# A review of indicators for the Vermont economy

In general,

- Reviewing changes in economic conditions is more valuable than a single snapshot of the Vermont economic condition. For this reason, a measure that has sufficient history to overcome short term spikes and troughs is more valuable for discussion than a one or two year data record.
- The relation of Vermont's changes compared to changes at the national level are more informative when considering whether Vermont policies are influencing or could influence future trends.
- The value of any single measure improves when it starts discussions about the factors that influence past and future changes. Vermont's Economic Development Strategy is based on the economic fundamentals that **increased productivity** (as a primary measure of economic growth) is determined by increases in the proper combination of **workforce** strength, private sector **capital investment**, public sector **infrastructure** investment and a **healthy business climate** reflected by strong supply chain networking and marketing.
- More detail is always important for better understanding the specifics of economic change. In most of the individual measures discussed below, there is additional value when the measures can be differentiated among the different sectors of the economy. Some sectors will flourish while others struggle based on the relative strength of sector capital investment, workforce improvement and market networks. The major sectors include:
  - Manufacturing
  - Professional and Business services
  - Construction
  - Health Care
  - Finance, Insurance and Real Estate
  - Retail and Wholesale
  - Working lands and resource extraction
  - Hospitality
 - Utilities

Primary Measures of Economic Activity

- **GDP**
- **GDP per capita**
- **GDP per worker**
- **GPI**
- **Exports (international and domestic, out of state)**

State and National GDP
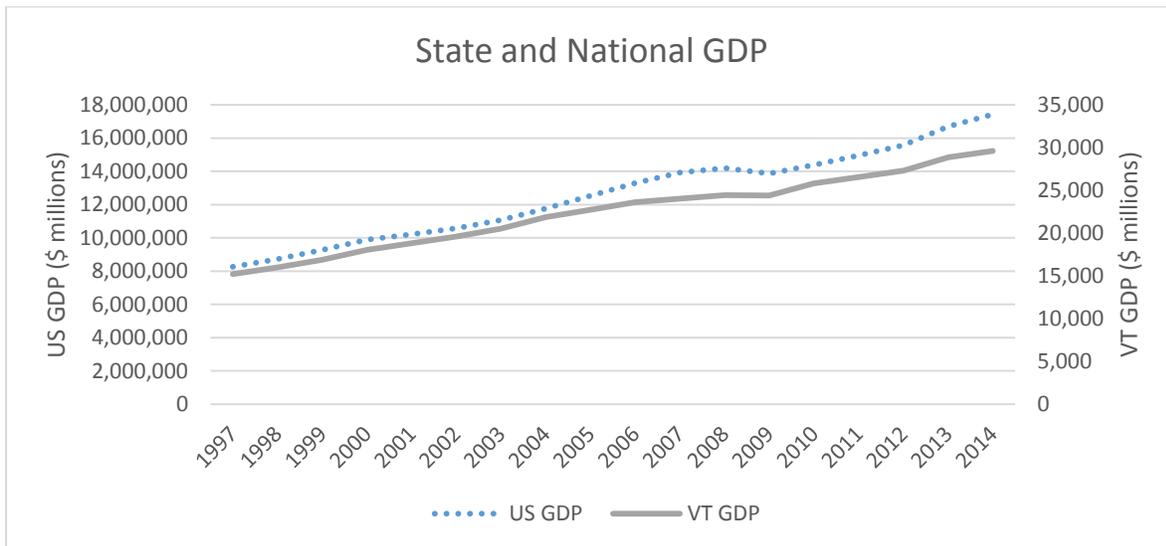
What it tells us – The total productivity of the state's economy. It is constructed to only include the value added activity taking place in Vermont so as to avoid double counting. The comparison to the US GDP shows the similarity in annual changes and that Vermont is lagging the overall growth

What it does not tell us – it does not describe distribution of income from production and it does not attribute growth to the particular inputs necessary for productivity (workforce, capital or infrastructure). The slower growth in Vermont is in part, the result of slower population gains.

GDP per capita

Vermont and New England per capita GDP
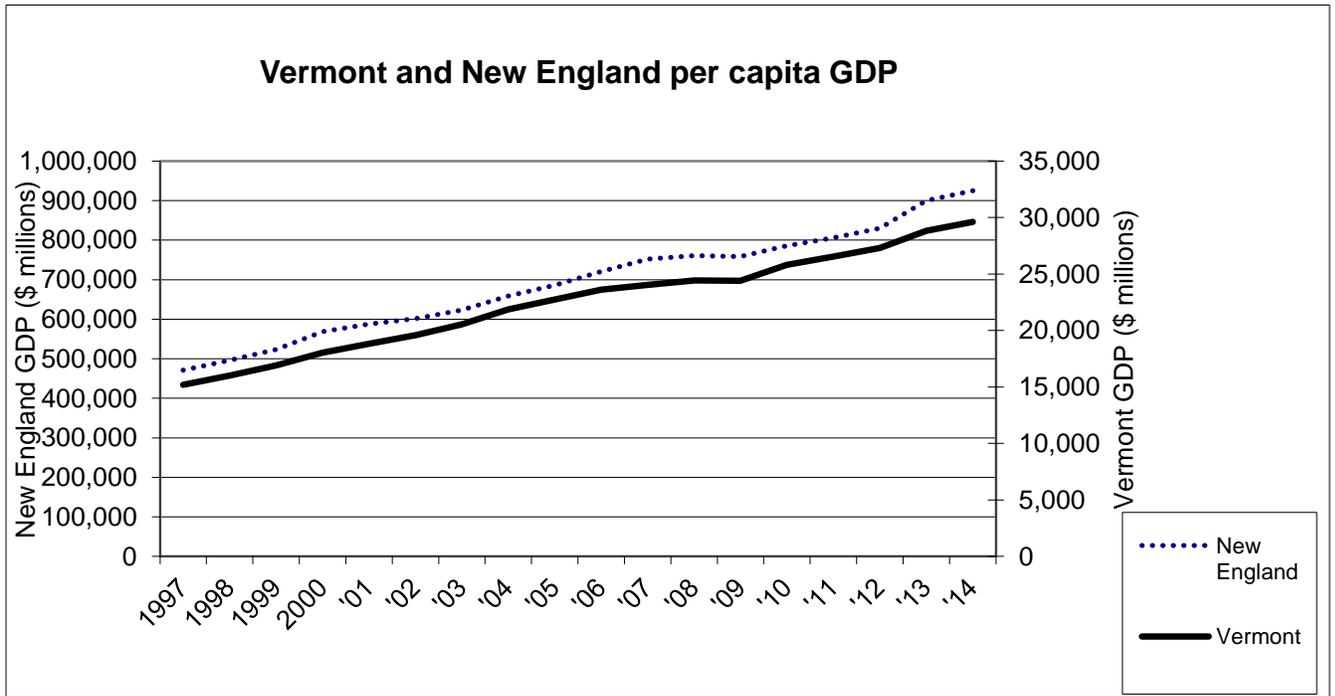
What it tells us – Unlike total GDP, GDP per capita is a better reflection of the productivity of the population. Vermont very closely matches US per capita GDP.

What it does not tell us – Changing household structure is also masked by per capita. Younger and older citizens are not a part of the productive workforce but are part of the denominator in GDP per capita. It is for this reason that a measure of productivity is better when based on per worker (or traditional working age population).

GDP per worker

What it tells us - GDP per worker is a reflection of the productivity of the population.

(Graph to be developed)

Foreign and out of state exports (state figures are not consistently available)

**Foreign Exports as Share of State GDP**
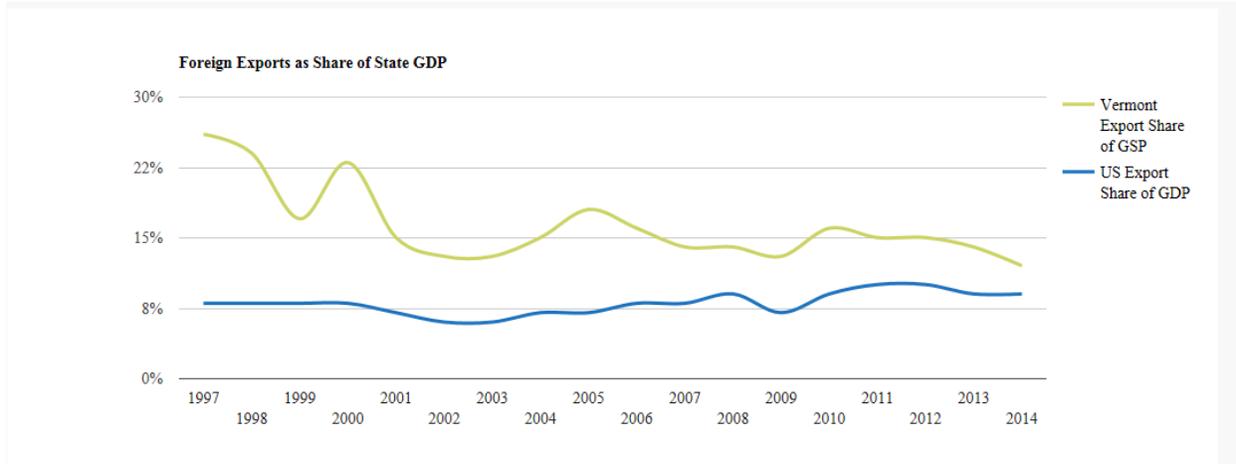
Source: United States Census

Vermont Foreign Exports in 2014 were $3.64 billion, continuing a downward trend for the state. $2.52 billion of which was computer & electronic products. The next largest category is processed foods at $207 million.

1,270 companies export goods, 86% are firms with fewer than 500 employees. VT's largest trading partner is Canada, representing 44.6% of export trade, but trending down as well: In 2014 Canadian exports were $1.64 billion, down from $1.87 billion in 2011.

What it tells us – the changes in Vermont's participation in the global economy including our relative competitiveness in producing valued goods. Also, exports provide a positive cash flow for the state to allow for residents and businesses to make purchases of goods and services from out of state and foreign sources.

What it does not tell us – Exports are largely driven by a single firm. Any changes in activity at IBM/Global Foundries swamps changes in other Vermont businesses. Ideally, the export figures would be matched with imports impact on state cash flows.

GPI

Historic GPI Calculation
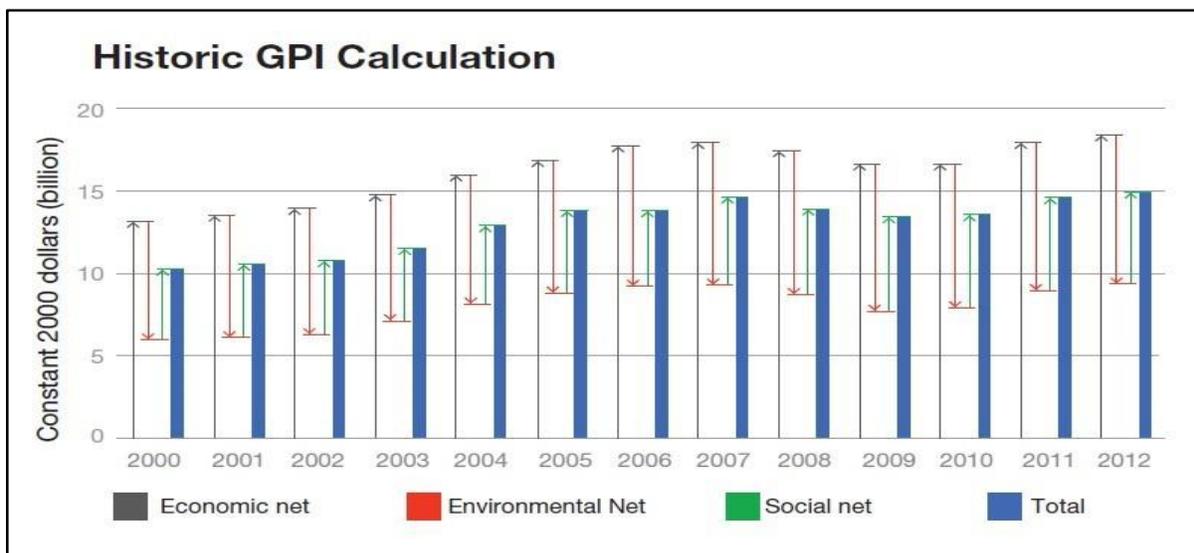
What it tells us – Building from GDP, GPI includes non marketed activities such as volunteer and household labor. It also reduces productivity value by including the loss in natural capital that is used up without regeneration. (State law requires GPI in communicating state economic activity)

What it does not tell us – The dollar income changes from GPI are not as obvious to businesses and consumers as income changes from GDP.

Measures of workforce

- **Unemployment rate**
- **Vermont population**
- **Population ages 25-44**
- **Workforce education attainment**
- **Median Wage**
- **Workforce participation rate**

Unemployment (U-3) and Underemployment (U-6)
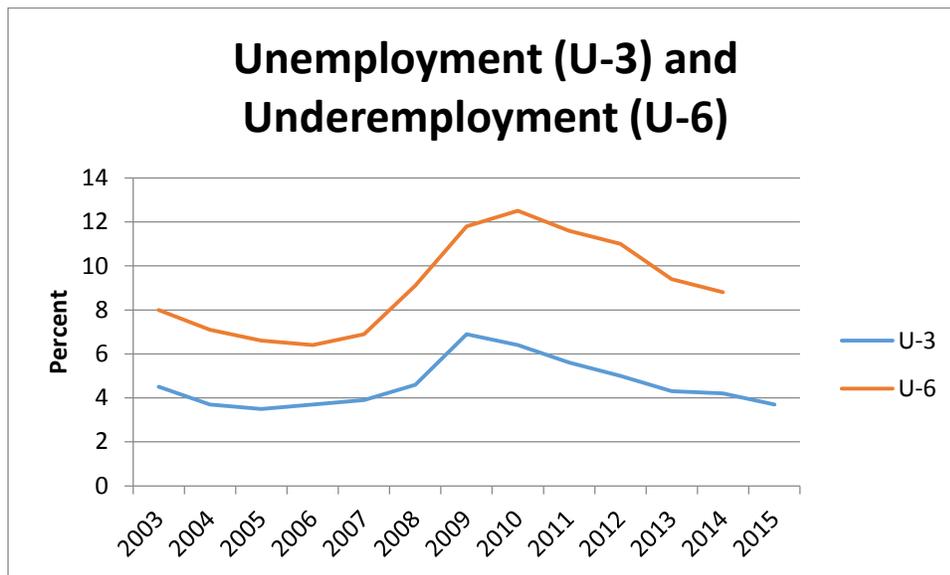
What it tells us – the unemployment rate tells us part of the story with respect to workers that are having trouble getting jobs (when high) and the difficulty of employers in finding workers (when low)

What it does not tell us – Even including the U-6 calculation, workers that are not fully using their skills may have jobs but not contributing their greatest to the economy and are not reflected in the statistics. From an employers perspective, certain occupations and skills may be difficult to fill even when unemployment figures are high.

Vermont population

Census population
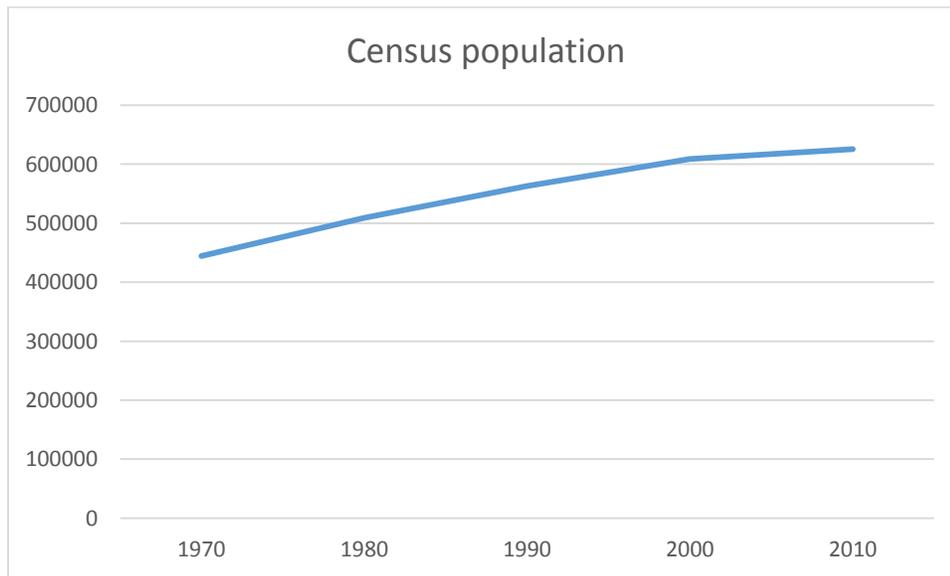
What it tells us – There are two factors reflected in the overall Vermont population. At a gross level, the change in population is a combination of natural change (births minus death) and migration.

What it does not tell us – migration and birth numbers are influenced by the proportion of the population in different age groups. Because the age profile in Vermont and elsewhere changes dramatically (e.g. the Baby Boom), there are trends in birth rates and migration that are a consequence of a growing or shrinking child bearing or in-migrating age cohort and not a reflection of changing economic conditions that reflect household migration decisions.

25-44 year old population

Population Ages 25-44
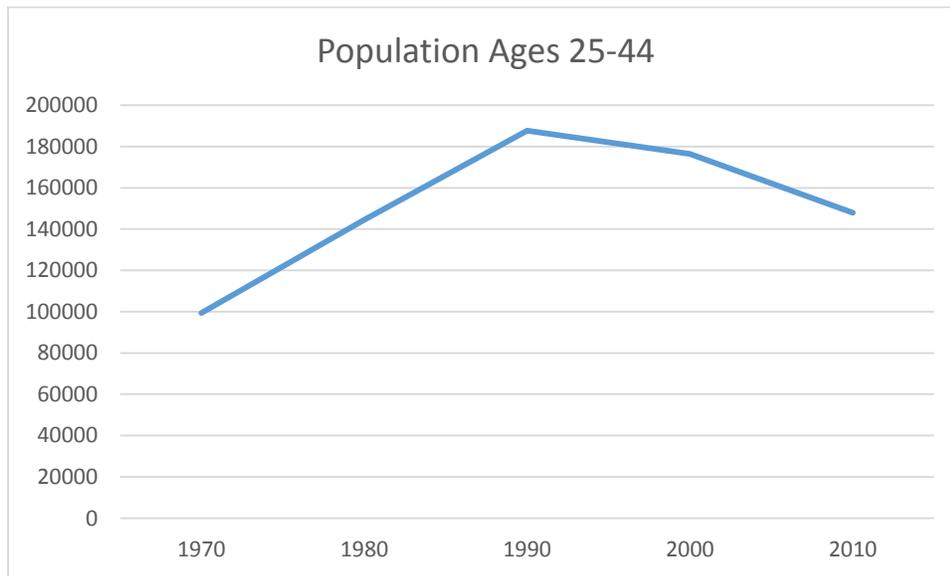
What it tells us – This age cohort is the young family proxy. In Vermont, college graduates have a net out-migration and young family starters move in.

What it does not tell us – Changes in the 25-44 year old cohort are driven by the change in the national demographic structure that has seen decreases as the result of the aging of the Baby Boom. (a possible fix to this is to measure the net migration of ten year cohorts between the decennial Censuses)

Workforce education attainment

Educational Attainment
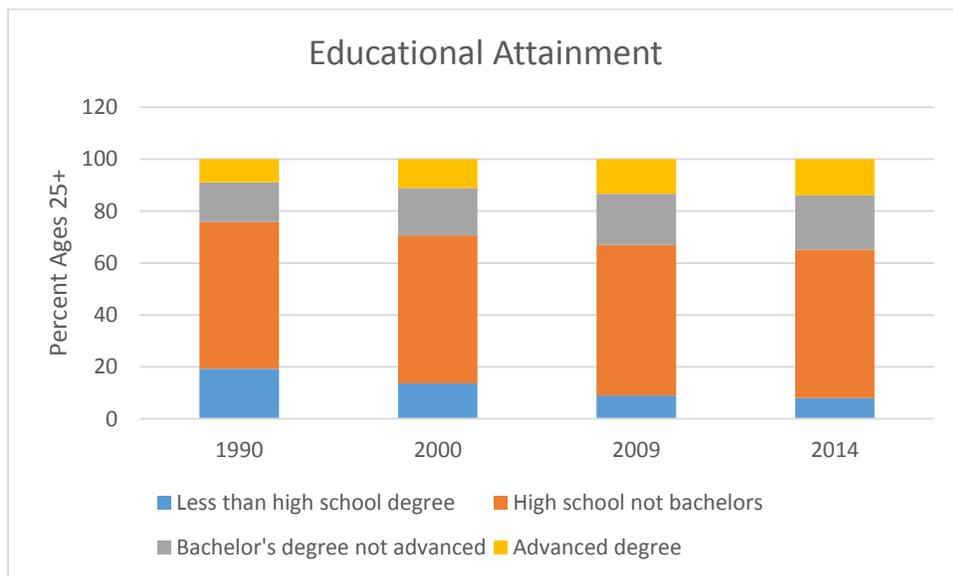
What it tells us – Productivity is related to the skills of the workforce. Greater proportions of workers with more education leads to greater productivity.

What it does not tell us – Other skills and experience also contribute to worker productivity and are not reflected in formal education.

Median Wage

Graph to be developed

What it tells us – Medians are a very rough measure of changes in overall wage based income and provide more information about distribution than do measures of average wage.

What it does not tell us – Median wage measures do not fully capture low wage changes. Also Medians do not accurately reflect total income important in understanding consumption trends (e.g housing market conditions)

Workforce participation rate

Workforce Participation Rates
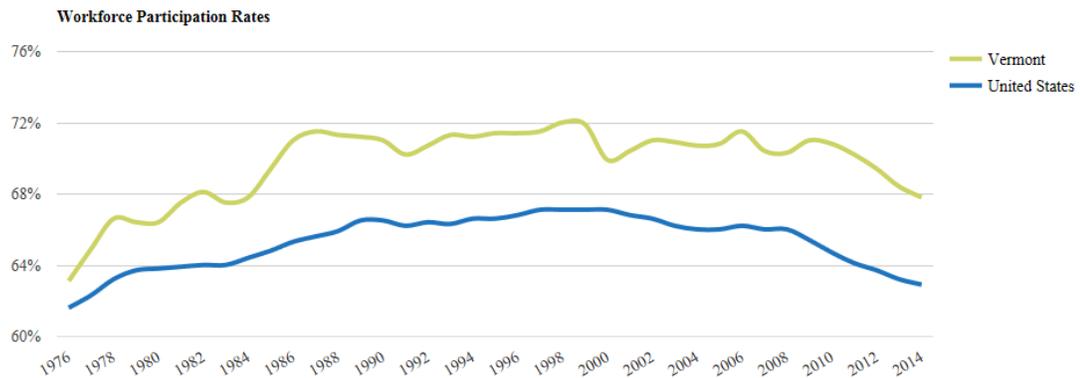
Source: US Census

As the nation's population ages, labor force participation – the share of people working – trends down. Vermont's has a relatively high proportion of workers, but this may fall as a large number age towards retirement.

What it tells us – the percentage of Vermont, working age adults participating in the workforce expresses people's sentiment towards their contributions to economic productivity. When participation rates are up, people feel that it is worth it to contribute to the economy. When participation rates are down, people feel that it is not worth it and they pursue less economically recognized activities such as at-home services or recreation/retirement activities.

What it does not tell us – The participation rate does not describe the motivation for non-participation. Women choosing to spend more time raising children and less in the paid workforce is a personal choice, not simply the pull of wages from the workplace. Similarly, older workers may choose to exit the workforce when they have sufficient wealth, regardless of the demand of employers for their skills.

# Measures of Capital

- **Investment capital**

Graph to be developed

What it tells us – Investment capital matched with workforce skills is the key to overall productivity increases. The Vermont ski industry may be a good example in the importance of capital investment to accelerate growth. During the past ten years, Vermont ski areas have seen a greater level of investment than other ski areas in the northeast. As a result, Vermont has captured an increasing share of skier days.

Measures of Infrastructure

- **Broadband**
- **Electricity rates**
- **Housing starts**
- **Grand list property values**
- **Condition of roads and bridges**

Percentage of Vermonter's with access to 25/33 Broadband access by county

% of Vermont Households with Broadband Service


Source: National Broadband Map (NTIA / FCC)
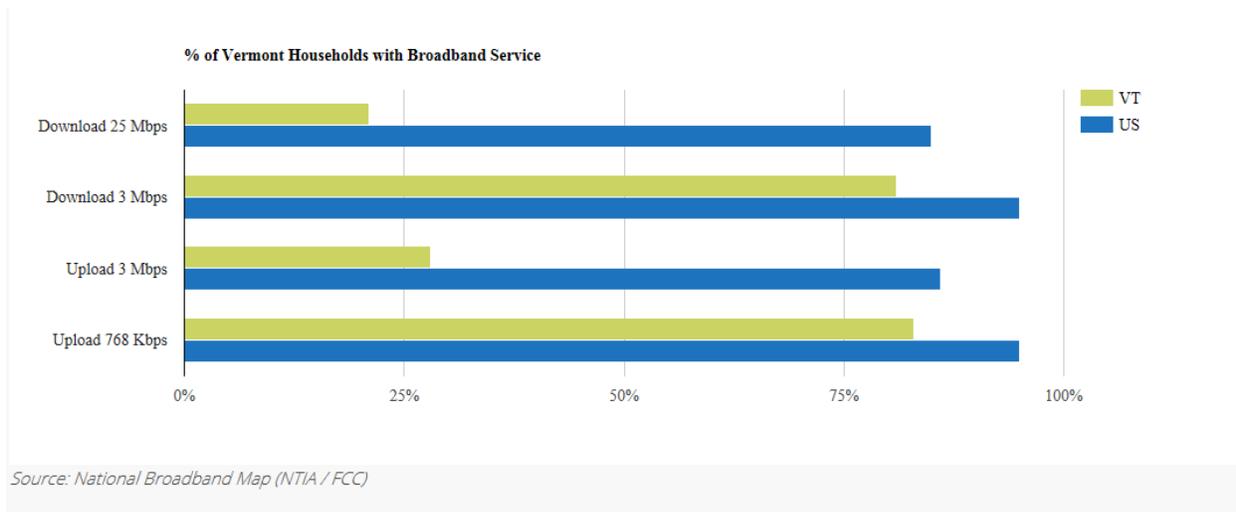
What it tells us – this is a snapshot of broadband availability with two tiers of service. This data is not available on a county basis. Broadband access is critical for some sectors of the economy.
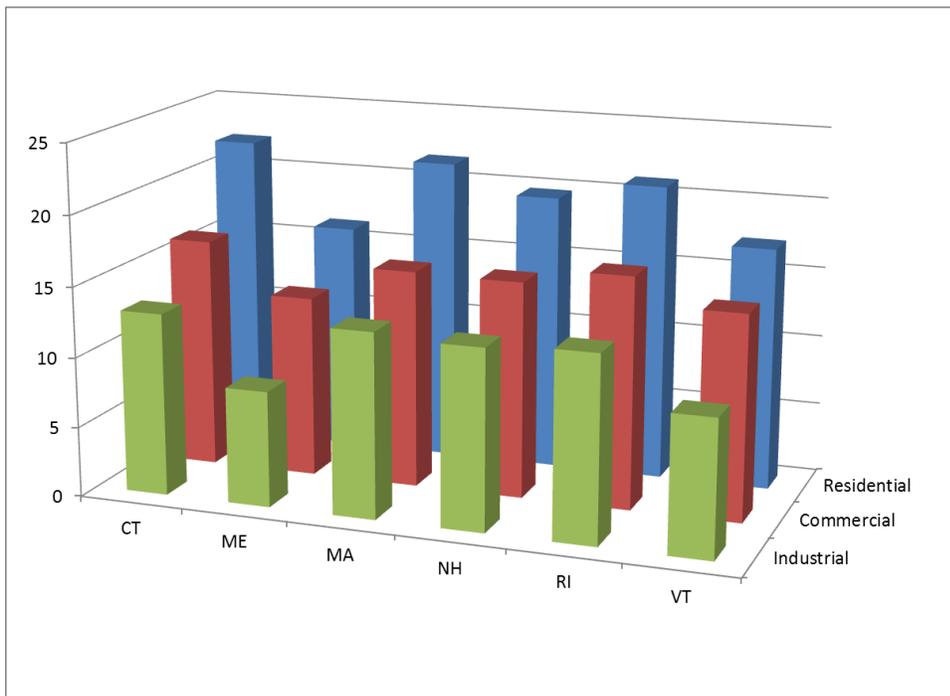
What it does not tell us -Recent progress in expanding broadband service

Commercial and Residential electricity rates

Average Retail Price of Electricity (cents per kWh, 2014 $)
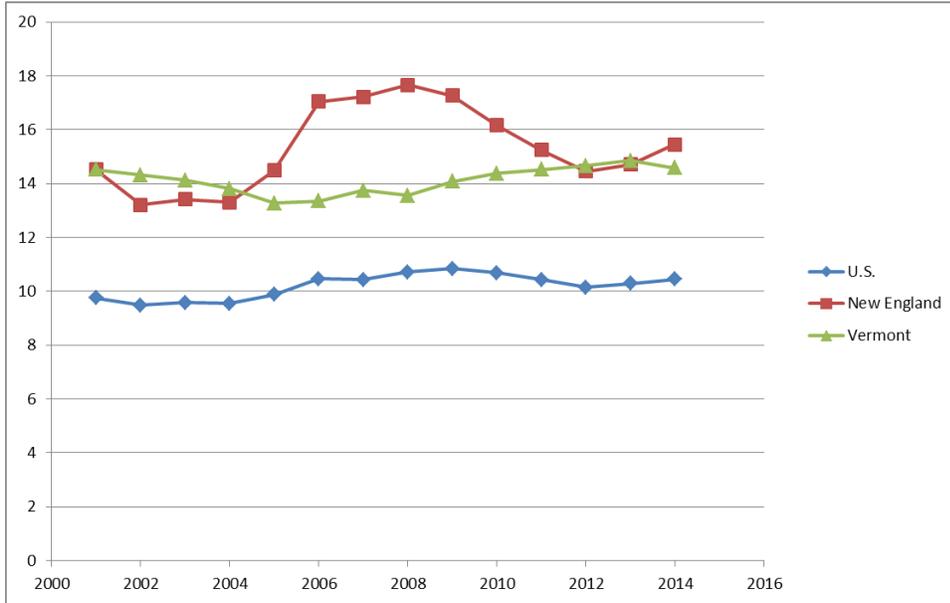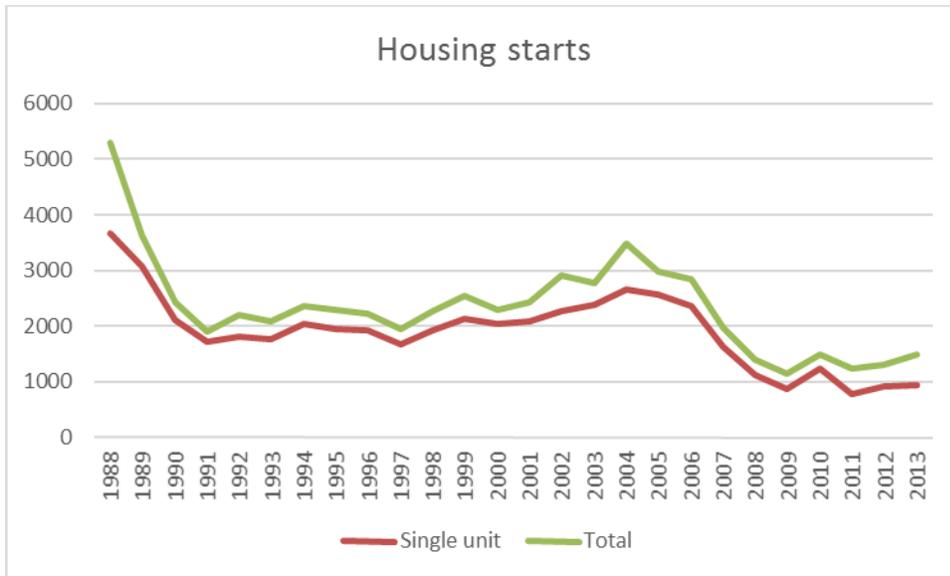

April 2015 New England Average Electric Rates by State and End-Use Sector ($/kWh)

What it tells us – The focus on the New England region is appropriate in that electric supplies are constrained to our region. Other parts of the country have access to lower cost electricity supplies. Including the national comparison informs companies with multi state locations outside of the region

Housing starts

Housing starts

6000
5000
4000
3000
2000
1000
0

1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010 2011 2012 2013

——Single unit ——Total

What it tells us – An increase in housing starts is both a measure of regional economic vitality and a healthy balance of construction costs and regional demand.

What it does not tell us -The two main drivers influencing housing starts are construction costs and relative demand. The single number does not tell us which factor is driving changes.

Roads and bridges

Data will be transferred from Vermont Futures Report

What it tells us – Trends in road and bridge condition is a reflection of the maintenance investment the state is making.

What it does not tell us – it is not clear the relationship between the change in improvement and the dollar investment changes. Conditions do not provide information on the overall capacity of the transportation system. When all roads and bridges are in "good" shape, that does not mean we have adequate capacity to move an increasing load of goods or have available capacity for changing population.

Increase in Commercial and Residential Grand List

Residential Property Value

Equalized education value

Commercial Property Value
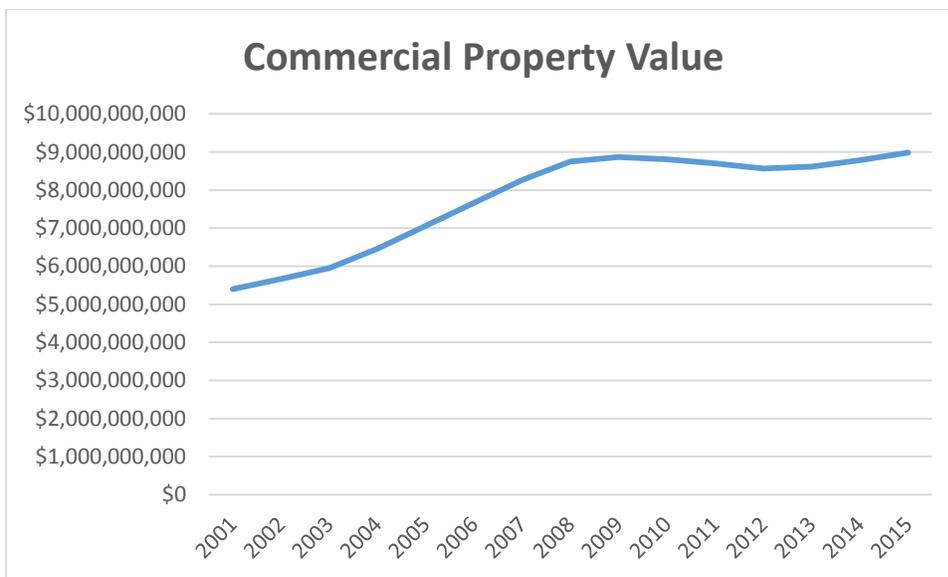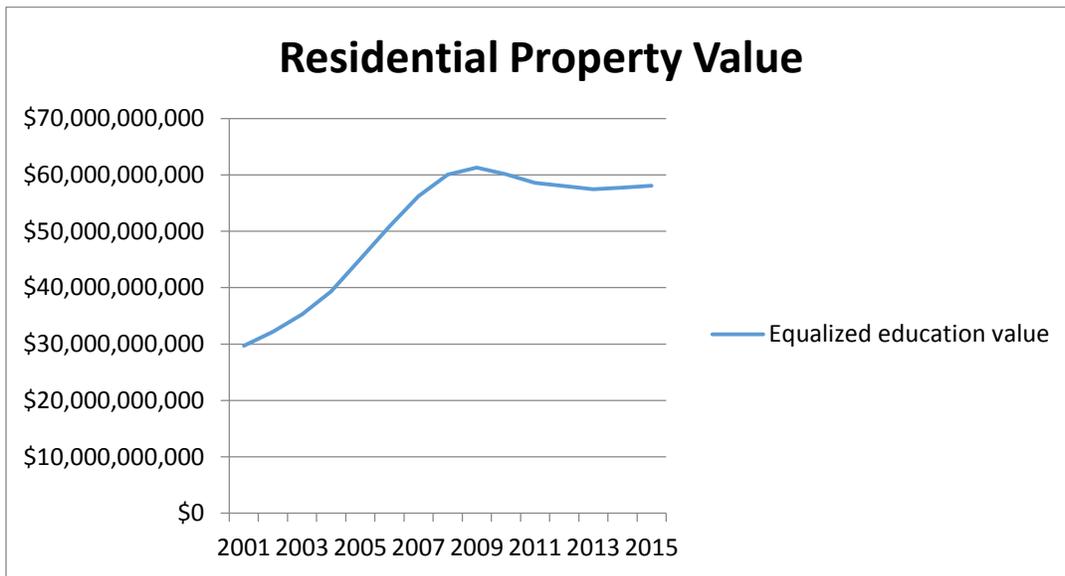
What it tells us

What it does not tell us

Measures of Consumption

While the productivity of the economy is a focus for considering economic development policy, measures of consumption are one of the overall drivers of market demand and are important for the public as a reflection of their economic well being.

- Household Income
- Home price
- Poverty rate

Median Household income
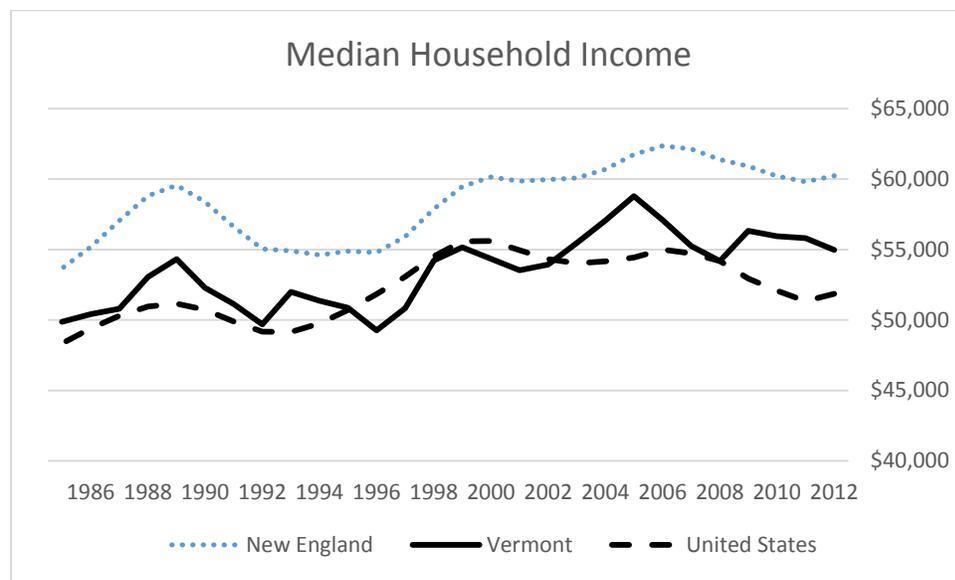
What it tells us – Like many single measures of income, the household income largely tracks the available money for families and households to participate in the important aspects of the consumer economy. It is also a single measure that reflects people's feeling about their economic progress.

What it does not tell us – Like any median measure, it is only the roughest measure of distribution not informative about low income households or high income households. Also, the use of the household as a measure of income does not reflect the changing demographics of shrinking household sizes. Often, during economic downturns, household sizes grow and more earners in the household skew the measure masking the downturn.

Median House prices
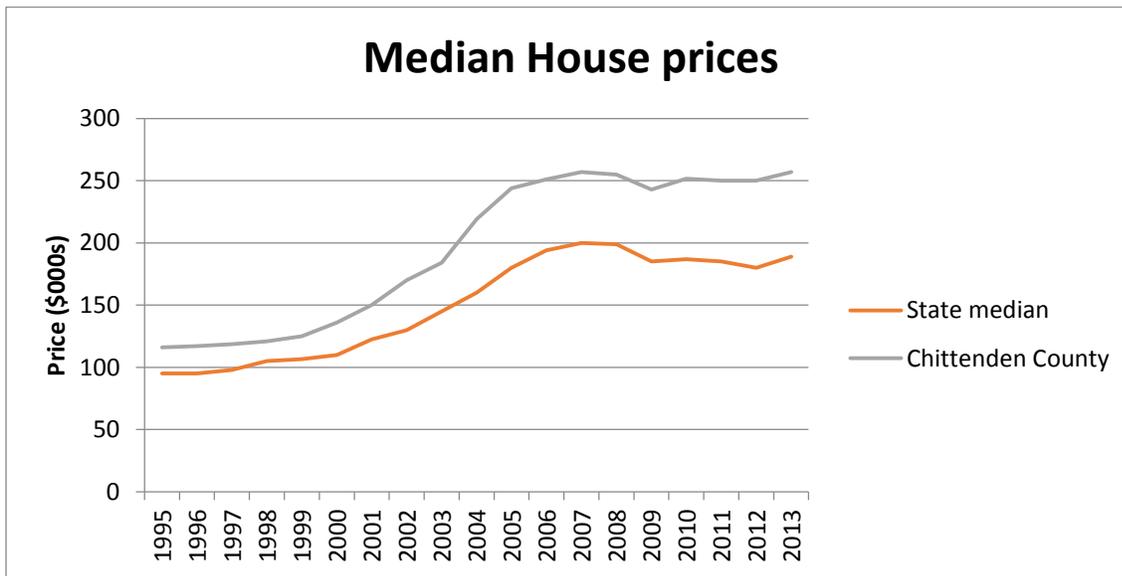
What it tells us – House prices tell are a complicated mix of income (when income goes up, home prices go up), scarcity, and housing construction costs. For homeowners it gives them a gauge of the value of their most significant asset. For policy makers, the goal in house prices is very slow growth except in areas with obvious shortages where steady prices are the goal.

What it does not tell us – The complication does not directly tell us housing affordability or housing availability. It is very challenging to arrive at a consensus target home price for policy makers.

Poverty rate (as compared to the United States)

What it tells us – The change in the number of people and households that struggle to meet basic economic needs is important in considering the overall health of the economy.

What it does not tell us – the changing roots of poverty

Other measures (often sector specific)

high tech related firms

Number of High Tech Employment Establishments
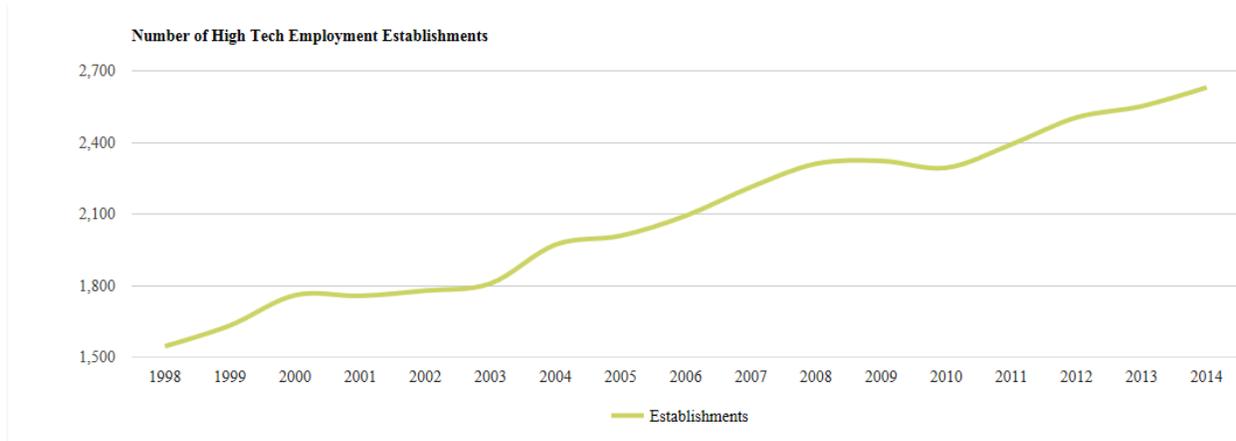
Source: Bureau of Labor Statistics, Occupational Employment Statistics

The number of Vermont High Tech firms continues to grow, but employment share (8%) remains below the national average (12%) and one of the lowest in the nation.

What it tells us

What it does not tell us

Visits to Vermont (tourism)

Data to be developed

What it tells us – the relative attractiveness of Vermont for recreation, sight seeing, and visiting friends and family.

What it does not tell us- the drivers behind changes:

- Is Vermont more or less affordable for visiting?
- Is the exchange rate driving foreign visitation changes?
- Are there greater opportunities for recreation and tourism commerce?
- Is our target audience gaining in economic affluence?

of farms

Data to be developed

What it tells us – the number of farms identifies the farmers that are viable in the current agricultural market. Over time, the number of farms may contract due to consolidation.

What it does not tell us – the overall productivity of farms is not directly related to the number of farms. A large number of very small farms does not provide as much economic activity as larger farms.