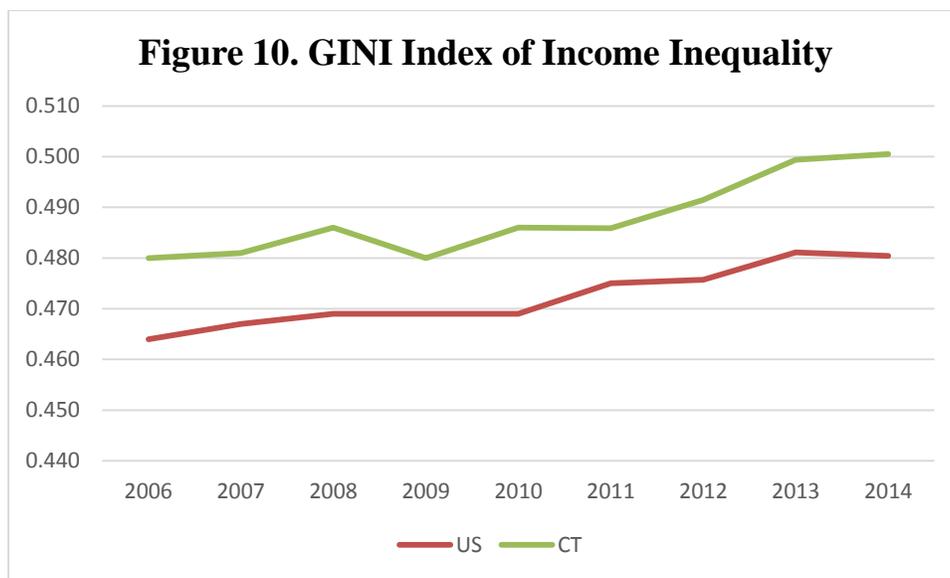
While a high income state, Connecticut is experiencing a change in the distribution of income. The difference between median and mean household income over time is computed to show the change in income disparity in Connecticut (Figure 8). The median income is the income of the household in the middle of the income distribution while the average income is simply the sum of household income divided by the total number of households. The greater the concentration of income at the high end of the income distribution, the greater the spread between average (mean) income per household and the median income. In Connecticut, the gap between median and mean income is consistently over \$25,000 from 2005, increasing to \$30,000 in 2013. As seen in Figure 9, a similar trend is occurring nationwide but the spread is not as great—about \$20,000 in 2013.



Source: American Community Survey 1-Year Estimates (from each year's release)
 Note: Income in the Past 12 Months (In Inflation-Adjusted Dollars for each relevant year of survey)

Finally, the Gini index, a measure of equality in an economy, can also be used to gauge the trends in inequality in Connecticut (and the U.S.). A Gini index equal to zero means perfect equality—each decile of the population holds 10 percent of income. A Gini of one is complete inequality where the highest income earners “own” virtually all income. Figure 10 demonstrates the Gini index over time for Connecticut and the U.S. As seen there, income inequality measured by the Gini index increased substantially in Connecticut and in the U.S. post Great Recession.

Connecticut is more disparate in terms of income than is the U.S., but the relative income inequality from 2006 to 2014 is similar in both cases.



Source: U.S. Census of Bureau. 2014 American Community Survey 1-Year Estimates

<http://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF>

Note: Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution.

Disparities in income will affect revenues as well as expenditures. Connecticut's Temporary Assistance for Needy Families (TANF) has declined since the mid-2000s but Supplemental Nutritional Assistance Program (SNAP) recipients have increased (somewhat faster than the average state during the recession). In December 2014, there were 27,512 total TANF recipients relative to an average of 27,183 persons in March, 2015. This was a continuation of a downward trend as the caseloads were 34,413 in 2010, 32,427 in 2011, 30,049 in 2012 and 28,553 in 2013 respectively.³¹ According to the Center on Budget and Policy Priorities, Connecticut raises TANF benefit levels each July 1 based on the Social Security Administration's COLA for Social Security and Supplemental Security Income benefits. The state suspended its COLA for several

³¹ TANF: Average Monthly Number of Recipients as of 07/23/2015
<http://www.acf.hhs.gov/programs/ofa/resource/tanf-case-load-data-2015>

years due to budget constraints. Most families of three in Connecticut receive a maximum benefit of \$576 a month. TANF benefit levels as percentage of federal poverty were 42.3 percent in Connecticut, which was the third highest indicator after New York (47.8 percent) and Alaska (44.8 percent) in 2014. The benefit levels as percentage of federal poverty level of both TANF and SNAP also ranked Connecticut third in the country (71.2 percent) after Alaska (78.4 percent) and Hawaii (72.2 percent).³² SNAP recipients in Connecticut had been increasing in number for the past five years and the benefits level have also increased from 2010 to 2013 with slight decrease in 2014.³³

Table 8: Supplemental Nutrition Assistance, Connecticut

	FY2010	FY2011	FY2012	FY2013	FY2014
Average Monthly Participation	336,064	378,677	403,466	425,320	438,559
Annual program benefits	569,684,382	647,390,087	696,670,564	707,654,612	697,435,672

Source: U.S. Department of Agriculture. Food and Nutrition Service

If Connecticut continues to experience growth in income disparities the pressure on the social safety net will grow and the distribution of the burden of the income tax will be increasingly skewed. The continued increase in disparities coupled with the anticipated growth in relatively low-wage industries and a focus on relatively high paid knowledge industries increases the chance for continued growth in income disparity in Connecticut. The income tax would be affected with similar disparities in the future as some of the growth industries will see income earners at the low end of the tax distribution and an increased concentration of income tax paid at the high end. The distribution of sales tax burden may also become more skewed. Lower income households spend more money on basic goods and services including items like food which are not taxed for home consumption (for the most part). A sales and excise tax system that is geared toward luxury items

³² Center on Budget and Policy Priorities <http://www.cbpp.org/research/tanf-cash-benefits-have-fallen-by-more-than-20-percent-in-most-states-and-continue-to-erode>

³³ U.S. Department of Agriculture. Food and Nutrition Service. Supplemental Nutrition Assistance Program. Annual state level data FY 2010-2014. <http://www.fns.usda.gov/pd/supplemental-nutrition-assistance-program-snap>

(including entertainment and food away from home) would take advantage of the skewed nature of the income distribution. Public service demands may also diverge due to the difference in needs and preferences of low relative to high income households.

At the national level, according to the Bureau of Labor Statistics, between 2012 and 2022, U.S. personal income is projected to increase to \$20,947 billion, with an annual rate of change of 4.6 percent.³⁴ The share of compensation is expected to increase slightly to 65.9 percent of personal income by 2022 while transfer payments are expected to decrease from a high in 2011 of 18.7 percent to 17.2 percent in 2022 as the U.S. economy continues to gain strength post Great Recession. The BLS projects an increased concentration in interest income in the next decade. If Connecticut's capital income composition follows suit, the increased capital component of personal income may challenge the income tax system as some capital income provides fewer tax handles than wage income that is typically subject to withholding. The Office of Policy and Management forecasts that personal income will grow at an average rate of 4.83 percent per year between 2015 and 2019.

Additional economic issues

The importance of real estate and construction to state and local governments throughout the U.S. and the impact of the Great Recession on those markets warrants a special mention in this report. Real estate trends are closely tied to the business cycle while construction tends to lag. Connecticut's real estate market, like virtually all in the country, suffered during the Great Recession and construction employment was hard hit. Connecticut's *Economic Digest* July 2015 reports that recovery started in 2012 but slowed in 2014. With relatively slow population growth

³⁴ http://www.bls.gov/emp/ep_table_410.htm

forecast for the next two decades, we might expect this industry to continue to grow slowly. This is coupled with the growth in retirees who may look to downsize, increasing the availability of larger homes. As pointed out in the *Economic Digest* housing affordability is still an issue and with the larger employment increases forecast among relatively low wage jobs, Connecticut might experience more demand in rental housing than owner-occupied. Overall, this could signal slower growth in property tax revenue.

One additional special interest item is the role of federal government defense contracts on Connecticut's economy. Other reports in this series note that there is a long history of the defense industry in Connecticut. The industry has adapted to new technology and changes in demand associated with U.S. involvement in conflicts. Srivastava (2015) estimates that defense contracting contributes 5 percent to the state GDP—a number some may feel is large and others, small. The industry has substantial reach, however, through the supply chain that makes up the manufacturing and ancillary industries associated with defense manufacturing and research and development. A 2012 study by Deloitte reports a multiplier effect associated with the Aerospace and Defense Industry in the U.S. of 2.36.³⁵ This means that a dollar spent in the industry generates an additional \$1.36 throughout the economy as the initial dollar spent in defense procures business from other suppliers and employees from all industries engage in additional economic activity. At a state level, this multiplier could be smaller, but it is quite feasible that a dollar of defense spending generates a dollar or more of additional activity in Connecticut.

The future of defense spending is unknown and is a function of a variety of factors not the least of which is domestic politics. Tying the future of economic growth in Connecticut to this industry is not likely to be a wise strategy due to its volatility. However, using the infrastructure

³⁵ http://armedservices.house.gov/index.cfm/files/serve?File_id=126226cd-bc54-4e4b-a9ec-1ea16e61a2dd

from the industry to further develop knowledge industries in the state, while somewhat risky, has some merit.

Globalization

Globalization has reduced the costs associated with labor and capital mobility, increased the speed of sharing information and products, and reduced significant amounts of commerce to move from country to country with the ease previously associated with moving between states. Over the past two decades, there has been concern that the pressures of globalization would lead to intense intergovernmental competition for economic development and revenue. The proverbial “race to the bottom” in terms of taxation of mobile capital in particular was hailed as one of the pre-eminent threats to state and local finance. The race to the bottom has not completely panned out (capital taxes are alive!) but there is an intense amount of competitive pressure among jurisdictions to lure mobile employers with a wide variety of tax and expenditure incentives. Various studies, including Troeger (2013) conclude that among countries, the race to the bottom has not materialized as countries have adjusted public expenditures and revenue systems in line with demand for public goods and services. State governments may be expected to do similarly but the bar for competition is likely to be a bit lower among states than it is among countries due to the ease of transporting and traveling across state borders.

Technology

The “new economy,” the “sharing economy,” the “information economy” may all be ways to characterize the growth and importance of technology in our lives. Technology has changed production processes, altered the interaction among individuals and between governments and their constituencies, reduced the cost of collaboration, enhanced the ability to barter, affected the dissemination of health care, changed models of education, and more. While technology can affect

Connecticut's revenue in many ways, we focus here on three technology trends that arguably most directly affect natural revenue growth: internet commerce, the mix of capital and labor in production, and other forms of outsourcing (education, cloud computing, and virtual collaborations and meetings).

The impact of internet commerce on state sales tax revenue has been a cause for concern for the last two decades. The Streamlined Sales Tax Project begun in 2000 opened up the debate regarding the treatment of internet sales from the perspective of state tax policy. The so called "Amazon Laws" are an attempt by states to expand the attribution of nexus to include affiliates and subsidiaries that establish a physical nexus. Connecticut has done so since 2013. While several states have adopted these types of laws, companies like Amazon are pushing back and it is not obvious when or if a final resolution will occur. As more states tax internet sales, there is somewhat less concern about the loss in sales tax revenue. The Marketplace Fairness Act sitting in Congress may increase the ability of states to tax internet commerce. Still, where differences in tax rates exist, competition remains. Einav et al (2014) find that consumers are very responsive to sale tax rates over the internet and for every percentage point increase in the sales tax rate, purchases are reduced by two percent.

The rise of the sharing economy is giving government officials pause similar to that experienced with the advent of the internet. Discussions of the taxation of commerce associated with conduits such as Uber, VRBO, Airbnb, Craigslist, among others, is a daily occurrence. Nellen (2015) provides a useful summary of the components of the new/sharing economy and outlines issues associated with them. Her list of tax challenges is long, but many of the challenges belong to the same basic set of issues: being able to identify and value the commerce and locate the transactions (tax handle problem).

The second challenge that technology brings is the potential for substantial shifts in the mix of capital and labor in the economy. Technological advances can reduce the relative cost of capital inputs, putting labor at a potential disadvantage in the production process. Karabarbounis and Neiman (2013) empirically analyze labor shares in production across 59 countries. They find evidence of statistically significant decreases in labor shares in 37 countries (9 increases and 13 with no impact) and point out that two-thirds of U.S. states saw labor share declines over the period of 1975 to 2012. The advent of the “new economy” is in large part a function of the growth and pervasiveness of technology. Connecticut’s support for biotech and advanced manufacturing industries is a reflection of this trend. Education and training aimed at connecting to and embracing the new economy could stem the shift from labor to capital in the overall production process.

The trend in the use of technology in production (of goods as well as services) suggests a reduction in the wage component of the income tax base. Capital is notoriously difficult to tax – intellectual property, artificial intelligence, and other technology-based valued added can be located in any jurisdiction, which increases the complexities of transfer pricing and other tax avoidance techniques. The very nature of the new economy reduces the tax handles associated with identifying taxable activity – and then collecting tax. The virtual nature of meetings, education over the web, and person-to-person transactions for vacationing and the like could increase the difficulty of revenue identification and collection. These trends are likely to continue into the future.

Institutions

Connecticut’s fiscal structure and budgetary institutions present some important considerations for state and local reform options that respond to changes in the state’s fiscal

architecture. Over specific relationships and constraints that the state and local governments have within their budgets, the state has a constitutional state spending cap that, theoretically, keeps increases in state expenditures in check. The cap was introduced in 1991 and became constitutional in 1992. Spending increases are limited by the greater of the growth in personal income or inflation. There is debate regarding its effectiveness as expenditures have been moved off budget and the treatment of debt and pension liabilities has been fluid. Relative to the pressures associated with changes in fiscal architecture, the cap could nominally affect how to deal with some of those changes depending on the interpretation of the spending cap. For example, the increased focus on knowledge based industries and advanced manufacturing could call for significant resources that may be constrained by a spending cap.

State and Local Fiscal Structure

Connecticut's revenue structure includes state and local finances and federal grants. The federal grant component is smaller than a typical U.S. state as Connecticut; federal grants comprise 21 percent of total revenue whereas the US average is 27 percent (2012, <http://slfdqs.taxpolicycenter.org/pages.cfm>). In Connecticut, own source revenue is driven by personal income, sales and use, and corporate income tax – accounting for 79.3 percent of general revenue in FY2015.³⁶ Total general fund revenue for FY 2015 is \$17,458 million, a 0.6 percent decrease from the previous year. Other states throughout the U.S. also rely heavily on the personal income and sales tax but Connecticut's use is heavier at 40 percent as a share of general fund revenue in 2012 compared to the U.S. average of 25.6 percent (including non-income tax states). Among surrounding states, New York has a larger reliance on income tax (42 percent).

³⁶ <https://www.cga.ct.gov/ofa/add-budinfo.asp>

Connecticut also uses sales and gross receipts taxes to a larger extent than surrounding states—but more like that seen in the U.S. The heavy reliance on the two main taxes is an important consideration since some of the demographic factors will reduce the buoyancy of these revenues. The revenue forecast reported in the Economic Report of the Governor projects continued reliance on the personal income tax and sales taxes (see Table 9).

Table 9. General Fund Tax Revenue FY 2015

Revenue item	FY 15 (\$ millions)	FY 15 percent of total
Personal Income	9,264.5	49.4
Sales & Use	4,167.4	22.2
Business/Corporations	1,290.8	6.9
Federal Funds	1,299.6	6.9
Other Revenue	595.2	3.2
Gambling	601.6	3.2
Health Provider Tax	509.5	2.7
Tobacco	480.9	2.6
Other Taxes	554.1	3.0
Gross Total	18,763.5	100
Less Refunds & Credits	(1,305.5)	
NET TOTAL	17,458.00	

Source: Office of Fiscal Analysis

On the expenditure side, the state has invested heavily in a number of areas in a way similar to the average state. Among the largest state expenditures are expenditures for education, social services, and transportation, and these are similar to other states. The state is an outlier (according to the 2012 comparative data) in terms of the percent of expenditures going to debt repayment (6.45 percent of total direct expenditures versus an average of 3.33 across the U.S.). The November 2014 Fiscal Accountability Report of the Office of Fiscal Analysis states that one of the three major contributors to the annual expenditure growth of the Special Transportation Fund

for FY 2016-2018 is due to an increase of \$6.2 million in each fiscal year for the State Employees' Retirement System (SERS).

The state budget reports \$7.2 billion in tax expenditures resulting from tax credits, exemptions, and deductions offered by the state. This level is approximately 38.2 percent of the total projected FY 15 General Fund and Special Transportation Fund revenue. The majority of tax expenditures occur in the Sales and Use Tax and Motor Fuels Tax (approximately 54.1 and 25.3 percent, respectively).

Local governments in Connecticut play an important fiscal role. The overarching story of local governments in Connecticut is the relative level of property tax used to fund local services. In 2012, Connecticut's local governments received 78.4 percent of own-revenue from the property tax, compared to 40.3 percent nationwide. Local governments received slightly less in state intergovernmental aid in Connecticut (26 percent versus the national average of 29 percent). It is not surprising then to see that Connecticut's local governments report that 56 percent of their general fund expenditures go toward education versus the U.S. average of 41.7 percent (2012). Additional detail on the revenue and expenditure picture of the state and local governments is provided in Bourdeaux and de Zeeuw (2015). The data demonstrate the budgetary pressures that Connecticut is experiencing relative to other states. Table 10 (reproduced from Bourdeaux and de Zeeuw) demonstrates very clearly the relative investments Connecticut is making in education, and also the pressure of public welfare and interest payments. As Wasylenko (2015) points out, the sectoral focus on education has long-term payoffs and may be viewed as a positive component of the state's fiscal architecture but the debt situation is different. Connecticut's medium term spending will continue to be hampered by the debt repayment liability while the main revenue sources may be constrained due to competitive pressures associated with income and sales taxes.

Table 10: Connecticut Per Capita State and Local Direct General Expenditure Indices
Indexed with US Average = 100.0
Selected Fiscal Years: 2002, 2005, 2009, 2012

Function	2002	2005	2009	2012
Education	109.8	111.7	118.2	123.3
Local Schools	120.5	120.6	127.6	139.0
Higher Education	82.5	90.2	91.8	87.7
Other	105.2	103.2	138.5	130.9
Highways	88.3	84.5	82.1	93.8
Public Welfare	102.7	101.5	112.6	116.4
Health and Hospitals	107.6	86.7	87.0	75.7
Police and Fire	107.7	101.6	94.5	105.8
Sewage and Sanitation	105.8	104.6	101.8	112.1
Local Parks and Recreation	83.2	74.8	54.4	66.4
Financial Administration and General Control	136.3	123.5	126.7	124.9
Interest on General Debt	157.8	150.2	146.0	152.6
Other Expenditure	149.5	123.9	117.8	130.6
TOTAL	116.2	108.6	110.6	116.2

Note: U.S. data excludes Washington DC. Sewage and Sanitation includes Sewerage and Solid Waste Management. Other Expenditure includes Employment Security, Veterans Services, Airports, Parking facilities, Sea and inland port facilities, Corrections, Protective inspection and regulation, Natural resources, Housing and community development, Judicial and legal, General public buildings, other governmental administration, and General expenditure. Source: Census of Governments (Expenditures)

Source: Bourdeaux and de Zeeuw (2015)

Intergovernmental Landscape

The institutional relationship between the state and local governments in Connecticut is important because public finances of one level of government are naturally closely related to the other and could affect one level of government’s ability to react to changing fiscal architecture. Arguably, from a fiscal perspective the most impactful state-local issues in Connecticut are the amount of autonomy afforded to local governments and the intensive use of the property tax by local governments in the state. The property tax constraint (how high can it go?) is discussed above. We turn now to a discussion of the fiscal “space” that local governments in Connecticut

have relative to the state, and how this may impinge on the state's overall response to changes in fiscal architecture.

Wolman et al (2009) analyze the relative degree of autonomy across states including local government importance (fiscal, economic, and personnel), discretion (limitations, legal scope of government) and capacity (revenue, professional/institutional, etc.). Based on their measure, Connecticut's local autonomy ranking is -0.324, which is 42nd out of 50. This is at the low end of their autonomy measure.³⁷ Kansas is rated number one with an index of 0.861. This index suggests that local governments in Connecticut have less room to react to changes in fiscal architecture. This is an important point in this study and in the Commission's considerations of policy options because, all else equal, it suggests that local governments in Connecticut have less of a role to play in adapting to changes that may be more local than state-wide. Connecticut is relatively small geographically, but diverse still in terms of its urban versus rural areas, and in some border areas in particular. In the current environment, local governments have less of a partnership with the state to be entrepreneurial in adapting to change.

Debt and Pension Liabilities

In addition to general fiscal structure and intergovernmental relations in Connecticut, public debt and pension liabilities present an important institutional consideration for the medium term to long-term (10 to 25 years). Connecticut's unfunded pension liability is ranked as one of the highest in the country. The Pew Charitable Trusts Fact Sheet on State Pension Plans (2014, 2015) reports that in 2012 and 2013, Connecticut was one of only three states with a funded ratio

³⁷ A variety of factors are used to calculate the overall index. For instance, to measure local government importance, variables including local own-share of revenue, local government employment share, and local direct expenditures as a share of GSP are used. For local government discretion, variables including home rule structure, debt limits, and property tax rate limits are used. Finally to measure local government capacity variables including the following are used: revenue from local general purpose own-sources, taxes and fees, revenue and expenditure limits.

(funds to liabilities) of less than 50 percent (along with Illinois and Kentucky).³⁸ Connecticut did fund 100 percent of their actuarial required contribution in 2012 and 2013. Previous underfunding and poor investment performance along with the forecasted continued aging of the population will continue to put pressure on the state and local governments in Connecticut to achieve and maintain solvency in their pension system.

Pew also reports outstanding public debt (2012) and demonstrates that Connecticut's non-pension long-term debt overhang is also large – 12th largest in absolute terms among all states – while the state is ranked 29th by population and 23rd by gross state product.³⁹ Much of the debt is associated with capital projects including school construction (K-12 and higher education). A 2014 report of the Governor provides details on the composition of debt and plans to pay down the principle. As noted in that report, there are many factors that influence the ability to carry-out the plan for debt repayment including the magnitude of retirements, the volatility of the capital markets, and the stability of public revenues (Office of the Governor, 2014).⁴⁰ The level of debt and pressure to continue to make substantial contributions to public pensions will most certainly affect the state's ability to respond to other fiscal challenges over the medium-term.

Conclusions:

Implications of Changes in Fiscal Architecture in Connecticut

A summary of the economic trends and demographics and the implications for Connecticut's revenues in the next ten to fifteen years is summarized in this section. The major trends that Connecticut has recently experienced and those that will continue in the future are

³⁸ <http://www.pewtrusts.org/~media/assets/2014/03/31/pewstateswideninggapfactsheet2.pdf>;
http://www.pewtrusts.org/~media/assets/2015/07/pewstates_statepensiondebtbrief_final.pdf?la=en

³⁹ <http://www.pewtrusts.org/en/multimedia/data-visualizations/2014/fiscal-50#ind4>

⁴⁰ The report is embedded in an article in the CT Mirror, <http://ctmirror.org/2014/01/09/malloy-says-connecticuts-long-term-debt-outlook-has-improved/>

reported below to the extent that we project they will have measurable effects on the state’s fiscal structure. In almost all cases, there is a degree of uncertainty regarding the future trends. Those “what-ifs” are noted in Table 11 which summarizes the outlook for the state’s revenues, given the major trends discussed in this report. Connecticut will have to decide on the balance between supporting industries with natural growth, which are relatively low wage service sector (with limited exceptions) and supporting the expansion of knowledge-based industries for which Connecticut has arguably a limited comparative advantage. The state will also need to grapple with constraints on revenue buoyancy brought about by an aging population and increased income disparity at a time when debt and long-term pension liabilities constraint budget choices. Finally, relative to a number of states, local governments in Connecticut have less fiscal “space” to partner to adjust to changes in fiscal architecture due to relatively high levels of property tax as well as constrained autonomy to adjust to local demands.

Overarching trends—what to expect in the next five to ten to fifteen years:

- A small increase in population
 - General increase in revenue albeit at a relatively low level
- A population that is growing older with increased dependency ratios of retirees relative to working age population
 - Stymied individual income tax growth
 - Decrease in consumption tax potential due to increased consumption of health care and non-taxed medical goods and services
 - Questionable increase in property values—scarcity of property close to New York may increase values in areas close to the border, but aging of the population may reduce the demand for current housing stock in favor of smaller properties
- A decrease in the number of school aged children
 - The state will have to make a case for the increased share of the budget on education as the percent of school-aged children declines
- An increase in the 20-44 age group
 - Increase buoyancy in sales tax due to the consumption patterns of this age-group
 - Increased demand for recreation services, with pressure on traditional educational services
- High median income and a growing income disparity
 - Pressure on a skewed income tax burden
 - Reduced buoyancy of the sales tax

- Employment and output growth in the health and education sectors, and accommodation industries with lower wage jobs
 - Reduced tax handles for income tax
 - Reduced tax handle for sales tax (consumption moves toward services)
 - Reduced buoyancy of income tax due to relative growth in lower wage jobs
- Potential employment and output growth in knowledge industry
 - Increase income tax growth due to relatively high paying jobs
 - Demand for infrastructure expenditures in high-tech and higher education sectors
 - Demand for government involvement nurturing the sector which may include short-term revenue costs
- Uncertainty related to the defense industry increases exposure in employment and output
- Globalization and technology: competition will continue to increase – international as well as local for employment, residents, economic activity
 - Competition among states puts pressure on tax competition (capital taxes in particular)
 - Growth of technology/capital in production reduces the wage share in income tax base
 - Increase in ability to avoid tax through shelters, transfer pricing, etc. reduce the buoyancy of business income-related taxes, individual income taxes, and sales taxes
- Connecticut’s infrastructure (particularly in technology) will need to respond to government’s priority areas of growth and development
- Long-term pension liabilities and debt constrain government choices to respond to fiscal needs
- Local governments are further constrained in their adaptability due to high property taxes and a lack of autonomy.

In Table 11 these factors are summarized and some “what-if” scenarios are highlighted.

The information in the table summarizes the discussions presented above.

Table 11. Summary Matrix Impact of Changing Demographics on Connecticut’s Revenues

	Trend	Revenue Implications	Impact of Institutions	What if?
Demographic				
Age composition	Decline in school-aged, increase in 20-44, and continued growth in retirement aged	<p>Income Tax ↑: Working age population will positively affect income tax</p> <p>Property Tax ↓: fewer young children and transitions in retirement reduce demand for large houses; slow population growth and increased income disparities reduce demand for large properties</p> <p>Sales Tax ↑: Sales tax revenue will see growth from consumption expenditures of the 20-44 age group but this is tempered by the decline in school aged children over the next 10 to 15 years</p> <p>Income and Sales Tax ↓: Longer term the elderly dynamic will reduce buoyancy of both taxes</p>	<p>Income tax growth is affected by the cross-border tax treatment (NY)</p> <p>The relatively large amount of pension liability and debt constraint options for Connecticut to deal with potential slowing of natural revenue growth</p>	Previous growth in education expenditures will increasingly be in competition with support for elderly and public welfare.
Population size	Slow growth	<p>All Taxes ↑ →: Population growth will in general lead to increased revenue but the growth will be slower than for the average state; Connecticut has dealt with this slow growth for the last decade</p>	Not directly relevant	Population growth has been relatively slow; if efforts to attract knowledge industry development population growth could increase as well as the income base

	Trend	Revenue Implications	Impact of Institutions	What if?
Health status	Relatively healthy; rates of obesity lower than U.S. average; high by international standards	Little direct effect on tax revenues expected over the next 10 to 15 years Increases in medical expenditures	Pressure on health care costs expected to grow	Connecticut's expansion into bio-tech and other knowledge industries could lead to gains in healthcare research and status in the state
Economic				
Employment and output	Increase in service sectors including health/education/accommodation Lower wage jobs Uncertainty around defense spending	Income Tax ↓: The mix of activity toward services and lower wage jobs will reduce the natural growth of the income tax Corporate Tax ↓: Service sector is less transparent and provides a weaker paper trail for tax administration Property Tax ↓: Service sector activities by nature use less property	Ability for state to compete in knowledge industries a function of existing high tech manufacturing and higher education institutions	Investments in knowledge industries including bio-tech and advanced manufacturing could mitigate the negative impacts on public finances associated with the status quo growth of lower paid service sector jobs.
Personal Income	High median income Increasing disparity in income; Growth in lower wage jobs Growth in transfer payments (including TANF and SNAP and Social Security)	Income Tax ↑: Increased share of income tax from higher income earners ↓↑: Potential for volatility associated with capital income for high income earners Income Tax ↓: Reduction in wage relative to transfer income will reduce the income tax base; Lower income individuals will have a larger portion of	Increased burden on high income earners could have backlash in terms of payment of "fair share" for services provided	Growth in relatively low wage industries could lead to a reduction in median income and reduced growth in income taxes; if focus on knowledge industries pays off, such a trend would be mitigated

	Trend	Revenue Implications	Impact of Institutions	What if?
		<p>income tax exempt (standard deduction plus exemptions) reducing the elasticity of revenue</p> <p>Sales Tax ↓: Large concentration of low income jobs will increase relative consumption of food and housing (largely non-taxable)</p>		
Globalization and Technology	Continued competitive pressure from globalization and increased use of technology	<p>Income Tax ↓: Shift from labor to capital inputs reduces the income tax handle.</p> <p>Corporate Tax ↓: Competition in factor and output markets should increase the tax minimization strategies of companies</p>	<p>Internet sales legislation increasingly possible to stem the sales tax loss</p> <p>Local governments have less room to maneuver to deal with these pressures in Connecticut</p>	If Connecticut is successful in the knowledge industry, the state could play a role in the production of the new technology and bolster its economic situation

Notes: The symbols, ↑ ↓ ↔ summarize the anticipated change in the growth of various revenue sources (increase, decrease, uncertain), given assumptions about the economic and demographic changes noted in the table.

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