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# Memorandum

To: Steve Klein, Legislative Joint Fiscal Office  
From: Tom Kavet , Nic Rockler and Deb Brighton  
CC: Sara Teachout, Joint Fiscal Office  
Date: March 13, 2014  
Re: Preliminary Analysis of \$10.00 and \$12.50 Vermont Minimum Wage

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## OVERVIEW

This review is a preliminary analysis of potential economic impacts associated with increases in the indexed Vermont minimum wage to \$10.00 per hour and \$12.50 per hour, effective January 1, 2015. This analysis is preliminary because source data and models necessary to run more comprehensive analyses require greater elapsed time to acquire, develop and process than is currently available. If more in-depth analysis is desired, a comprehensive study, such as that performed for the Vermont legislature in 1999<sup>1</sup>, could be completed within about 2-3 months.

## BACKGROUND

The Federal minimum wage was first implemented in October of 1938 as a part of the Fair Labor Standards Act, which eliminated child labor, set maximum workweek hours, fixed overtime work rules, and established a minimum wage of 25 cents per hour for selected industries. In explaining the rationale for the legislation, Franklin Roosevelt emphasized not only the economic purposes of the Act, but also the importance of social equity and elevation of the dignity of work in stating:

*“No business which depends for its existence on paying less than living wages to its workers has any right to continue in this country. By living wages, I mean more than a bare subsistence level – I mean the wages of a decent living.”*

Per the chart on the following page, the first Vermont minimum wage was enacted in September of 1957 and tended to follow the Federal minimum wage until 1986, when it slightly exceeded the Federal rate for a period of about four and a half years. Between 1991

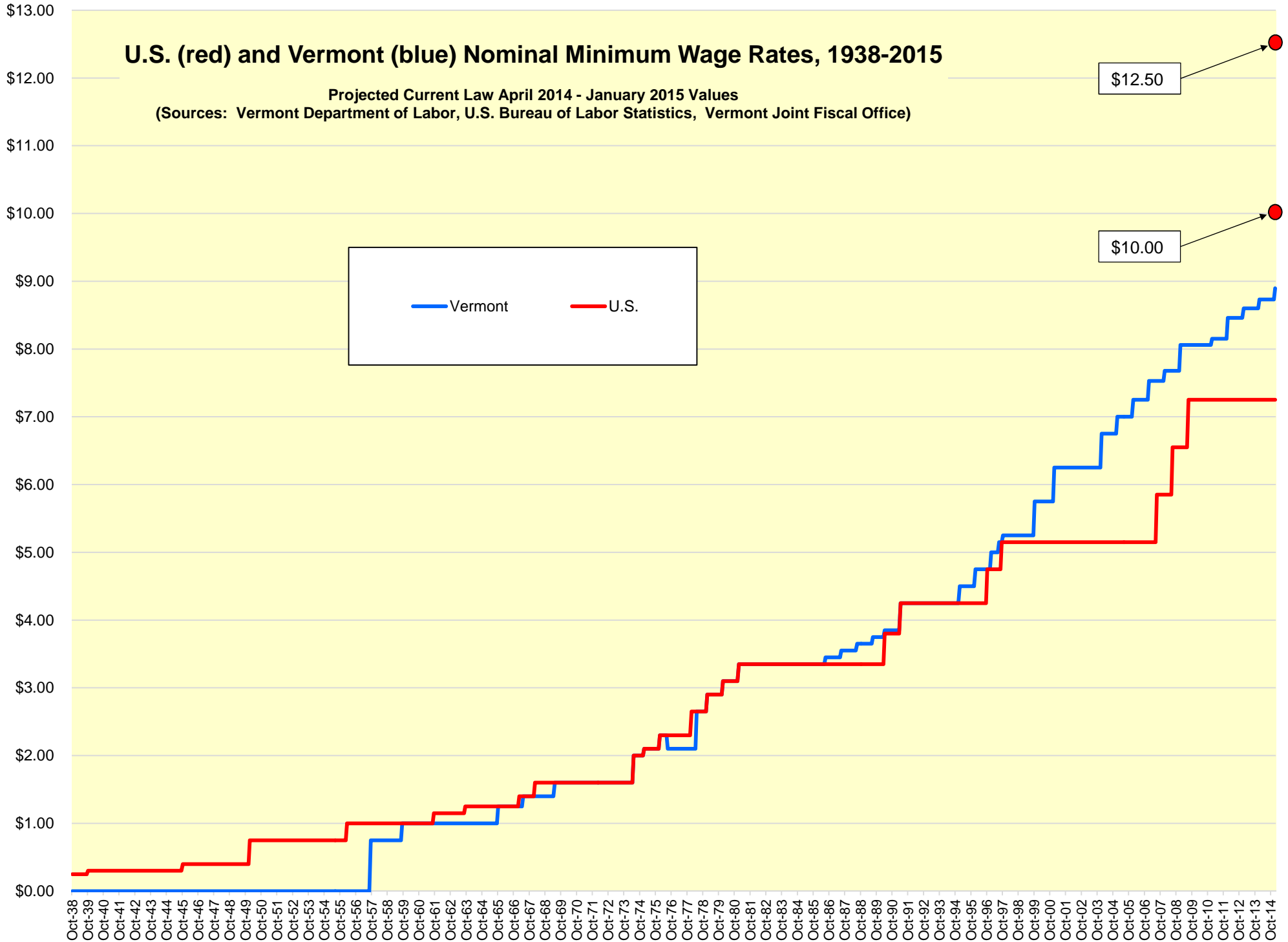
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<sup>1</sup> See “Act 21 Research and Analysis in Support of the Livable Income Study Committee,” available on the Joint Fiscal Office website at: <http://www.leg.state.vt.us/jfo/archives/reports/1999-11%20Livable%20Income%20Study.pdf>

# U.S. (red) and Vermont (blue) Nominal Minimum Wage Rates, 1938-2015

Projected Current Law April 2014 - January 2015 Values

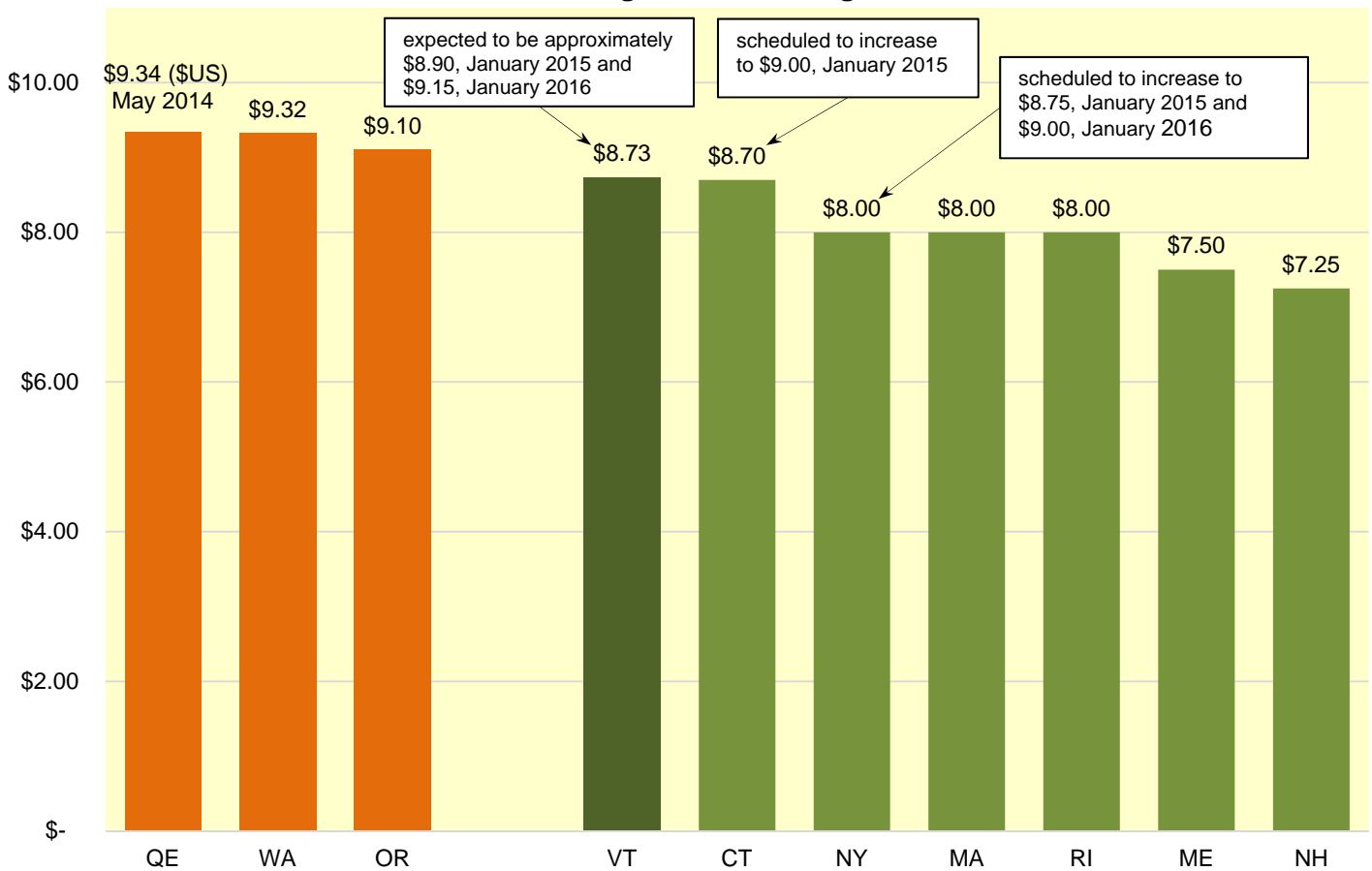
(Sources: Vermont Department of Labor, U.S. Bureau of Labor Statistics, Vermont Joint Fiscal Office)



and 1997, the Federal and Vermont rates were closely aligned, but since 1998, the Vermont rate has consistently exceeded the Federal. Between 1998 and 2014, the Vermont rate has been, on average, 22% above the U.S. and has been as high as 46% above the U.S. rate during a six month period at the start of 2007.

At \$8.73 per hour, Vermont's current minimum wage is 20% above the Federal rate of \$7.25 and is the third highest in the nation, after Washington (\$9.32) and Oregon (\$9.10). As shown in the below chart, Vermont's rate is close to that in Connecticut (currently at \$8.70, but scheduled to increase to \$9.00 effective January of 2015) and New York (currently at \$8.00, but scheduled to increase to \$8.75 in January of 2015 and \$9.00 in January of 2016). The minimum wage in Rhode Island is currently \$8.00 per hour, as also in Massachusetts, where the Senate recently voted to increase the rate to \$9.00 in July of 2014, \$10.00 in 2015 and \$11.00 in 2016. The nominal minimum wage in Quebec is \$10.15 (CAD) or about \$9.16 in U.S. dollars at current exchange rates and is scheduled to rise to \$10.35 (CAD) in May of this year (\$9.34 US). The lowest minimum wage rates in New England are in New Hampshire (at the Federal rate of \$7.25) and Maine (\$7.50).

**Vermont's Minimum Wage is Currently the Third Highest in the U.S. and the Highest in New England**

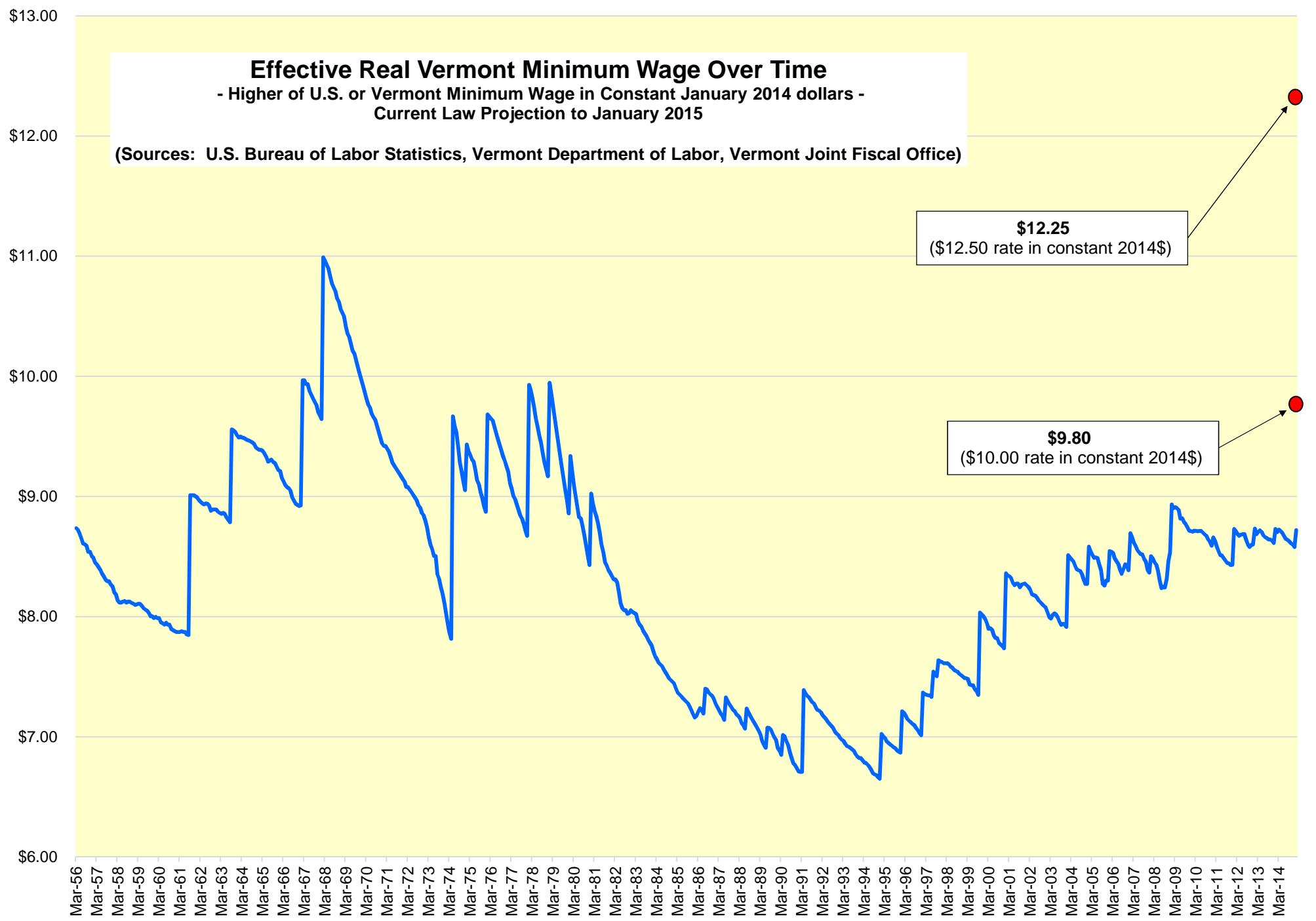


Because the current Vermont minimum wage is indexed to the Consumer Price Index, it is expected to increase to about \$8.90 in 2015, \$9.15 in 2016 and \$9.35 in 2017.

# Effective Real Vermont Minimum Wage Over Time

- Higher of U.S. or Vermont Minimum Wage in Constant January 2014 dollars -  
Current Law Projection to January 2015

(Sources: U.S. Bureau of Labor Statistics, Vermont Department of Labor, Vermont Joint Fiscal Office)



As illustrated in the chart on the preceding page, on an inflation-adjusted basis, the current Vermont rate is almost identical to the effective rate (the higher of the Federal or Vermont rate) 58 years ago in March of 1956, which was \$8.74 in January 2014 dollars. The highest effective Vermont rate was in February of 1968, at \$11.00 (current 2014 dollar basis). The real effective rate has only been above \$10.00 for a period of 22 months between February of 1968 and November of 1969. The average effective real Vermont minimum wage over the last 60 years has been \$8.31, in January 2014 dollars.

## PROFILE OF LOW-WAGE JOBS AND WORKERS IN VERMONT

This analysis relies upon customized data extractions from the Vermont Department of Labor and microdata from the joint U.S. Census Bureau and U.S. Bureau of Labor Statistics Current Population Survey.<sup>2</sup> These two data sources provide measurements on minimum wage jobs and workers. The DOL data are from the 2012 Occupational Employment Survey and measure jobs by industry, occupation and wage level. The CPS data measure workers and hours worked by wage level, and family characteristics used to estimate public benefit eligibility and expenditures.

The tables and charts on the next page summarize some of the key characteristics of those affected by the two proposed minimum wage changes evaluated herein. For a \$10.00 minimum wage, they indicate about 30,000 jobs are likely to be paying less than \$10 per hour in 2015. There are, however, only about 20,000 workers that are likely to be earning less than \$10.00 per hour in 2015, implying an elevated incidence of part-time positions among the affected jobs and an elevated incidence of multiple jobholders among this group of workers. For a \$12.50 minimum wage, the figures are approximately 78,000 jobs and 53,000 workers.

The data on the following page also show that slightly more than half of all low wage workers (both those earning less than \$12.50 and \$10.00 per hour) earn more than 50% of their family's income. While low wage workers tend to be younger than the average worker, 54% of those earning less than \$10.00 per hour and 65% of those earning less than \$12.50 per hour are older than 30. While a majority of workers under age 22 who earn less than \$12.50 per hour and \$10.00 per hour are part time workers (51% of those under \$12.50 and 53% of those under \$10.00), most low wage workers over 22 years old are full-time (72% of those earning less than \$12.50 and 67% of those earning less than \$10.00 per hour).

These data also reveal that there is a pronounced gender differential among low wage workers, with women disproportionately represented in the lowest wage groups (56% of those earning less than \$10.00 per hour and 55% of those earning less than \$12.50). Of note, this is one of the few metrics that has shown structural improvement since the last detailed analysis of low wage workers in Vermont, performed in 1999. Over the last 15

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<sup>2</sup> This analysis could not have taken place without the generous cooperation of Mat Barewicz, Economic and Labor Market Chief, and Kevin Stapleton, Economic and Labor Market Assistant Chief, at the Vermont Department of Labor, who coordinated DOL data access and customized aggregations by wage category, and Deb Brighton, on behalf of the Joint Fiscal Office, who processed and analyzed pooled CPS microdata for 2011-2013 and generated all public benefit and fiscal impact analyses with Stephanie Barrett of the Joint Fiscal Office. Both datasets were projected to 2015 levels using wage, price and other forecasts from the Joint Fiscal Office.

## Vermont Profile of Lower Wage Jobs and Workers - 2015 Estimates

### Low Wage Jobs in 2015

31,000 approximate number of private nonfarm covered jobs under \$10.00  
11% of Vermont total

78,000 approximate number of private nonfarm covered jobs under \$12.50  
27% of Vermont total

### Top 6 Industries with Jobs Under \$10.00

- 34% Retail Trade
  - 29% Accommodations & Food Service
  - 8% Health Care & Social Assistance
  - 8% Educational Services
  - 4% Admin and Waste
  - 3% Manufacturing
- 86%** of all jobs under \$10.00/hr.

### Top 6 Industries with Jobs Under \$12.50

- 26% Retail Trade
  - 20% Accommodations & Food Service
  - 19% Health Care & Social Assistance
  - 9% Educational Services
  - 6% Manufacturing
  - 5% Admin and Waste
- 85%** of all jobs under \$12.50/hr.

### Gender Shares Under \$10.00

44% Male  
56% Female

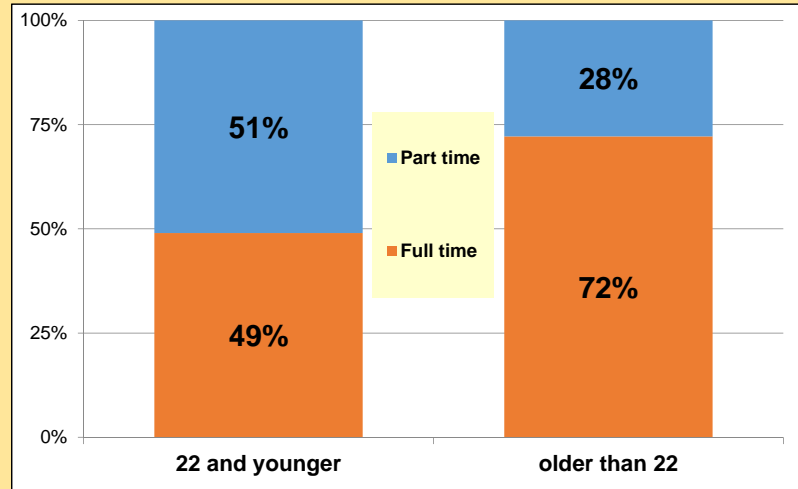
### Gender Shares Under \$12.50

45% Male  
55% Female

### Low Wage Job Distribution

- 21% Minimum Wage - \$9.49
  - 31% \$9.50 - \$10.49
  - 24% \$10.50 - \$11.49
  - 24% \$11.50 - \$12.49
- 100%** of all jobs paying less than \$12.50/hr.

**For Workers Earning Less than \$12.50,**  
49% of Age 22 and Younger Workers are Full Time  
72% of Workers Older than 22 are Full Time



**Of All Workers Earning Less than \$10.00,**  
52% of earn more than 1/2 of family income

47% are in families with income below \$30,000  
11% are in families with income \$30,000-\$40,000  
**58%** are in families with income below \$40,000

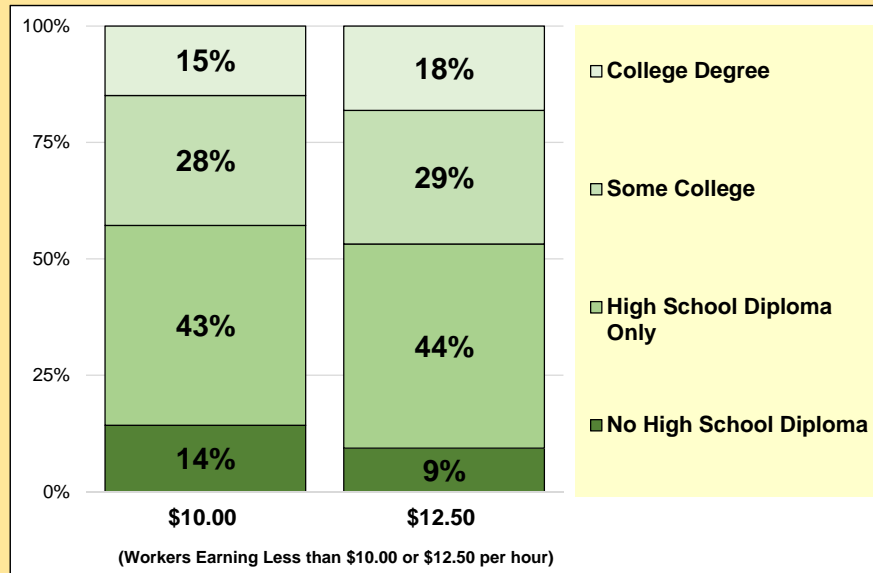
23% are under the age of 22  
77% are older than 22  
54% are older than 30

**Of All Workers Earning Less than \$12.50,**  
55% of earn more than 1/2 of family income

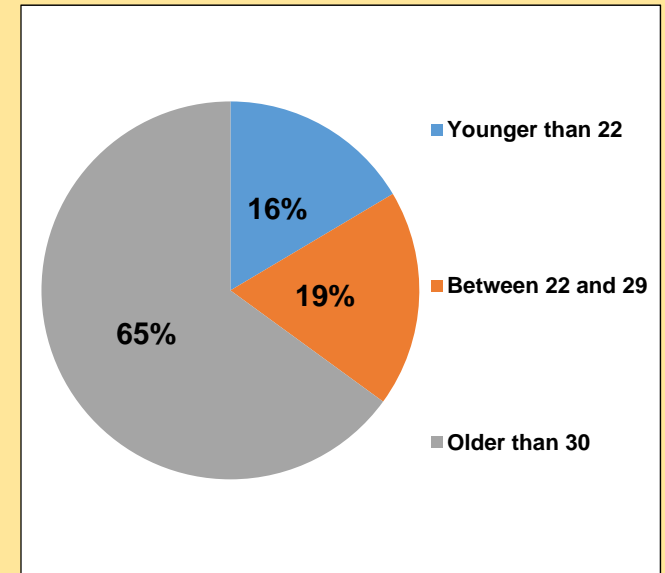
47% are in families with income below \$30,000  
10% are in families with income \$30,000-\$40,000  
**57%** are in families with income below \$40,000

16% are under the age of 22  
84% are older than 22  
65% are older than 30

### Educational Attainment of Low Wage Workers



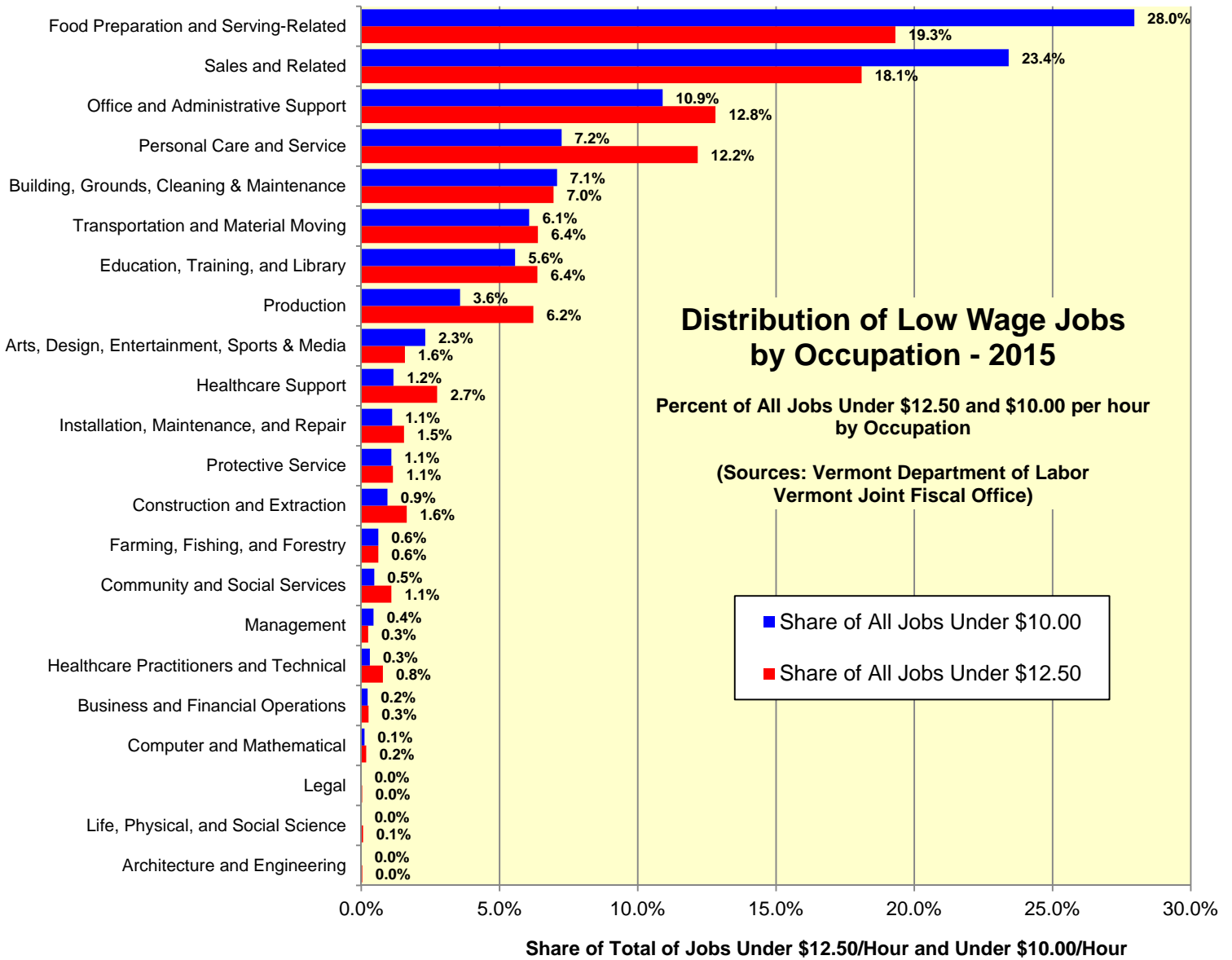
### Age of Workers Earning Less than \$12.50



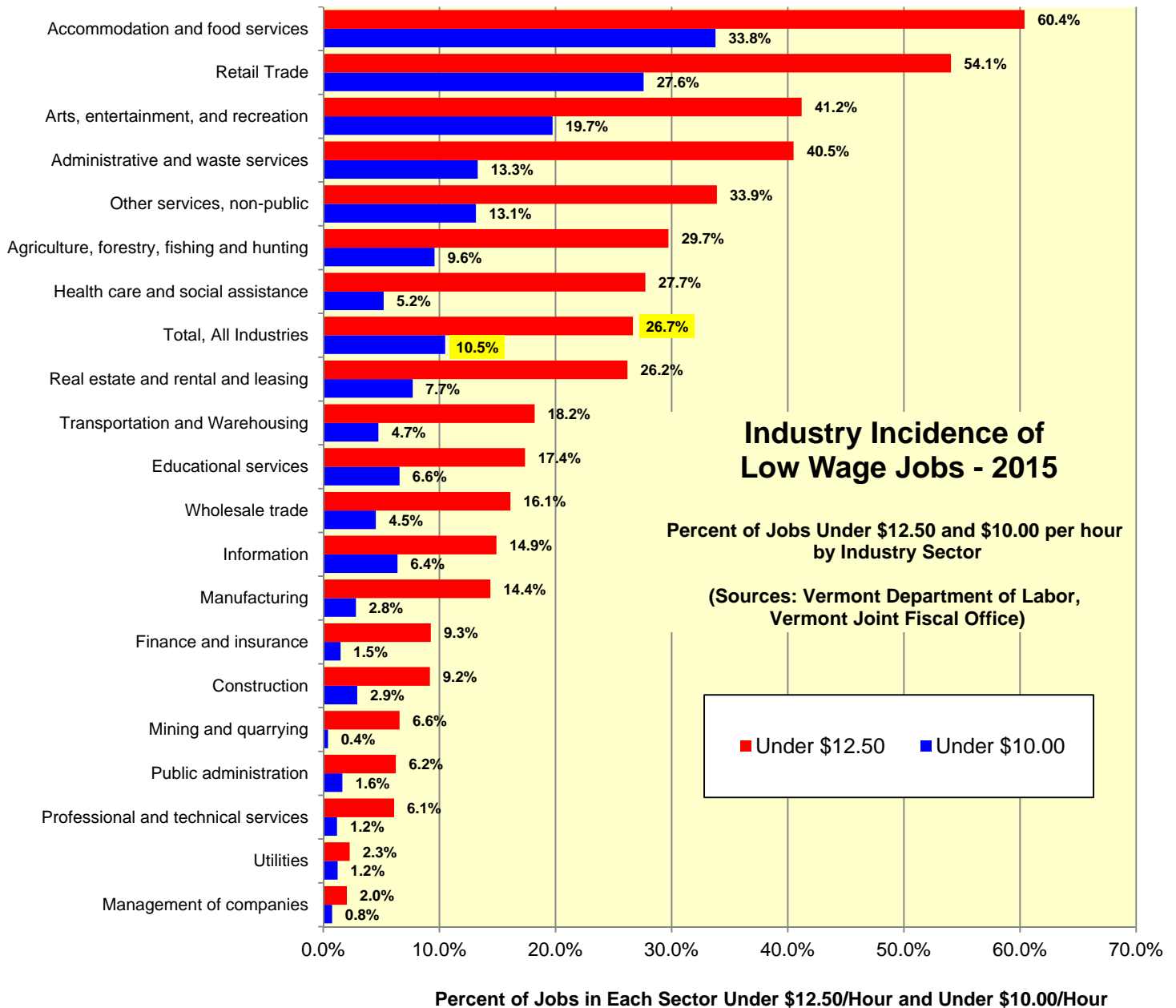
years, the share of low wage Vermont workers who are women has declined from about 61% to about 55%.

The educational attainment of low wage workers continues to be correlated with wage rates, with those not completing high school representing 10% of the workers earning less than \$12.50 an hour and 14% of those earning less than \$10.00. Conversely, those with a college degree comprised 15% of all workers earning less than \$10.00 and 18% of all those earning less than \$12.50 per hour. These figures are roughly comparable with findings in 1999.

Per the chart below, occupational data reveal that most low wage jobs are in food services, sales, clerical and personal service occupations.



A similar concentration of low wage jobs in major industrial sectors is also evident. As shown in the below chart, accommodation and food services, retail trade, arts-entertainment-recreation, administrative services and other non-public service sectors have the highest reliance on low wage workers. More than one-third of all accommodation and food service sector jobs pay less than \$10.00 per hour and more than 60% pay less than \$12.50 per hour.



The industries with the least reliance on low wage jobs include management, utility, professional and technical services, government, mining and construction. Of note, the total share of jobs paying less than \$10.00 per hour in 2015 is expected to be just over 10%, whereas jobs paying less than \$12.50 will comprise nearly 27% of all jobs.



## ECONOMIC IMPACTS OF RAISING THE MINIMUM WAGE

Few subjects in the economics profession have been more studied than minimum wage changes. Despite this, few generate as much divergence in professional opinion as expected impacts and policy efficacy associated with such changes.

While the theoretical economic principle underlying most minimum wage analysis is not contested – that raising the price of an input to production, such as labor, will reduce the demand for the input - observed “real world” impacts reveal complications to the theory that have yet to be fully measured and understood. In most of the minimum wage studies performed to date, the expected reduction in demand for labor has either been non-existent or of relatively small magnitude.<sup>3</sup> There are many possible reasons for this, including employer responses such as reducing employee hours, reducing benefits, reducing training, wage compression (paying new higher wage workers less), price increases and reduced profit margins – all of which could absorb increased labor costs without reducing job counts – as well as other effects, such as reduced employee turnover, efficiency wage responses from workers, increases in aggregate demand and changes in employment composition.

One of the most important reasons that studies to date have not found significant disemployment effects, however, is that virtually all of the minimum wage changes analyzed have been relatively “modest.” As depicted in the chart on page 4, the real U.S. minimum wage declined more than 37% from 1968 to 1995 and has averaged less than \$7.00 per hour (\$6.94 in January 2014 dollars) between 1995 and 2014. For much of this period, it has been below 35% of the average hourly wage of all production and non-supervisory workers and has been below the federal poverty level for a family of two (assuming full-time, year-round work) for almost all of the past 30 years. Despite large percentage changes in the minimum wage at times by the federal government and various states, the rates have generally lagged prevailing wage rates and productivity growth and have affected relatively small shares of the workforce and total wages.

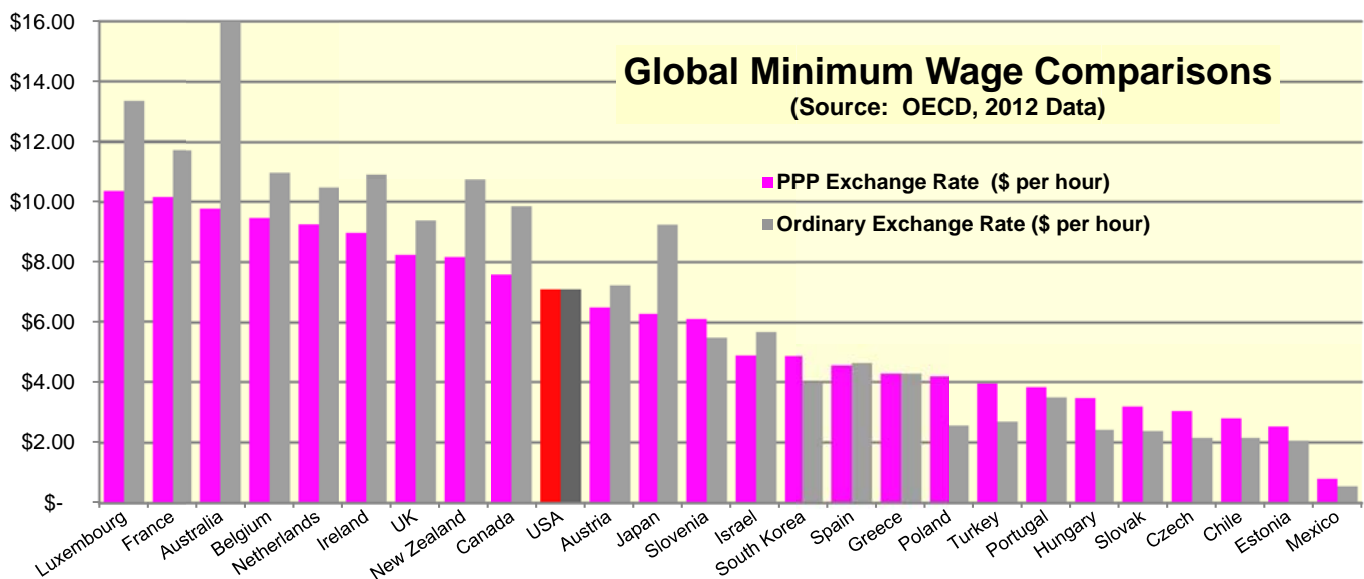
As a result of this, studies on minimum wage impacts have revealed correspondingly minor changes in employment, even among the groups most likely to be affected (poorly educated, younger, lowest wage and female workers). Most economists who point to the disconnect between minimum wage and employment changes are careful to limit their conclusions to

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<sup>3</sup> See, most prominently, Card, David and Alan Krueger. 1994. "Minimum Wages and Employment: A Case Study of the Fast-Food Industry in New Jersey and Pennsylvania." *American Economic Review*, vol. 48, no. 4, pp. 772-793; Card, David and Alan Krueger. 1995. *Myth and Measurement: The New Economics of the Minimum Wage*. Princeton, NJ: Princeton University Press; Dube, Arindrajit, T. William Lester, and Michael Reich. 2010. "Minimum Wage Effects Across State Borders: Estimates Using Contiguous Counties." *Review of Economics and Statistics*, vol. 92, no. 4, pp. 945-964; Dube, Arindrajit, T. William Lester, and Michael Reich. 2012. "Minimum Wage Shocks, Employment Flows and Labor Market Frictions." Berkeley, CA: Institute for Research on Labor and Employment. <http://escholarship.org/uc/item/76p927ks>; And, contesting these analyses, most prominently, Neumark, David and William Wascher. 2006. "Minimum Wages and Employment: A Review of Evidence from the New Minimum Wage Research." National Bureau of Economic Research Working Paper 12663. Cambridge, MA: National Bureau of Economic Research. <http://www.nber.org/papers/w12663>; Neumark, David and William Wascher. 2008. *Minimum Wages*. Cambridge, MA: The MIT Press; Sabia, Joseph J., Richard V. Burkhauser, and Benjamin Hansen. 2012. "Are the Effects of Minimum Wage Increases Always Small? New Evidence from a Case Study of New York State." *Industrial and Labor Relations Review*, vol. 65, no. 2, pp. 350-376; and, Hoffman, Saul D. and Diane M. Trace. 2009. "NJ and PA Once Again: What Happened to Employment When the PA–NJ Minimum Wage Differential Disappeared?" *Eastern Economic Journal* 35 (1): 115-128.

“modest”<sup>4</sup> or “reasonable”<sup>5</sup> changes in the minimum wage. Few, however, have attempted to define the level at which a minimum wage change would become “immodest.” Jared Bernstein, a senior fellow at the Center on Budget and Policy Priorities and former chief economist to Vice President Biden, has suggested that “moderate” minimum wage increases are those that include “not much more than 10 percent of the workforce in their sweep.” David Card, who was the first to demonstrate that small changes in a state’s minimum wage may have little or no employment effects, stated in an interview with Douglas Clement of the Minneapolis Fed, that his research “doesn’t mean that if we raised the minimum wage to \$20 an hour we wouldn’t have massive problems.”<sup>6</sup>

While a Vermont minimum wage change to \$10.00 per hour in 2015 would represent an increase in the current minimum wage of about 15% (12% above the expected minimum wage of \$8.90 in January of 2015), affect about 10% of the labor force and add about 5% to the total wage bill, an increase to \$12.50 would represent a 43% increase, affect 27% of the labor force and increase total wage payments by 20%. A \$12.50 minimum wage would be more than 34% above the highest state rate in the country (WA) and more than 20% above the highest rate in the world (Luxembourg) on an equivalent purchasing power parity basis. None of the source studies that found little or no employment effects considered an increase of this level or magnitude. An increase to \$12.50 would thus be unprecedented and correspondingly uncertain in its impacts.



<sup>4</sup> For example, in a widely cited 2013 paper by John Schmitt of the Center on Economic and Policy Research, he states: “This is one of the most studied topics in economics, and the evidence is clear: modest minimum wage increases don’t have much impact on employment...” For the full report, see: <http://www.cepr.net/documents/publications/min-wage-2013-02.pdf>

<sup>5</sup> Laura D’Andrea Tyson, former Chair of the Council of Economic Advisors under President Clinton and an economics professor at the Haas School of Business at the University of California, “finds no significant effects on employment when the minimum wage increases in reasonable increments.” See: <http://economix.blogs.nytimes.com/2013/12/13/raising-the-minimum-wage-old-shibboleths-new-evidence/>

<sup>6</sup> For the complete interview, see: [http://www.minneapolisfed.org/publications\\_papers/pub\\_display.cfm?id=3190&](http://www.minneapolisfed.org/publications_papers/pub_display.cfm?id=3190&)

As shown in the charts on the following two pages, the impacts of raising the minimum wage will vary by industry sector. Those sectors most affected are characterized by a relatively high reliance on low wage workers (expressed on the x-axis as the percentage of workers earning less than \$10.00 and \$12.50, respectively) and an inability to pass on price increases due to competitive pressures (expressed on the y-axis as a REMI model construct indicating relative external competitive sensitivity).

In order to help quantify ranges of possible economic impacts, we utilized a Vermont State model from Regional Economic Models, Inc. (REMI), as was done in the prior legislative study in 1999. The REMI model represents a standard theoretical economic framework for estimating economic impacts.<sup>7</sup> As such, it does not fully account for the recent observed effects of low level minimum wage changes. Working with REMI economists, we specified the model to account for these realities and other fiscal effects<sup>8</sup>, including:

- 1) The change in the wage bill by industry, based on DOL hourly wage data, hours worked and estimates of wage spillover effects
- 2) The change in production costs by industry
- 3) Adjustments to wage income and induced effects to consumption
- 4) Suppression of employer provided benefit increases consistent with higher wage income, and
- 5) Incorporation of changes in enrollment in state and federal aid programs associated with wage income changes, including program expenditures and transfer payment changes

The economic effects of these changes included:

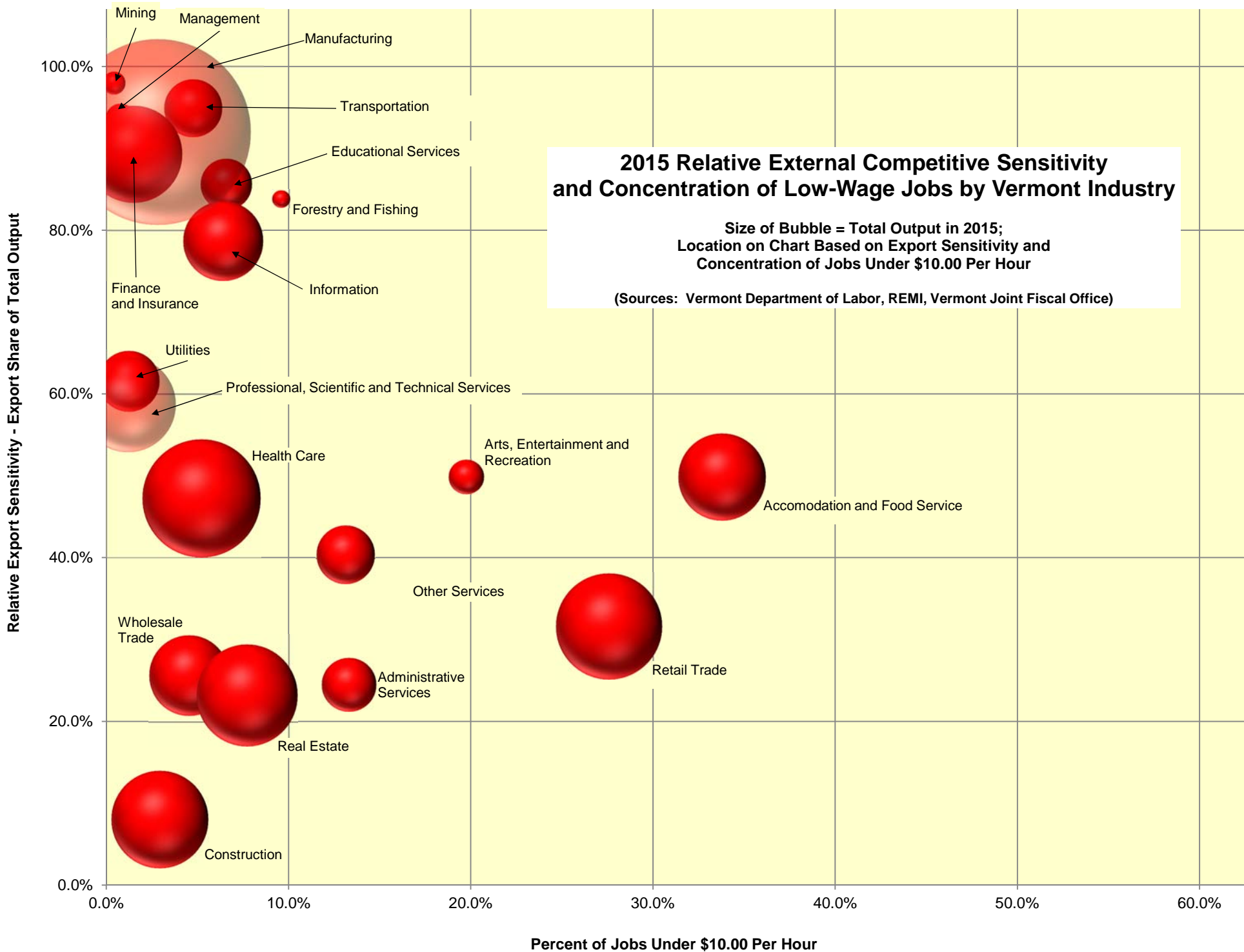
- 1) An increase in aggregate earned income of low wage workers and their families
- 2) A reduction in the number of hours worked and/or the elimination of some low wage jobs
- 3) A reduction in state benefit payments as growing low wage income disqualifies some from program participation
- 4) An increase in State tax payments as taxable income rises
- 5) A reduction in federal transfer payments into the State as growing low wage income disqualifies some from program participation, and
- 6) Increased federal tax payments as taxable income rises

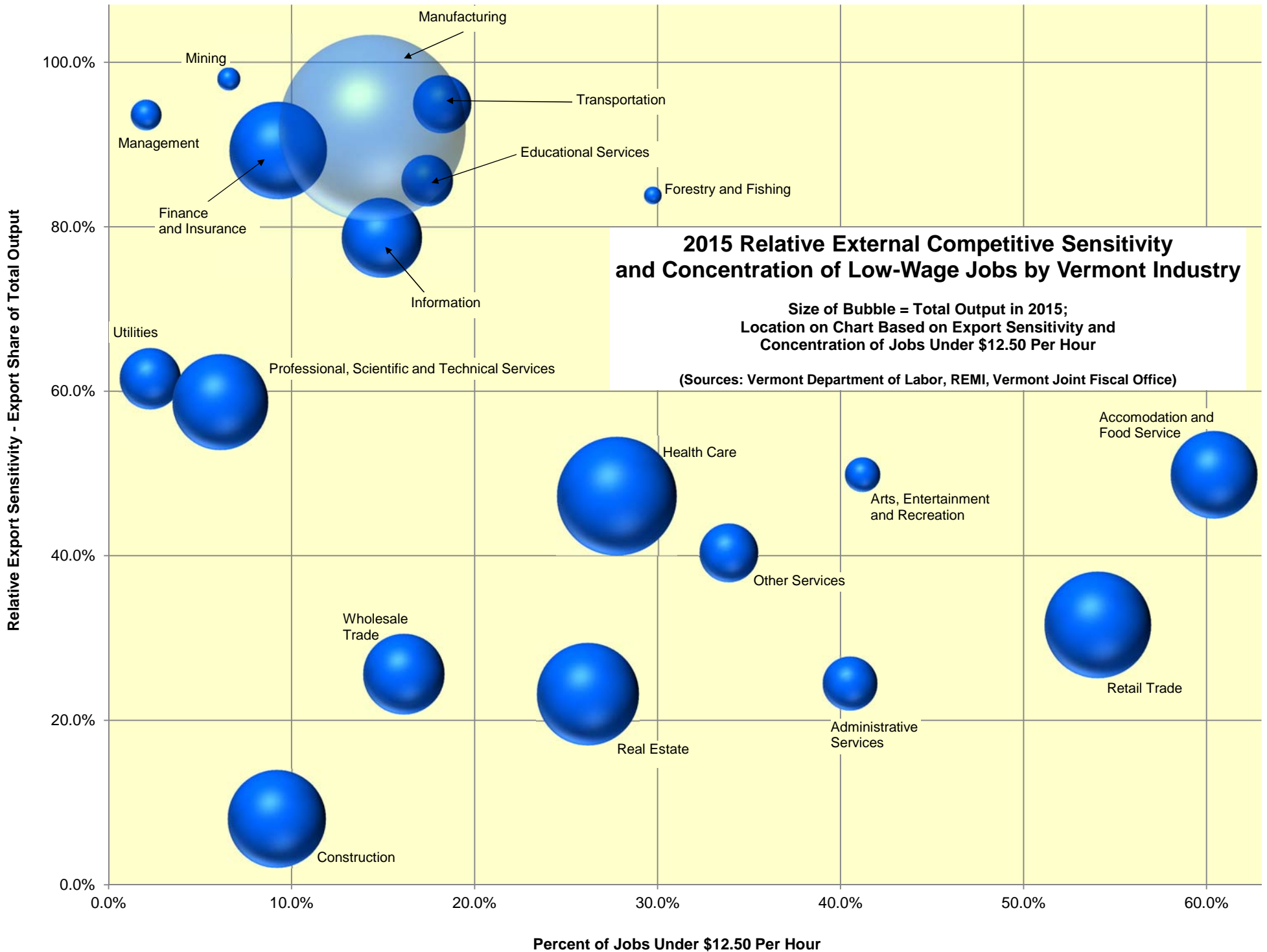
Although further model work is ongoing, preliminary impacts indicate that a \$10.00 minimum wage would result in about 250 fewer jobs (or an equivalent reduction in hours), less than 0.1% of total employment, and aggregate income gains to low wage workers of approximately \$30 million. As some of these workers transition away from State benefits and pay more in taxes, the net fiscal gain to the State is about \$3 million. The reduction in federal transfer payments as a result of lower federal aid participation, however, could result in

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<sup>7</sup> The REMI PI+ model v1.5 is more fully described at: <http://www.remi.com/resources/documentation> For further information regarding model equations, specifications and simulations, please contact the Vermont Joint Fiscal Office.

<sup>8</sup> Detailed model constructs and REMI model specification inputs are available from the Joint Fiscal Office upon request.





approximately \$5 million in reduced Medicaid, EITC, SNAP (3 Squares) and other payments to the State.

Impacts associated with a \$12.50 minimum wage include job losses of about 3,200 jobs, about 1% of total employment, and aggregate income gains to low wage workers of about \$250 million. As some of these workers transition away from State benefits and pay more in taxes, the net fiscal gain to the State should total about \$20 million. The reduction in federal transfer payments as a result of lower federal aid participation, however, could result in approximately \$35 million in reduced Medicaid, EITC, SNAP (3 Squares) and other payments to the State.

## BENEFIT INTERACTIONS AND NET INCOME IMPACTS OF RAISING THE MINIMUM WAGE

The above-mentioned impacts associated with public benefit reductions will reduce government expenditures at both the state and federal levels, but can create substantial unintended negative net income effects for some low wage workers. An example of this is presented in the chart on the following page, in which gains in earned income at wages between about \$9.60 per hour and \$16.80 per hour (assuming full time work) actually result in reductions in net family income, as benefits are withdrawn and taxes increased at levels exceeding the earned income gains. In this situation, the worker would have no incentive for work advancement or the assumption of additional hours and would actually have an incentive to work fewer hours in the event of a minimum wage change to \$10.00 or even \$12.50 per hour.

As shown in the chart on page 16, benefit reductions vary considerably by family configuration. For a single worker with no children, there are no disincentives to work as earned income rises. This is the type of benefit interaction that is optimal. Further work, such as was performed for the legislature in 1999, is required to estimate current benefit reduction flows for all family configurations and recommend possible program changes so as to maintain work incentives as earned income increases.

## SUMMARY AND RECOMMENDATIONS

We find that a minimum wage increase to \$10.00 would probably have negligible, if any, negative aggregate economic consequences and could be an important component in advancing some of the lowest income workers towards a livable income. We also find, however, that a \$12.50 minimum wage has serious drawbacks that limit its efficacy in achieving the overall objective of improving the well-being of low-wage, working Vermonters and their families.

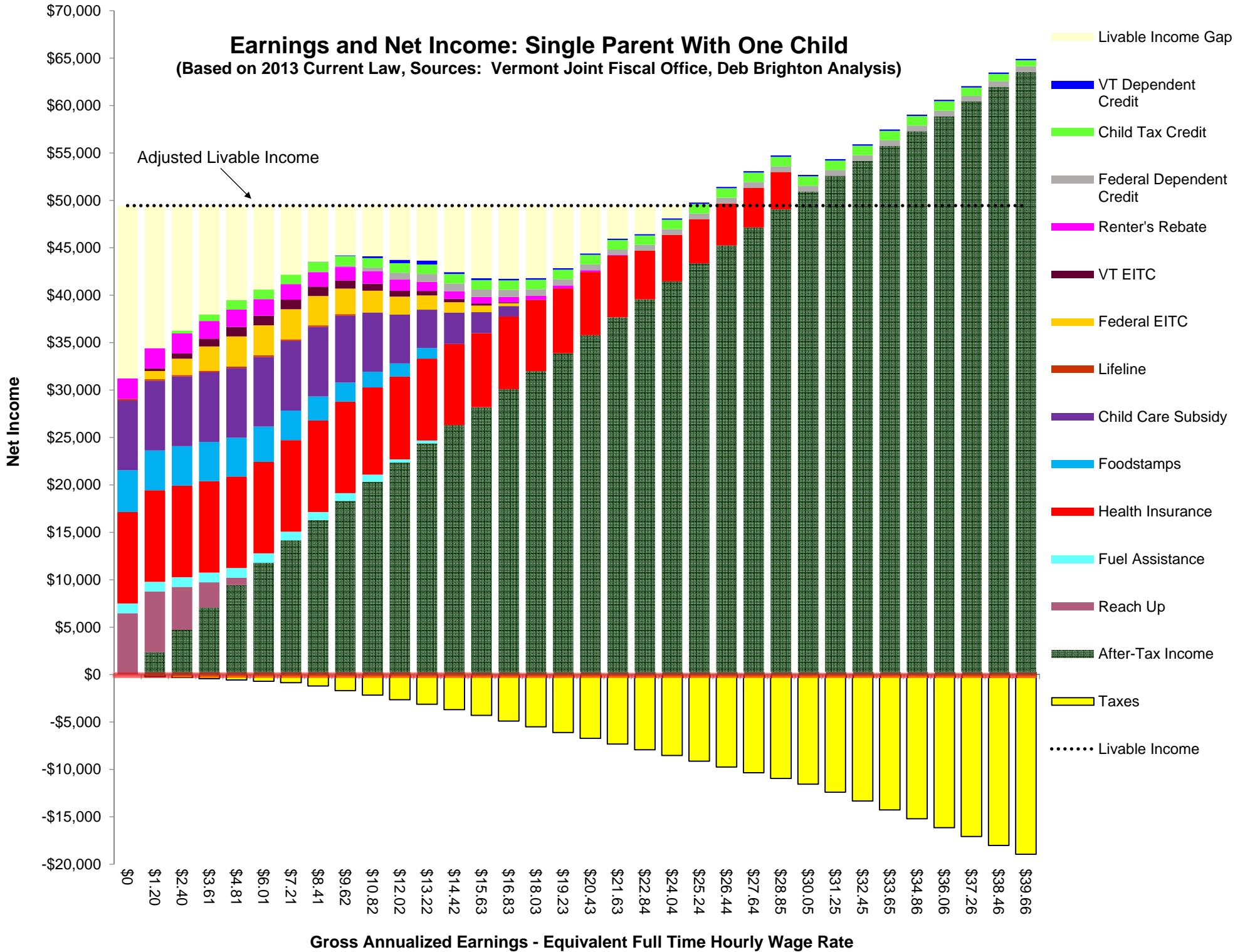
These drawbacks are associated with four important findings and associated recommendations:

**FINDING 1:** Earned income growth among the lowest income workers can result in precipitous state and federal public benefit reductions, substantially offsetting and in some cases completely negating improvements in net family income from minimum wage



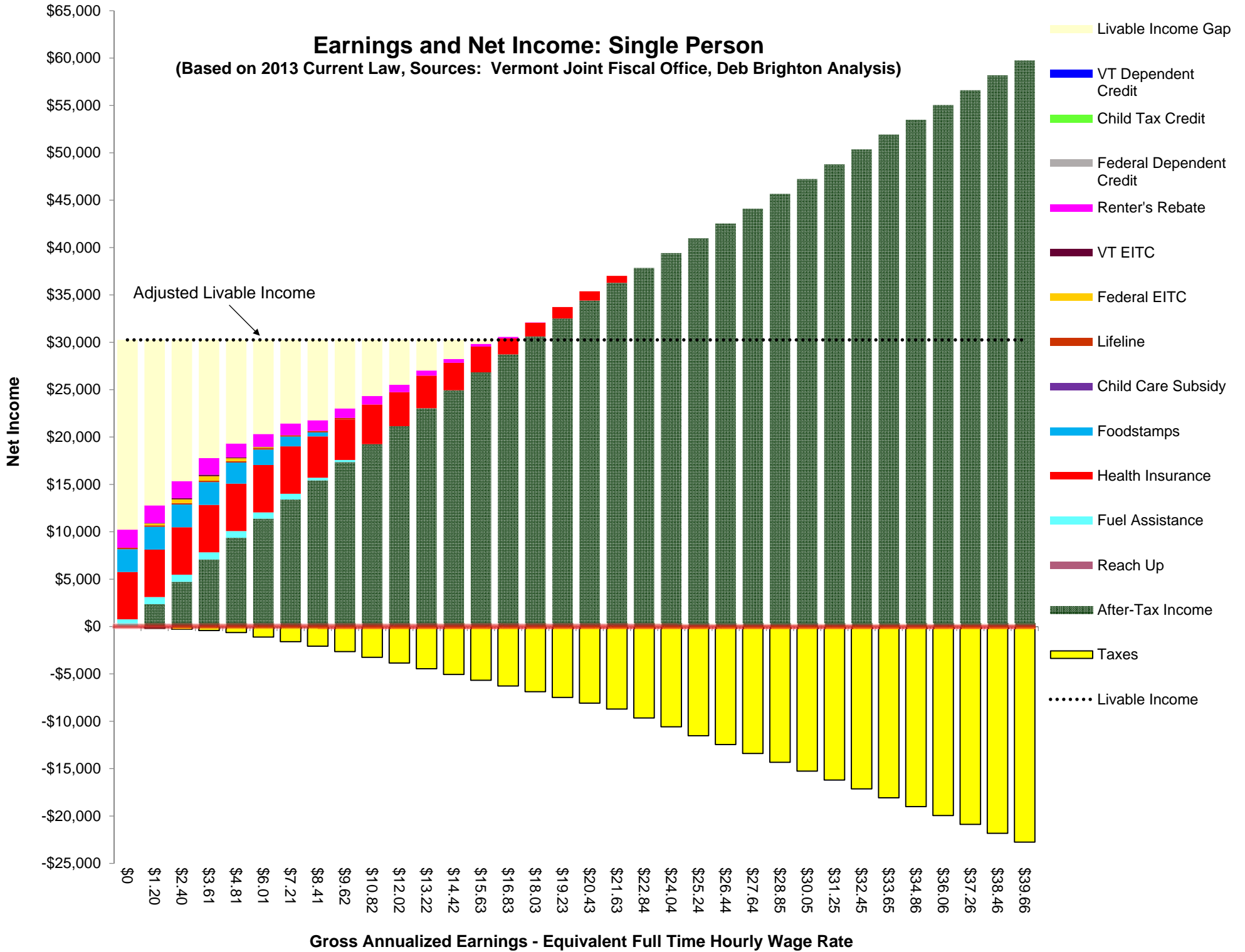
# Earnings and Net Income: Single Parent With One Child

(Based on 2013 Current Law, Sources: Vermont Joint Fiscal Office, Deb Brighton Analysis)



# Earnings and Net Income: Single Person

(Based on 2013 Current Law, Sources: Vermont Joint Fiscal Office, Deb Brighton Analysis)





changes. Accordingly, these benefit reductions can eliminate incentives to work for many low-wage workers.

**RECOMMENDATION 1:** A comprehensive analysis of benefit loss interactions with earned income gains is essential so as to adjust public benefit programs wherever possible in order to preserve work incentives at all wage levels, especially those below a livable income.

**FINDING 2:** Potential reductions in federal transfer payments can generate substantial negative economic impacts, as earned income replaces federal aid.

**RECOMMENDATION 2:** Specific program options should be explored with federal program administrators and Vermont's Congressional delegation so as to determine whether any redirection of reduced federal transfer payments may be possible.

**FINDING 3:** Federal (especially) and State income taxes consume a significant proportion of marginal income well below livable income levels. These high marginal tax rates in tandem with public benefit reductions sap work incentives and delay achievement of a livable income.

**RECOMMENDATION 3:** In tandem with potential minimum wage and benefit program changes, consideration should be given to a mix of State tax changes and benefit programs that can most efficiently maximize low wage workers' incomes and State revenues, minimize public benefit expenditures and preserve incentives to work.

**FINDING 4:** Minimum wage increases that even approach an average livable wage would result in significantly fewer jobs for low wage workers. A substantial increase in the relative cost of labor will result in a reduction in the amount of labor used. This occurs both from incremental reductions in hours and jobs within firms continuing or beginning operation in the State, and the elimination or relocation out-of-State of other firms. A state can mandate the minimum wage an employer must pay, but it cannot mandate the minimum number of workers an employer hires or the minimum number of hours they work. A small state such as Vermont cannot expect to sustain a dramatic variation with the U.S. minimum wage without counterproductive economic consequences.

**RECOMMENDATION 4:** Further research is required to better understand the likely maximum beneficial minimum wage level in the State. The 15 year, 20% Vermont average minimum wage differential with that of New Hampshire should be thoroughly studied to determine potential negative and other economic impacts. Based on this analysis, recommendations for an optimal State minimum wage could be advanced. Such analysis would be particularly important if the federal minimum wage is increased in the near future.