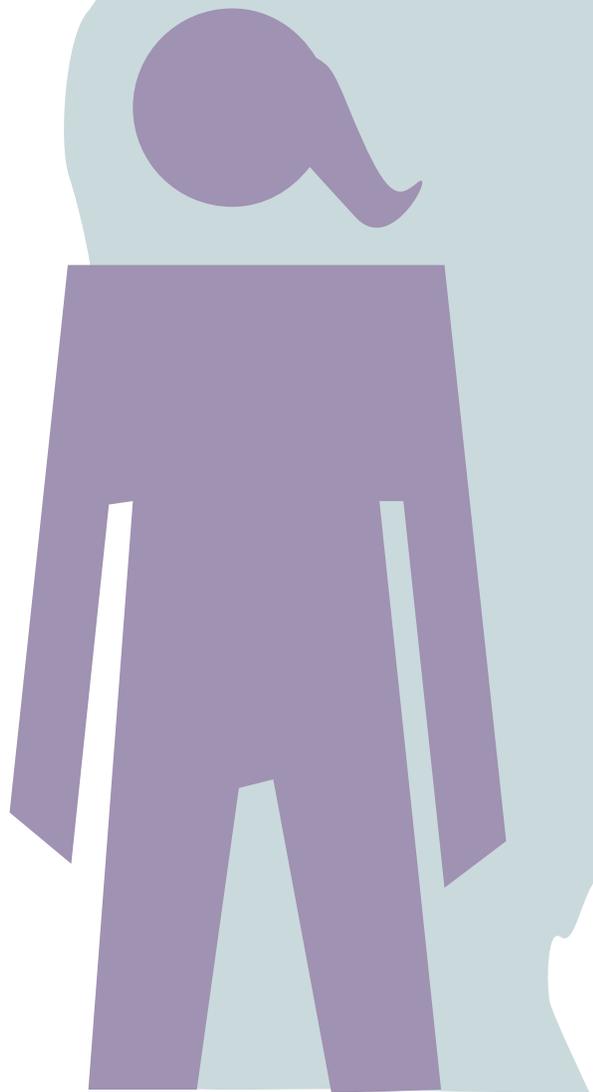




**ADVANCING WOMEN
POWERING THE ECONOMY**



2016 Status Report:

**Where
Vermont
Women
Work...
and Why
It Matters**



This report was developed by Change The Story VT, a multi-year initiative to align philanthropy, policy, and program to significantly improve women's economic status in Vermont. Change The Story is fueled by three statewide organizations: The Vermont Women's Fund, Vermont Commission on Women, and Vermont Works for Women.



ADVANCING WOMEN
POWERING THE ECONOMY

This is the **second in a series of briefs** published by Change The Story on topics related to women's economic status.¹ This report focuses specifically on occupational segregation, its impact on women's wages, and the way in which it compromises Vermont's ability to make the most of home-grown talent. Much of the data in this report is new or not regularly collected or published. All of it is specific to Vermont and all is critical - not just in terms of what it reflects about women, but in its implications for the entire Vermont economy.

Among our findings:

✓ **Occupational segregation, the uneven distribution of labor across and within sectors by gender, is the norm – not the exception – in Vermont.**

- In 15 of 25 major occupational categories tracked by the U.S. Census, either men or women are **70% or more** of all workers.

✓ **Forty years after Title IX, women's work continues to be women's work.**

- The gender balance in most traditionally female occupations has remained nearly constant from 1970-2013. Nearly half of women working full-time in Vermont **continue to be employed in the same occupations in which they worked forty years ago.**

✓ **Women who work full-time struggle to make ends meet.**

- Of the 15 occupations in which women's median annual salaries top \$35,000, nearly half are in male-dominated fields.

✓ **The next generation of female electricians, coders, and engineers isn't in the pipeline.**

- Young women are a small fraction of students who completed computer science, engineering, trades and technical programs at state career and technical high schools: 9% of those in information technology; 6% in manufacturing; 6% in transportation; and 5% in architecture and construction.
- While the gender breakdown is essentially equal among high school students taking Advanced Placement (AP) tests in calculus, chemistry, and biology, **young women are a minority of students earning college degrees in physics, chemistry, computer science, economics, and engineering.**

✓ **Occupational segregation is costly – not just for women, but for employers and the Vermont economy.**

- **Nearly 60% of high-wage, high-demand entry-level occupations are those in which women are a significant minority of workers.** Occupational segregation limits the pool of potential workers for jobs employers need to fill.

^[1] A copy of *Women, Work and Wages in VT* can be downloaded at changethestoryvt.org/women-work-and-wages-in-vt/.

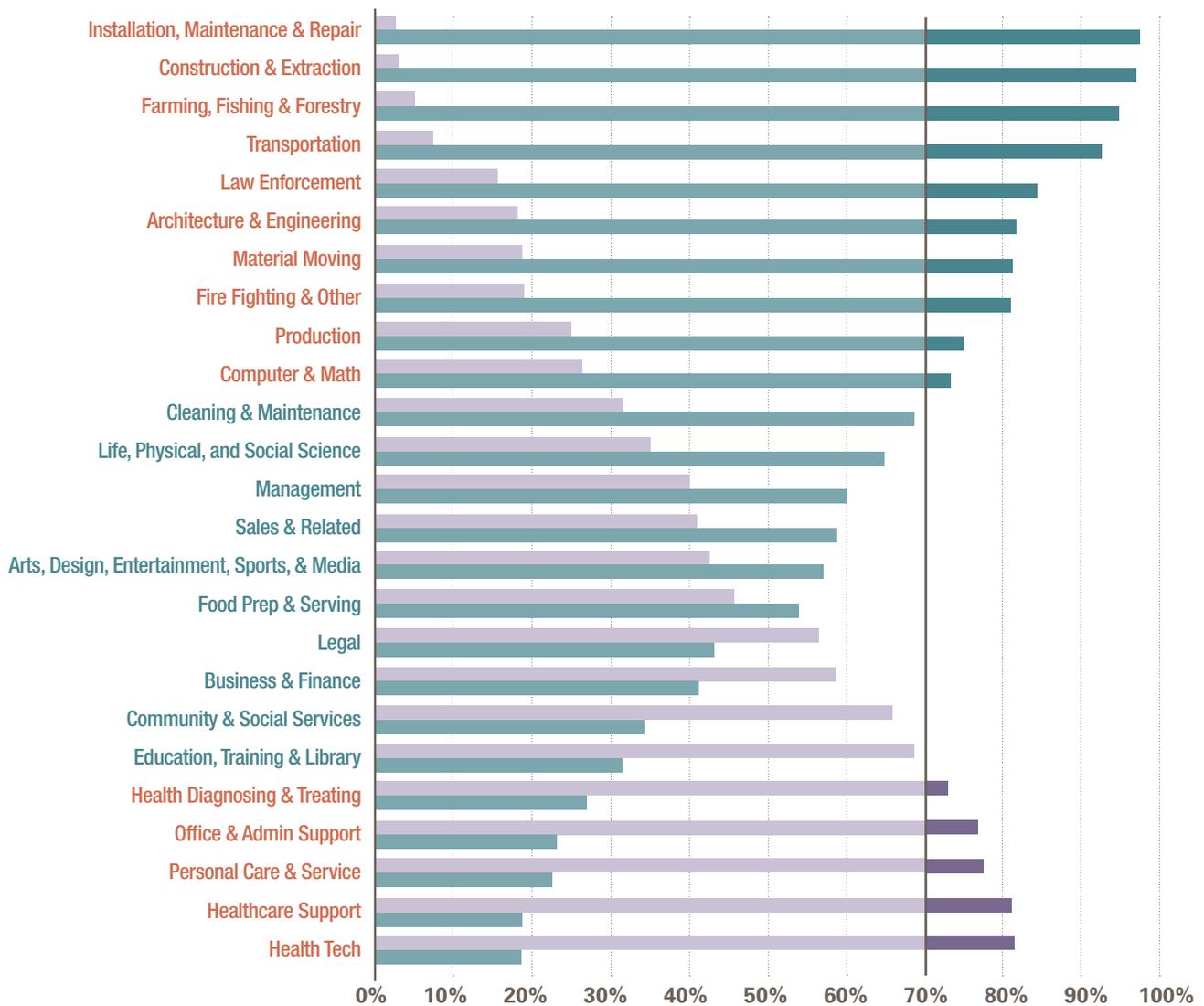
Much of the data in this report was collected and analyzed by Flint Springs Associates, a Vermont-based consulting firm. Principal researchers were Joy Livingston and Vicki Hart. Additional authors include Change The Story VT team members Tiffany Bluemle and Lindsey Lathrop. For more information, contact info@changethestoryvt.org.



OCCUPATIONAL SEGREGATION: THE NORM, NOT THE EXCEPTION, IN VERMONT

Occupational segregation, the uneven distribution of labor across and within sectors by gender, is the norm—not the exception—in Vermont. **Workers in fifteen of 25 major occupational categories are at least 70% male or female.**ⁱ

**% Vermont Women, Men in
US Census Major Occupations**



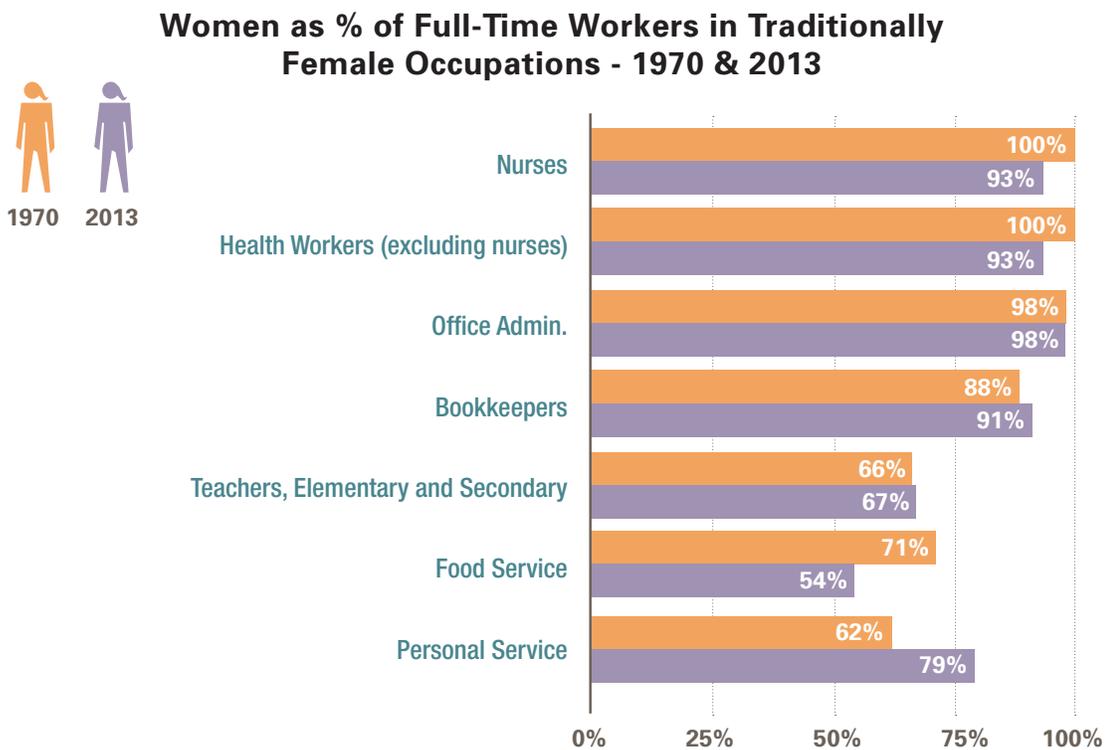
ⁱ Vermont data from U.S. Census Bureau, 2011-2013 3-Year American Community Survey. Ages 16 and older.

40 YEARS AFTER TITLE IX... WOMEN'S WORK IS STILL WOMEN'S WORK

Signed into federal law in 1972, Title IX ushered in a new era of opportunity for women and girls –in athletics, higher education, and in employment.ⁱⁱ

In the ensuing years, women’s participation in the labor force has nearly doubled– from 38% to 66% in 2013. They now enjoy nearly equal presence in some professions – in business, medicine, and the law. However...

...what was “women’s work” 40 years ago continues to be women’s work today.ⁱⁱⁱ



Vermont data. Comparison uses 1970 Census of the Population, part 47 Vermont. US Department of Commerce, Bureau of the Census. Issued January 1973 and U.S. Census Bureau, 2011-2013 3-Year American Community Survey. Ages 16 and older.

These occupations currently employ nearly half (47%) of all women who work full-time.

WHERE WOMEN WORK MATTERS... TO WOMEN AND THEIR FAMILIES

50% of women who work full-time are employed in fields where the median annual salary is below \$35,000 (the amount required to support a single individual in Vermont) ^{iv} as compared to 13% of men.

7 of the 15 occupations in which women's median annual salaries top \$35,000 are in fields where women have a very limited presence.

Occupations in Which Median Salaries for Women are above \$35,000

Occupation	% Female	# Women Employed	Women's Median Annual Salary
✓ Computer and mathematical occupations	26%	1,425	\$68,919
Health diagnosing and treating practitioners and other technical occupation	73%	6,207	\$64,519
✓ Law enforcement workers including supervisors	16%	288	\$60,051
✓ Architecture and engineering occupations	18%	1,055	\$56,000
Management occupations	40%	11,554	\$54,336
Legal occupations	57%	1,552	\$52,483
Life, physical, and social science occupations	35%	980	\$48,245
Business and financial operations occupations	59%	6,297	\$47,728
✓ Installation, maintenance, and repair occupations	3%	203	\$45,174
Education, training, and library occupations	69%	10,442	\$44,265
Health technologists and technicians	81%	2,759	\$41,446
✓ Construction and extraction occupations	3%	370	\$40,670
Community and social services occupations	66%	3,375	\$40,553
✓ Fire fighting and prevention, and other	19%	256	\$40,000
✓ Transportation occupations	7%	416	\$36,603

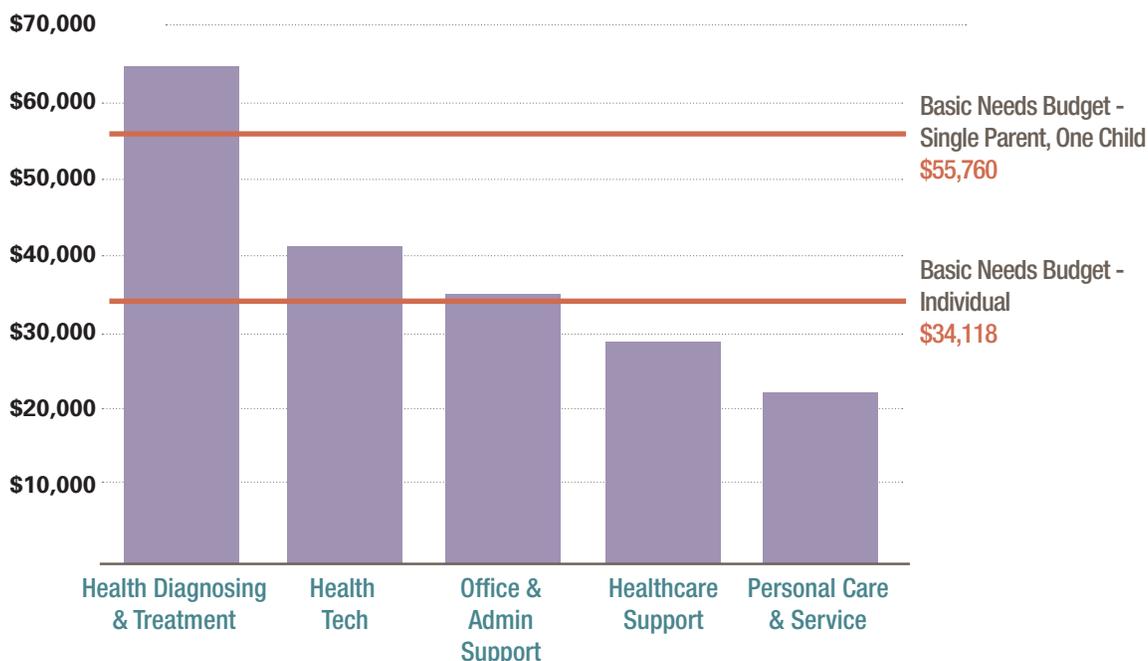
Vermont data from U.S. Census Bureau, 2011-2013 3-Year American Community Survey. Ages 16 and older.

In many of the fields where women are a significant majority of workers, they do not make enough to support themselves or their children.

2 of 5 occupations in which women are at least 70 percent of all workers pay below what an individual needs to cover basic expenses. A third occupation barely meets the threshold.

Just one—Health Diagnostician—pays enough to support a single parent with one child.

Women’s Median Annual Salaries in Female-Dominated Occupations



Vermont data from U.S. Census Bureau, 2011-2013 3-Year American Community Survey. Ages 16 and older.

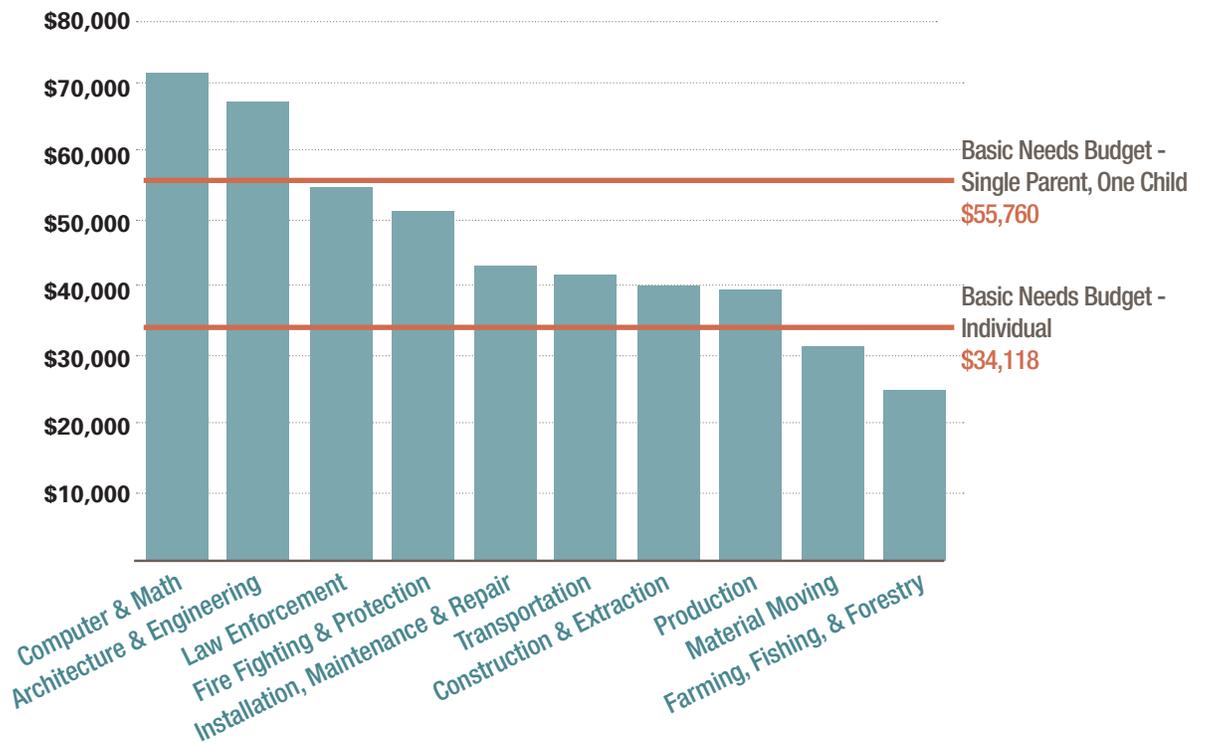
WHAT DO WE MEAN BY *BASIC NEEDS*?

Developed and revised every two years by the Vermont Joint Fiscal Office, the Vermont Basic Needs Budget is a market based projection of expenses essential to living in Vermont. Budgets are developed for seven household types in urban and rural regions. Line-item expenses include essential items such as food, housing, transportation, child care, clothing and household expenses, telecommunications charges, health and dental care, renter’s insurance, life insurance, and savings.

By comparison, **8 of the 10 male-dominated occupations pay median annual wages that meet the basic needs of an individual.**

That said, only two of these ten occupations pay wages that can support a single parent with one child.

Men's Median Annual Salaries in Male-Dominated Occupations



Vermont Data from U.S. Census Bureau, 2011-2013 3-Year American Community Survey. Ages 16 and older.

Occupational segregation wouldn't be such a problem if wages were higher in many of the jobs in which women are clustered. But **14 of the 24 high-wage, high-growth occupations that do not require a four-year degree are those in which women have a very limited presence.**

High-Wage, High Growth Careers Requiring a High School Diploma, Associate's Degree or Equivalent Training	Projected Openings for the Total Period 2012-2022	Median VT Wage, Yearly (2013)
✓ General and Operations Managers	870	\$85,070
Managers, Other Industries	800	\$92,740
✓ Manufacturing Sales Representatives	790	\$53,230
First-Line Supervisors of Administrative Support Workers	730	\$49,830
✓ Construction Managers	640	\$78,960
✓ First-Line Supervisors of Construction Workers	530	n/a ^v
✓ Computer Support Specialists	460	\$44,360
Properties and Real Estate Managers	420	\$61,250
✓ First-Line Supervisors of Mechanics	340	n/a
Insurance Sales Agents	340	\$53,780
✓ Plumbers, Pipefitters, and Steamfitters	300	n/a
✓ First-Line Supervisors of Production and Operating Workers	280	\$54,000
Sales Reps. for Associated Services	270	\$43,680
✓ Industrial Machinery Mechanics	260	\$46,630
Self-Enrichment Education Teachers	250	\$43,610
✓ Web Developers	240	\$81,820
✓ Heating, Air Conditioning and Refrigeration Mechanics and Installers	200	n/a
✓ First-Line Supervisors of Transportation Operators	170	\$55,120
Paralegals and Legal Assistants	160	\$43,170
Chefs and Head Cooks	160	\$41,540
Massage Therapists	150	\$49,090
✓ Manufacturing Purchasing Agents	150	\$54,600
Wholesale and Retail Merchandise Buyers	150	\$43,200
✓ Electrical Power-Line Installers and Repairers	150	n/a

Pathways to Promising Careers: Vermont's High-Pay, High-Growth Jobs - Career Forecasts Through 2022. McClure Foundation and VT Department of Labor. 2014.

Access to such fields, particularly for women who live at the economic margins, offers a shot at earning a livable wage.

But such a crucial shift won't happen on its own.

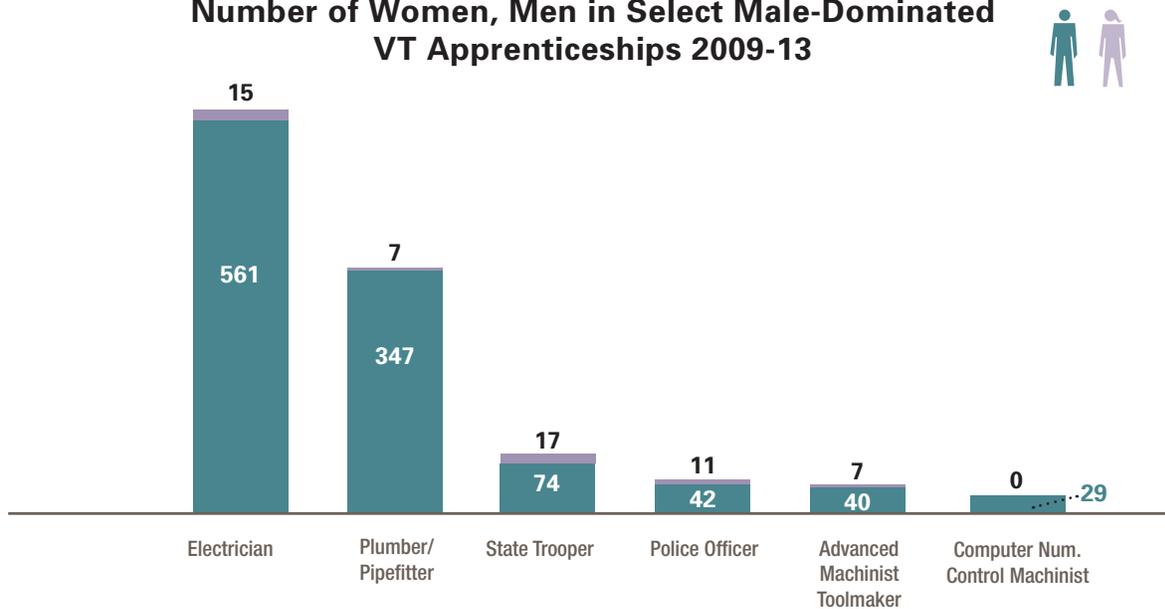
VERMONT LACKS A PIPELINE OF FUTURE FEMALE ENGINEERS, CODERS, AND CARPENTERS

The gender balance of adults enrolled in state apprenticeships, of students completing programs at career and technical high schools and of those awarded degrees by Vermont State Colleges and the University of Vermont offers little evidence that occupational segregation in many fields will change anytime soon.

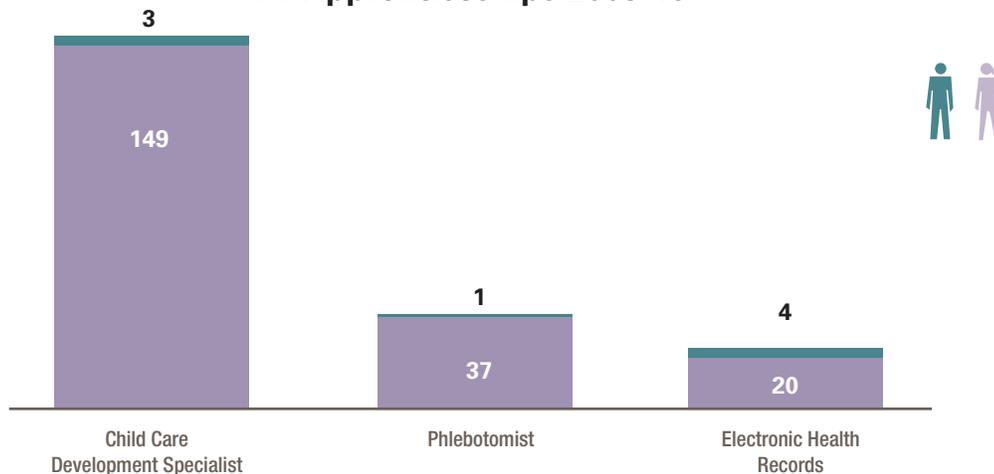
Apprenticeships^{vi}

One of the most obvious and direct paths to such careers for adults is through registered apprenticeship. Among the state's 1,600 apprentices registered between 2009 and 2013, women were between 25- 30% of all policing and state trooper apprentices, but were only 3% of those training to become plumbers, 2% of electrical apprentices, and 0% of Computer Numeric Control Machinists.

Number of Women, Men in Select Male-Dominated VT Apprenticeships 2009-13



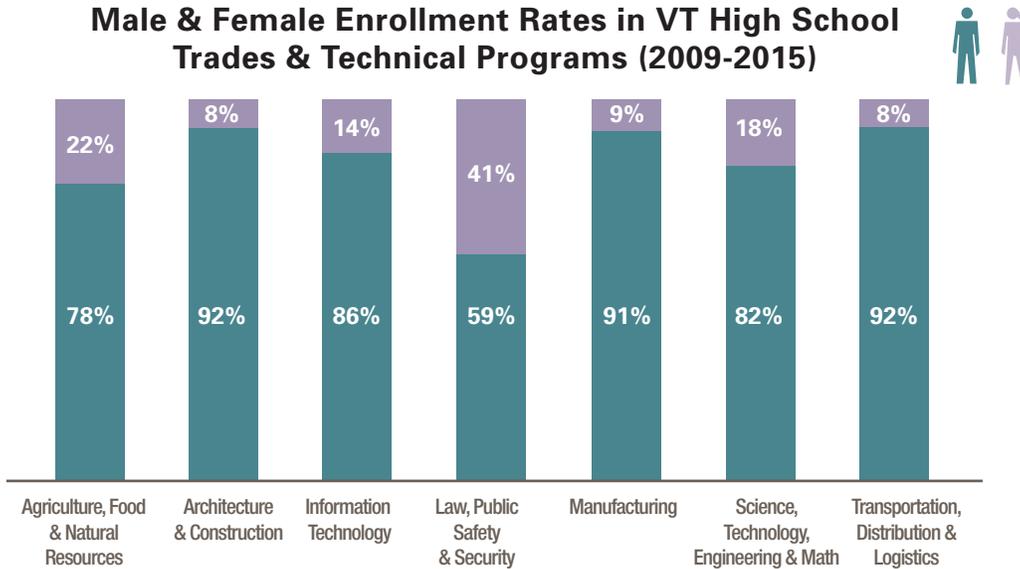
Number of Women, Men in Select Female-Dominated VT Apprenticeships 2009-13



Vermont Department of Labor, Office of Apprenticeship.

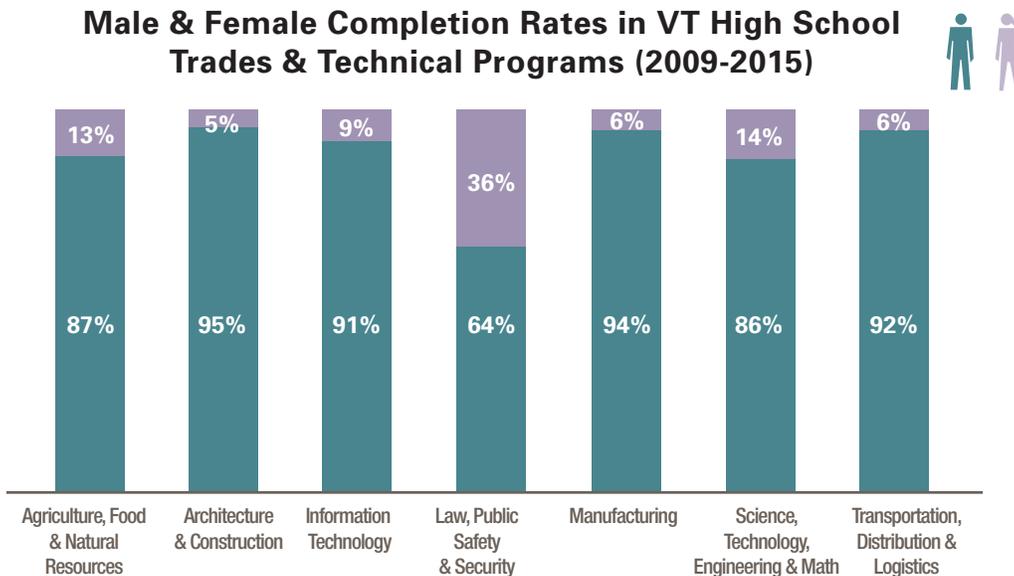
Career and Technical High Schools

Vermont’s career and technical high schools also provide a ready gateway to such careers for young people, but between 2009 and 2015, **young women were a small fraction of the 20,000 students enrolled in high school technical and career programs in nontraditional academic programs.**^{vii}



VT Agency of Education, Career and Technical Education Program Enrollment and Completion Data 2009-2015.

Young women are an **even smaller percentage** in every category of students **who completed** those programs.

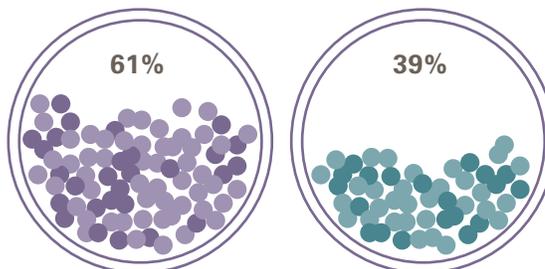


VT Agency of Education, Career and Technical Education Program Enrollment and Completion Data 2009-2015.

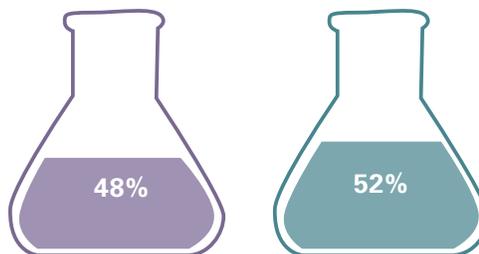
HIGH SCHOOL GIRLS DEMONSTRATE APTITUDE AND INTEREST IN MATH AND SCIENCE

From 2009-2013, the gender divide was close to even among high school students taking Advanced Placement (AP) tests in **Biology, Chemistry, and Calculus**.

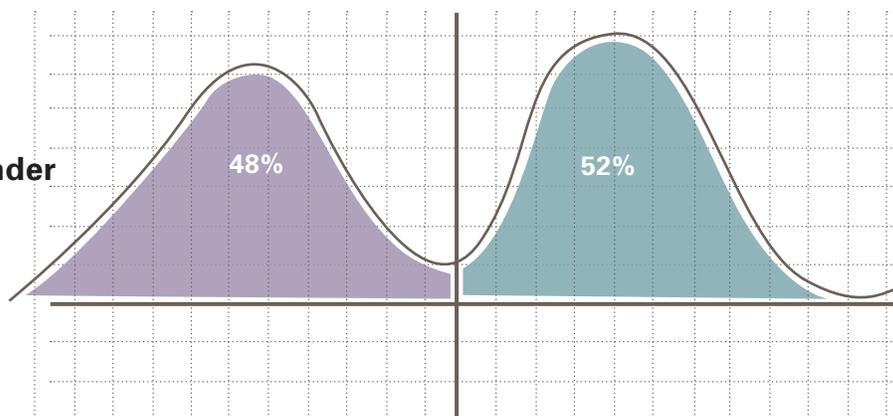
**AP Biology Test by Gender
2009-13 (n=2,766)**



**AP Chemistry Test by Gender
2009-13 (n=1,452)**



**AP Calculus AB Test by Gender
2009-13 (n=3,780)**



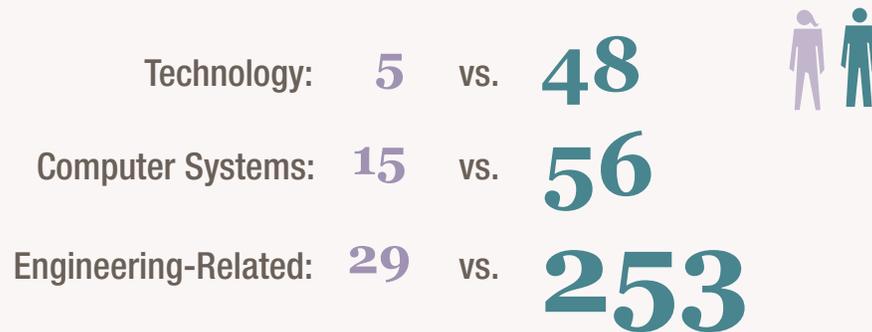
Vermont data: 2009-2013 aggregated data as reported by the College Board. Data accessible through apcentral.collegeboard.com.

BUT THEIR INTEREST DOESN'T TRANSLATE INTO COLLEGE DEGREES IN THE PHYSICAL SCIENCES, COMPUTER SCIENCE, AND ENGINEERING

Women are far less likely than men to earn state associate's or bachelor's degrees in computer science, chemistry, physics, economics and engineering.

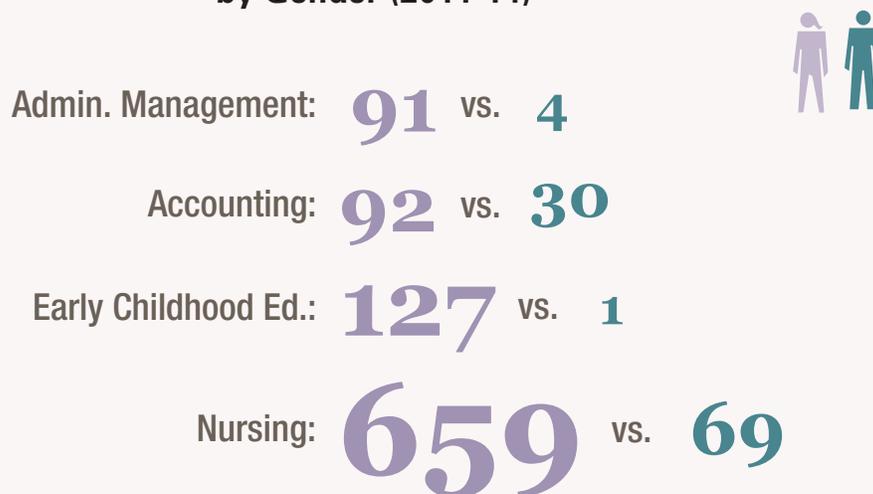
Of the 1,800 associate's degrees awarded by the Vermont State Colleges (VSC) between 2011-14, only a handful were awarded to women in computer systems management, engineering, and technology.

Associate's Degrees Awarded by VSC in Technology, Computer Systems & Engineering-Related Programs by Gender (2011-14)



Women were the vast majority, however, of students awarded VSC associate's degrees in nursing, early childhood education, accounting and administrative management.

Associate's Degrees Awarded by VSC in non-STEM programs by Gender (2011-14)



Source: Vermont State Colleges Sourcebook of Institutional Data.

If female high school students are 61% of those taking the AP test in Biology, one might expect them to be at least half of VSC and University of Vermont undergraduates earning bachelor's degrees in the biological sciences.

And they are.

Bachelor's Degrees Awarded by UVM and VSC in Biological Sciences by Gender (2011-14)

Biochemistry:	42	vs.	45	 
Biology:	158	vs.	131	
Biological Science:	78	vs.	70	
Neuroscience:	36	vs.	22	

By contrast, young women are half of high school students taking AP tests in Calculus and Chemistry - **yet they are only a handful of those earning bachelor's degrees in the physical sciences, computer science, economics and engineering.**

Bachelor's Degrees Awarded by UVM & VSC in Engineering, Computer Science, Chemistry & Physics by Gender (2011-14)

Chemistry:	12	vs.	22	 
Computer Science:	18	vs.	128	
Physics:	4	vs.	21	
Economics:	4	vs.	21	
Engineering (All):	132	vs.	684	

Sources: UVM Request for Data on Master's and Bachelor's Degrees Awarded by Major 2011-2014 (provided to Change The Story by the University of Vermont's Office of Institutional Research, November 2015) and Vermont State Colleges Sourcebook of Institutional Data.

WHY THIS MATTERS

Addressing occupational segregation is an important economic development strategy, given that:

- Women make up a disproportionate share of Vermonters who live in poverty:^{viii}
- The top two Vermont occupations with the fastest projected annual growth rate—personal care aides and cashiers—are jobs in which women are at least 8 out of 10 workers who make a median wage of less than \$12 an hour.^{ix}
- Vermont has a projected increase in demand for talent in high-wage, high-demand occupations where women are underrepresented; and
- There is little evidence that the pipeline will produce a sizable boost in women’s presence in STEM, technical, manufacturing, or trades-related fields.

We must therefore call the question...

Wouldn’t Vermont’s economic interests be served by changing these longstanding patterns?



ADDITIONAL QUESTIONS WE SHOULD ASK



As parents and mentors:

- Are we making a deliberate effort to expose children to a full range of careers, career paths, and salaries?
- Are we introducing children to the opportunities provided by regional technical centers?
- Do young people know enough about what they'll need to earn to support themselves and their children, if they choose to have them?
- Are we deliberately introducing young people to adults who can serve as mentors and allies?

As educators:

- Do our programs in science, math, trades, engineering, computer networking and science attract women?
- Do our recruitment strategies specifically target women?
- Do young women complete nontraditional high school programs?
- Do our classrooms and schools offer supportive environments for all students?

As employers:

- How diverse is the pool of those who apply for our jobs?
- How deliberate are our efforts to attract a diverse workforce?
- Who do we retain? Who do we lose? Do we know why individuals leave?
- How diverse are the candidates who appear on short lists for internal promotions?
- Are we providing enough opportunities for young people in our community to learn about our careers?
- Do our hours and policies make it possible for single parents to work and stay here?

As policymakers:

- What is the gender ratio of skills training programs funded by state and federal dollars?
- Are we prioritizing and targeting training investments in fields where men or women constitute a significant minority of workers?
- Will our investments meet future Vermont labor demands in terms of recruiting and training both men and women?
- How do we know that student Personalized Learning Plans (as required by Act 77) are informed by broad exposure to a range of careers, career paths, and pay scales?
- Are there built-in disincentives to student enrollment in technical high schools? If so, what can we do to eliminate them?
- What are the long-term implications of continuing to pay low wages to so many Vermont workers, particularly those in female-dominated fields?

ENDNOTES

- ⁱ One can view specific occupations that are grouped within these broad categories at <http://www.vtlmi.info/oic.cfm>. (Pathways to Promising Careers: Vermont’s High-Pay, High-Growth Jobs - Career Forecasts Through 2022. McClure Foundation and VT Department of Labor. 2014.)
- ⁱⁱ Title IX, passed in the 1972 Education Amendments states that “no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance.”
- ⁱⁱⁱ Because of the way in which employment statistics were categorized forty years ago, a strict side-by-side comparison of occupations is difficult. By examining the micro-data, we are reporting on the occupational categories for which we can make an apples-to-apples comparison. 2009-2013 data is calculated for full-time workers over 16 years; 1970 data for civilian labor force does not make a distinction between full-time/part-time workers.
- ^{iv} As determined by Vermont’s Joint Fiscal Office in 2015. The 2015 Basic Needs Budget report presents budgets for seven different types of households, in both urban and rural areas. The numbers in this chart represent an average of rural and urban figures for an individual and for single parent/one child families.
- ^v The *Pathways* report lists n/a for median annual salaries in certain fields, due to their seasonal nature and/or the diversity of jobs in a field that pay different rates. (Pathways to Promising Careers: Vermont’s High-Pay, High-Growth Jobs - Career Forecasts Through 2022. McClure Foundation and VT Department of Labor. 2014.)
- ^{vi} Apprenticeship is a form of training that couples worksite and classroom instruction in a field, often for a period of 2-4 years until he or she graduates to a “journey level” worker. Most apprenticeships require that an applicant have a high school diploma or GED certificate. For more information about the Vermont State Apprenticeship Program, visit <http://labor.vermont.gov/workforce-development/apprenticeship/apprenticeship-faq/>.
- ^{vii} We have grouped like career and technical education programs at Vermont high schools in this graph to allow for a statewide perspective, as the specific names and emphases of individual programs vary by school.
- ^{viii} Vermont data from U.S. Census CPS ASEC 5 Year Average (2010-2014) – Adult Civilian Persons Poverty Status 2009 to 2013.
- ^{ix} VT Department of Labor, Economic and Labor Market Information: online at VTLMI.info. Published June 2015.

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This report was informed by the perspectives and expertise of many.
Change The Story VT would especially like to recognize the contributions of:

- Mat Barewicz**, *Vermont Department of Labor*
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- Paul Cillo**, *Public Assets Institute*
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- Jay Ramsey**, *Vermont Agency of Education*
- Lilly Talbert**, *Vermont Commission on Women*
- Lynn Vera**, *retired (former guidance counselor, Center for Technology, Essex)*



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