Vermont State Auditor

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REPORT TO THE GOVERNOR
AND THE GENERAL ASSEMBLY

MAKING ECONOMIC DEVELOPMENT POLICY: ANECDOTES OR PEER-REVIEWED LITERATURE

9 JULY 2018 • OFFICE OF THE VERMONT STATE AUDITOR • NON-AUDIT REPORT 18-03

Mission Statement

The mission of the Vermont State Auditor's Office is to hold government accountable. This means ensuring taxpayer funds are spent effectively and efficiently, and that we foster the prevention of waste, fraud, and abuse.

Principal Investigator

Christoph M. Demers

Non-Audit Inquiry

This is a non-audit report. A non-audit report is a tool used to inform citizens and management of issues that may need attention. It is not an audit and is not conducted under generally accepted government auditing standards. A non-audit report has a substantially smaller scope of work than an audit. Therefore, its conclusions are more limited, and it does not contain recommendations. Instead, the report includes information and possible risk-mitigation strategies relevant to the entity that is the object of the inquiry.

DOUGLAS R. HOFFER
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STATE OF VERMONT
OFFICE OF THE STATE AUDITOR

Dear Colleagues

Part of the State Auditor's mission is to conduct performance audits and provide management and legislators with information useful for strategic planning and policymaking. There are some policy areas, however, that present challenges. For example, there is little reliable performance data about some of the State's largest economic development programs, which makes it difficult to conduct performance audits.[1] Here are some examples of programs with performance auditing challenges.

- The **VEGI** business incentive program is predicated on the applicant's "but for" statement that reflects corporate decisions that cannot be independently verified. Therefore, it is impossible to substantiate claims about job creation by the Economic Progress Council.
- Efforts to measure the impact of **Tourism and Marketing** spending are hindered by the fact that public marketing expenditures are dwarfed by private sector spending and there is no way to assess the relative impacts of each. The Department's primary performance measure is Rooms and Meals tax revenues, but there is no correlation between public expenditures and state revenues.[2]
- **Vermont Training Program** (VTP) grants are based on unsubstantiated claims by applicants that the trainings are supplemental and not replacement (i.e., taxpayers should not pay for trainings that would have occurred anyway[3]). VTP's main performance measure is the increase in wages for trainees, but the methodology is flawed so the data is unreliable.[4]
- It is difficult to measure the effectiveness of grants to **Regional Development Corporations** because they are only required to report on outputs reflecting their day to day activities (e.g., business visits, meetings, maintenance of a data base, etc.).[5]
- **Tax Increment Financing** (TIF) also has a "but-for" condition requiring towns to state that development would not happen as anticipated in the proposed TIF district if not for the incentive.[6] This is impossible to prove.

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1 The Auditor's Office can review the mechanics of almost any program, but questions about whether core objectives are achieved is another matter.

2 23 February 2015 memorandum from Tom Kavet to Steve Klein re: economic development proposals.

3 10 V.S.A. §531(d)(3)

4 15 September 2015 memorandum from Doug Hoffer to the legislature re: the Vermont Training Program.

5 See Appendix I of the RDC contracts.

6 32 V.S.A. §5404a(h)

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Together, these five programs cost the State almost $14 million per year.[7] The question is whether we know or can reasonably estimate the State's return on such investments and if there are alternative strategies that may hold more promise.

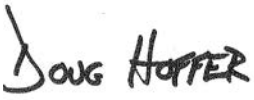
In the absence of reliable performance data about Vermont's major economic development efforts, we can look to peer-reviewed research. Fortunately, there is a good deal of it and we present a summary for numerous strategies in this report, which is intended to serve as a resource for policymakers.

In addition to the deep dive into the research, we present some data regarding various aspects of the state's economy that should be of interest, including the so-called "business climate," taxes and migration.

For example, numerous entities publish annual reports ranking states for their "business climate." They are routinely covered in the media and take on the weight and authority usually reserved for peer-reviewed studies. In fact, some of the entities are biased[8] and many of the methodologies are deeply flawed.[9] Most importantly, the rankings have almost no predictive value, as we show in the data section.

Unfortunately, the rankings are so ubiquitous that economic development officials tell us we must take them seriously because they influence business decisions. That may be true. But rather than accepting them uncritically,[10] we should examine them and expose their shortcomings. We should not be defensive in response to demonstrably false characterizations of our state. Each media story about misleading rankings offers a teachable moment.

Respectfully,



Doug Hoffer

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7 VEGI incentives averaged $3.6 million per year from 2012 – 2015 (latest available). In recent years, Tourism & Marketing appropriations averaged about $3.2 million per year. The VTP and RDCs average $1.3 million and $1.2 million per year, respectively. A recent JFO report found that TIF is expected to cost about $4.5 million per year going forward.

8 For example, the American Legislative Exchange Council (ALEC).

9 *Grading Places: What Do the Business Climate Rankings Really Tell Us?* https://www.goodjobsfirst.org/sites/default/files/docs/pdf/gradingplaces.pdf

10 The State's CEDS report reproduces tables from various rankings. See Appendix C, pp. 34 – 37. http://accd.vermont.gov/economic-development/major-initiatives/ceds

Executive Summary

State economic development programs are wide ranging and include business incentives, workforce training grants, technical and financing assistance, and tax increment financing, among others. There is extensive research examining the impacts of various economic development strategies. However, finding and understanding this research is time-consuming and sometimes challenging because it is usually published in academic and professional journals rather than mainstream media, and it can be technical in nature. As a result, policymakers may not be aware of pertinent research findings. This report provides a review of economic development research to help inform policy deliberations that are sometimes limited to anecdotes and self-interested advocacy. Important policy decisions should be based on the best available evidence to ensure that publicly funded programs are effective and efficient.

***Tax Incentives for Businesses**:* Incentives for businesses to invest and create jobs likely have some economic impacts, but there is no consensus regarding whether public benefits exceed the costs for such programs. There is growing evidence that such incentives are not as effective as claimed. Recent research finds no strong correlation between incentives and state's economic outcomes. Some estimates indicate that the average incentive would only impact incented firms' investment decisions six percent of the time.

Businesses consider a wide range of factors before making new investments and evidence indicates that factors outside of government control may be more important than cash or tax incentives. These include the availability of suitable labor, access to regional markets and suppliers, and the costs of a variety of other business inputs.

Some research suggests that 80 to 90 percent of incentivized jobs would have been created without incentives. The Rhode Island Department of Revenue acknowledged the challenge of assessing the performance of incentives: "…a tax incentive might have a decisive influence on a firm's production decision…On the other hand…[it] may simply reward or subsidize behavior that likely would have occurred anyway…Real world conditions often make it difficult or

impossible for an evaluator to assess where on this continuum the impact of any given tax incentive falls."

***Workforce Development**:* Workforce development programs can have positive economic benefits for 1) participants, through skills development and improved employment and earnings outcomes; 2) employers, from a more productive workforce; and 3) the public, from greater tax revenues and reduced reliance by participants on public assistance programs. The public benefits of many workforce development programs appear to far surpass the initial costs.

***Tourism Marketing**:* Many states use taxpayer funds to promote tourism, but the relationship between state spending and tourism levels is difficult to establish. There is evidence that the value of state-sponsored marketing may depend on the existing attractiveness of a destination. One study examined state-sponsored marketing in all 50 states over a 20-year period and found that states with low levels of tourism made significant gains in tourist expenditures. In contrast, states that had strong existing tourism sectors saw weak returns from tourism marketing.

Studies conducted for state governments consistently find that benefits from their tourism promotion activities outweigh the costs. However, researchers caution against taking these reports at face value. If such research is not properly and impartially designed, states risk paying for programs that may be less cost-effective than alternatives.

***Technical, Managerial, and Financing Assistance for Businesses**:* Technical and managerial assistance programs increase business survival and contribute to short- and long-term growth. Low- and high-performing businesses benefit from different types of assistance.

Decisions on financing for small and service-oriented businesses can sometimes be difficult for lenders, as risk assessments can be challenging. Governments may try to fill the gaps with a variety of initiatives, such as programs that reduce risk for lenders. Several studies have found that Small Business Administration (SBA) lending programs positively impact local economies.

***Broad-based Economic Development Investments (including social infrastructure)**:*

- **Infrastructure**: Spending on physical infrastructure is usually predicted to increase economic output in the short term and boost productivity in the long term. The magnitude of the growth is not clear and may depend on when during the business cycle investment occurs and how investments are financed.
- **Childcare**: Research indicates that the long-term public benefits of early education programs likely exceed costs. Lack of adequate child care for employees can result in significant productivity losses and retention problems for businesses.
- **Broadband Internet**: Associations have been found between broadband adoption in rural areas and economic growth, and research indicates there may be a causal relationship.
- **Energy**: Energy policies can offer economic development opportunities for states. Energy efficiency reduces aggregate demand, saves consumers money, and creates jobs. In addition, non-energy benefits to a community—such as health, environmental, and public safety—may equal the direct benefits from efficiency. Finally, policies that promote local renewable energy ownership can result in local jobs, and states with renewable energy portfolio standards (RPS) policies have a higher number of green businesses than those that don't.
- **Housing**: Recent national research suggests that housing supply is a contributing factor in employment growth. That is, if labor demand cannot be met because of low housing supply, the full employment potential of a locality or region may not be achieved. Furthermore, the construction industry has one of the highest economic multipliers.
- **Anchor Institutions and Local Purchasing**: When local industries supply the local economy, it can result in increased economic activity and jobs from the multiplier effect. Anchor institutions purchase a high volume of goods and services on a regular basis and may be able to adjust their supply chain to work with local vendors to provide a steady stream of business, which could make expansion less risky for the vendors. Examples of anchor institutions include state and municipal governments, colleges and hospitals.
- **Sales Tax Holidays**: Short-term sales tax holidays are unlikely to generate substantial economic impacts. Instead, they shift the timing of purchases for those with the financial means to do so and result in lower sales tax revenue.

Economic Development Research Review

Tax Incentives and Other Financial Assistance

Business tax incentives and other types of financial assistance are examined in the section. Specifically, what are the fiscal and economic costs and benefits of such strategies?

Economic development tax incentives exist in every state, and include:

1. One-time deals negotiated with individual companies;
2. Grants and loans from publicly funded programs for which companies must apply;
3. Programs that allow local governments to divert state tax revenues for local infrastructure projects, such as Tax Increment Financing (TIF)[11];
4. Incentives for investments that meet eligibility criteria such as investment tax credits (e.g., R&D), jobs tax credits, or local property tax abatements; and,
5. Tax code features that benefit some firms more than others, and are labeled as economic development initiatives, such as exempting inventories from property taxation or exempting ski area lifts and snow making equipment.[12] [13]

State-level economic development incentives, often in the form of tax credits or cash, are enacted to encourage in-state firms to grow, persuade firms that are talking about leaving to stay (sometimes called firm retention), and to entice firms from other states to relocate.

State incentives began increasing in size and frequency in the 1980s as federal aid declined. Since then, researchers have attempted to measure their impact. Over the last 20 years, measurement has become more sophisticated as econometric methods and modeling capabilities have improved. The most common type of incentives offered by state and local governments are job creation tax credits, which account for about 70 percent of all incentives in the U.S.[14] As a result, much of the academic research focuses on this type of incentive.

In the 1980s, the impact of tax incentives as economic development tools was widely

11 Tax increment financing finances bonds for public infrastructure improvements to incentivize private sector development. When private sector development occurs, property values increase, and the additional, or incremental, tax revenues generated by increased property values is used to pay off the public infrastructure bonds. See: Vermont State Auditor, Tax Increment Financing Districts, 2012, Appendix III.

12 Fisher, Peter and Alan Peters, "Tax and Spending Incentives and Enterprise Zones" New England Economic Review, 137, March/April 1997.

13 Ski lifts and snowmaking equipment are exempt from taxation. This tax expenditure cost the State $1,438,000 in foregone revenue in FY15. An additional $550,000 in forgone revenues for ski lifts and snowmaking equipment at two resorts are not included because the leases with the State put title to that equipment in the State's name. See: State Land Leases Boost Ski Industry, but Are Dated and Inconsistent, and Vermont Tax Expenditures, 2017 Biennial Report.

14 Bartik, Timothy, "A New Panel Database on Business Incentives for Economic Development Offered by State and Local Governments in the United States," W.E. Upjohn Institute, 2017. Available here.

questioned in the literature. Studies found few significant links between incentives and business or economic growth. The consensus was that incentives were unlikely to impact business decisions and had at best minor economic impacts.[15] Nevertheless, governments at all levels expanded economic development incentive programs. In the early 1990s, that initial consensus fell apart as researchers employed new methodological approaches and reported varying impacts of tax incentives.

Accurate measurement of the costs and benefits of tax incentives is difficult and requires accounting for a variety of costs, such as increased use of public services, infrastructure, public transportation, schools, and public safety. For example, if a large firm moves into a new area, school enrollment may increase, or public transportation may be strained. This could require more teachers and administrators, along with more public transportation routes.[16]

The structure, size, and scope of state cash incentive programs often differ significantly, and the local and regional economic conditions within and across states differ as well. Furthermore, there is uncertainty about how businesses react to such incentives.

Numerous studies have examined the impacts of cash incentives on county, state, regional, and national levels. Researchers generally agree that cash-based incentives likely impact businesses to some degree, as any cash infusion would. However, research findings vary widely: some studies report positive overall benefits, while others find significantly higher costs than benefits.[17] In the following sections, we review relevant business incentive research, including elasticity estimates, firm location and expansion decisions, and tax incentives and corporate decision-making.[18]

Elasticity Estimates

Several studies have found the long-run elasticity of business investment to state and local taxes—that is, the percentage effect on state and local business activity caused by a 1 percent change in state and local taxes—to be somewhere between -.10 and -.75. The research

15 Buss, Terry, "The Effect of State Tax Incentives on Economic Growth and Firm Location Decisions: An Overview of the Literature." Economic Development Quarterly, Vol. 15, No. 1, February 2001. Read here.

16 Many states that conduct cost-benefit analyses use input/output software such as REMI, RIMS II, or IMPLAN. Vermont's VEGI program models the relative benefits and costs, including likely public expenditure impacts. See VEGI Cost-Benefit Modeling document here.

17 This report is intended as a tool that summarizes for policy makers and citizens the current state of and issues in economic development research. For academic reviews, see: Buss, Terry, "The Effect of State Tax Incentives on Economic Growth and Firm Location Decisions: An Overview of the Literature," Economic Development Quarterly, 2001; Gorin, Dan, "Economic Development Incentives: Research Approaches and Current Views," Federal Reserve Bulletin, October 2008, available here; Bartik, Timothy, "Solving the Problems of Economic Development Incentives," W.E. Upjohn Institute, 2007, available here.

18 Elasticity refers to the percentage change in the quantity demanded or supplied relative to a given percentage change in price. For a general overview of elasticity, read here.

consensus is that the elasticity is -0.2 or -.03. These elasticity estimates indicate that a 10 percent decrease in taxes would increase business employment, capital investment, or business startups by between 1 and 6 percent. [19] [20] [21]

Applying the above elasticity estimates to real world policy questions, researchers estimate the impact that economic development tax incentives would likely have on economic growth. Research indicates that average incentives are about a 30 percent cut in total taxes.[22] With an elasticity of -.30 and an incentive equal to a 30 percent cut in taxes, nine percent of new economic activity could be attributed to the incentive, or about one in ten new jobs.[23] [24] Program cost calculations would therefore need to reflect that the cost of incentivizing 10 or 20 percent of new jobs includes the cost of providing firms with subsidies for the 80 or 90 percent of jobs that would have been created without incentives.

A 2013 examination of the impact of business taxes and incentives on state-level manufacturing firms found that across 20 states and 15 different manufacturing sectors, a 10 percent reduction in effective tax liability was initially associated with 3.5 to 5.3 percent increase in value added for that manufacturing industry.[25] However, when the study isolated the impacts of incentives on manufacturing growth, it found that a 10 percent reduction in taxes through incentives resulted in manufacturing growth statistically equal to zero.

> "Incentives, for all their cost to state and local government, are still too small to matter much. Typically, a firm's wage bill will be much greater than its tax bill; for the average manufacturing firm in the U.S., payroll is about 11 times the firm's state and local taxes before incentives. Thus, fairly small geographic differentials in wages could easily outweigh what appear to be large tax and incentive differentials."
>
> (Peters & Fisher, 2004)

Several State Examples

19 Bartik, Timothy, "Who Benefits from State and Local Economic Development Policies?" W.E. Upjohn Institute, 1991. Available here.

20 Phillips, Goss, "The Effect of State and Local Taxes on Economic Development: A Meta-Analysis," Southern Economic Journal, Vol. 62, No. 2, 1995.

21 Wasylenko, Michael, "Taxation and Economic Development: The State of Economic Literature," New England Economic Review, March 1997.

22 Peters, Alan, and Fisher, Peter, "The Failures of Economic Development Incentives" Journal of the American Planning Association, Vol. 70, No 1, Winter 2004.

23 Ibid. "The Failures of Economic Development Incentives" Journal of the American Planning Association.

24 Bartik, Timothy, "A New Panel Database on Business Incentives for Economic Development Offered by State and Local Governments in the United States," W.E. Upjohn Institute, 2017. Available here.

25 Funderburg, Richard, et al., "The Impact of Marginal Business Taxes on State Manufacturing," Journal of Regional Science, Vol. 53, No. 4, 2013.

Because of the difficulties in measuring the impact of incentive programs, some states report a possible range of induced impacts. SAO surveyed how states report on tax incentive program impacts. We highlight examples from Connecticut, Maryland, and Rhode Island.

Connecticut estimates historical state tax credit program impacts and accounts for uncertainty in attributable economic activity by presenting four scenarios. For each credit, they take the investment associated with the tax credit and multiply it by 0, 20, 50, and 100 percent. Zero percent is a conservative estimate and assumes that none of investment made by a firm was induced by the tax credit, while 100 percent assumes that all the investment was prompted by the tax credit. **Connecticut's Department of Economic and Community Development notes that likely induced impacts are probably somewhere around 20 or 50 percent**.[26]

Maryland also attempts to adjust for the uncertainty surrounding job creation attribution. A forthcoming report required by the legislature describes their methodology. Maryland's Office of Policy Analysis (OPA) assumes that businesses that receive a tax credit use the money to hire additional workers, modeling the number of expected jobs based on wage information and firm industry. Maryland's model is based on 1) the value of the credit relative to employee costs, 2) their understanding of the academic literature, and 3) the overlap in different types of local, state, and federal tax credits. In the end, **Maryland's OPA reported that "their job creation tax credit would be a decisive factor in 5 percent of jobs associated with the program."**[27]

Rhode Island's Unified Economic Development report, required by statute and issued by their Office of Revenue Analysis, provides retrospective analysis of state programs that provide tax credits or other tax benefits.[28] The report provides estimates of the costs and benefits of corporate tax incentives, noting that multiple estimates are necessary using different methodologies. The benefit-cost simulations result in significantly different estimates for job creation, GDP and state revenue. [29]

> "…the availability of a tax incentive might have a decisive influence on a firm's production decision…On the other hand, an incentive program may simply reward or subsidize behavior that likely would have occurred anyway… Real world conditions often make it difficult or impossible for an evaluator to assess where on this continuum the impact of any given tax incentive falls."
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> (Rhode Island Dept. of Revenue, 2017)

26 "An Assessment of Connecticut's Tax Credit and Abatement Programs," Department of Economic and Community Development, 2014. Available here.

27 Evaluation of the Job Creation Tax Credit, Draft Report of the Department of Legislative Service, Office of Policy Analysis, Maryland 2016. Available here.

28 "Unified Economic Development Report," Office of Revenue Analysis, Department of Revenue, State of Rhode Island, 2017. Available here.

29 Ibid, "Unified Economic Development Report."

Tax Incentives and Firm Location

There is no official data on the movement of businesses or jobs from state to state. The only available data is the National Establishment Times Series (NETS), which uses data from Dun & Bradstreet and is published by the Edward Lowe Foundation. According to NETS, less than one percent of all jobs gained and lost are the result of interstate moves. Thus, resources devoted to "attraction" efforts should be considered in light of their limited impact on state employment and the opportunity costs.

Many incentive programs aim to induce out-of-state firms to relocate in-state. Policy makers reason that the capital investments and jobs that new companies bring in will be beneficial for residents and increase tax revenues. Some policy makers aim to attract certain industries to encourage agglomeration economies, or benefits that occur when firms in the same or similar industries locate near each other. Examples include digital technologies in Silicon Valley or Seattle, biotechnology in Boston, or the financial industry in New York or London.[30] In any case, what does research indicate happens when firms locate in a new geographic area?

When a large firm relocates, wages in their industry and county are positively affected by the plant location, and other firms may experience productivity gains.[31] [32] New firms can have significant agglomeration spillovers for local industry and include reduced costs in terms of transportation, goods and services, employee recruitment, and a dispersion of new ideas.[33]

However, the regional impacts of such openings are not clear. A 2004 study examined how the location of large firms affect the region they locate to, and found "little evidence of positive or negative growth impacts associated with the location of large firms," and concluded that recruitment did not lead to increased regional growth.[34] An examination of 68 firm locations with 300 or more new jobs in Georgia found that employment multipliers were about .30.[35] A study of tax incentives targeting job creation in Kansas found that firms that received incentives were not more likely to create jobs than firms that did not receive incentives. While firms new to the state provide a one-time influx of jobs, both incentivized and non-incentivized relocating firms did not add jobs at a higher rate than existing firms.[36]

30 See: Porter, Michael, "Clusters and the New Economics of Competition," Harvard Business Review, 1998. Available here.

31 Greenstone, Michael, Moretti, Enrico, "Bidding for Industrial Plants: Does Winning a 'Million Dollar Plant' Increase Welfare?" National Bureau of Economic Research, Working Paper 9844, 2003. Available here.

32 Greenstone, Hornbeck, Moretti, "Identifying Agglomeration Spillovers: Evidence From Million Dollar Plants," National Bureau of Economic Research, Working Paper 13822, available here. For total factor productivity, read here.

33 For a review of agglomeration economies, read the National Bureau of Economic Research, "Agglomeration Economies," available here.

34 Fox, William, Murray, Matthew, "Do Economic Effects Justify the Use of Fiscal Incentives," Southern Economic Journal, Vol. 74, No. 1, 2004. Available here.

35 Edmiston, Kelly, "The Net Effects of Large Plant Locations & Expansions on County Employment," Journal of Regional Science, Vol. 44, No. 2, 2004.

36 Jensen, Nathan, "Evaluating Firm-Specific Location Incentives," Kauffman Foundation, 2014. Available here.

Tax Incentives and Expansion Decisions

Some research examines how tax incentives might impact business expansion decisions.

A recent study examined 19 states that implemented tax incentive programs from 1990 to 2007. They estimated that out of 56 jobs created by one million dollars of job creation tax credits, 15 are due to higher firm output while 41 are because the firm substituted labor for capital. [37] They estimate that each job created by state tax incentives costs about $18,000 and report a fiscal multiplier of job creation tax credit program of 1.66.[38]

The study included Vermont but was focused primarily on states with permanent tax cuts, rather than programs available to applicants that meet certain eligibility criteria (e.g., EATI and VEGI). Therefore, the results may not reflect Vermont's experience.

Two recent studies examined Michigan's now-ended MEGA program, a tax credit program targeting manufacturing industries, and reported varying results.[39] One study found annual tax credit costs per job year ranging from $2,940 to $102,860, with the authors best estimate at $10,015 credit cost per job year.[40] Because many of the jobs were in high-paying manufacturing industries with average annual wages of $75,627, the study estimates that the program would likely pass a benefit-cost test.[41] The other study, however, found that the MEGA credit program had no impact on county-level employment or wages, and no impact on manufacturing or warehousing, targets of the program. The study found impacts in the construction industry, at estimated $123,000 per job, which lasted on average one year. They note that their cost-per-job findings are about 25 times what is reported in the State of Michigan's analysis.[42]

37 Chirinko, Robert, Wilson, Daniel, "Job Creation Tax Credits, Fiscal Foresight, and Job Growth: Evidence from U.S. States," Federal Reserve Bank of San Francisco, Working Paper, 2016. Available here.

38 Ibid. "Job Creation Tax Credits, Fiscal Foresight, and Job Growth: Evidence from U.S. States,"

39 Bartik, Timothy, Erickcek, George, "Simulating the Effects of MIchigans MEGA Tax Credit Program on Job Creation and Fiscal Benefits," W.E. Upjohn Institute for Employment Research, 2012. Available here.

40 Ibid. "Simulating the Effects of MIchigans MEGA Tax Credit Program on Job Creation and Fiscal Benefits."

41 Ibid. "Simulating the Effects of MIchigans MEGA Tax Credit Program on Job Creation and Fiscal Benefits."

42 Hicks, Michael, LaFaive, Michael, "The Influence of Targeted Economic Development Tax Incentives on County Economic Growth: Evidence from Michigan's MEGA Credits," Economic Development Quarterly, Vol. 25, No. 2, 2011.

Some forthcoming tax incentive research is worth noting. A new database on state and local economic development incentives has been created by the W.E. Upjohn Institute for Employment Research. It covers 33 states that make up 92 percent of U.S. gross domestic product, from 1990 to 2015.[43] Vermont is not included in the 33-state database, but the findings from this new database may be informative for policy makers. The database includes different types of tax incentives across 45 industries and includes detailed information such as how the incentives are paid out over time.

Preliminary findings from the W.E. Upjohn Institute indicate that while incentive structures and sizes differ greatly across states, there is no strong correlation between incentives and state's economic outcomes. Estimates indicate that the average incentive would impact incented firms' investment decision six percent of the time and would not affect the firms' decision 94 percent of the time.

Tax Incentives and Corporate Decision-Making

How does offering a tax incentive affect the choices of businesses? Our review of the research finds that it is difficult to assess whether and to what extent tax incentives cause businesses to invest.

An underlying assumption of many cash-based economic development policies is that the growth that occurs after receiving an incentive, in the form of new jobs, added equipment, or facilities, would not have occurred had the government not provided the incentive. The assumption is that "but for" the incentive, the growth would not occur. Without the "but for" assumption, incentive programs would not make sense because a government would not expend resources if the desired result–private investment resulting in economic growth—would have occurred without intervention. Several incentive programs, including Vermont, require firms to state that but for the incentive they would not be making the same investments.[44]

Empirical efforts to determine whether business incentives achieve economic development goals are hampered by the "but for" assumption. Government officials are not privy to a company's internal discussions and strategic planning, so officials cannot know whether a firm was planning to expand without the incentive. Firms know this and have substantial incentive to overstate the impact of incentives on their decision-making, as incentives can lower the cost of doing business and add to their bottom line.[45] A small number of studies have examined

43 Bartik, Timothy, "Better Incentives Data Can Inform Both Research and Policy," W.E. Upjohn Institute for Employment Research, Volume 24, No. 2, 2017. Available here.

44 See "Vermont Employment Growth Incentive "But For" Approval Criterion", available here; Rhode Island Qualified Jobs Incentive Tax Credit Application Certification Form, available here; California Tax Credit Regulations, 10 CCR § 8030 (b)(27), available here.

45 Wohlgemuth, Kilkenny, "Firm Relocation Threats and Copy Cat Costs," Iowa State University CARD Working Paper, 1995, available here.

whether companies are likely to overstate their investments, particularly in terms of job growth.

For example, a study examined 366 Ohio companies that underwent expansions, and compared the announced number of jobs before an expansion with the actual number of jobs afterward at incented and non-incented companies. The study found that on average a company seeking incentives overestimated the number of new jobs it would create by 28.5 jobs and suggested that companies may inflate their investment estimations when seeking incentives.[46]

Incentives often represent a small percentage of business expenses. One analysis found that on average for all states, state and local business taxes—corporate and individual income, sales taxes, and local property taxes make up approximately 1.8 percent of total business costs, with corporate income taxes representing about 0.17 percent of total business costs. Other business costs make up a much larger share of costs such as labor, inputs, energy, and transportation, among others. Costs vary by industry, but small differences in more substantial business costs are likely to have a much larger impact on investment decisions than a reduction in taxes.

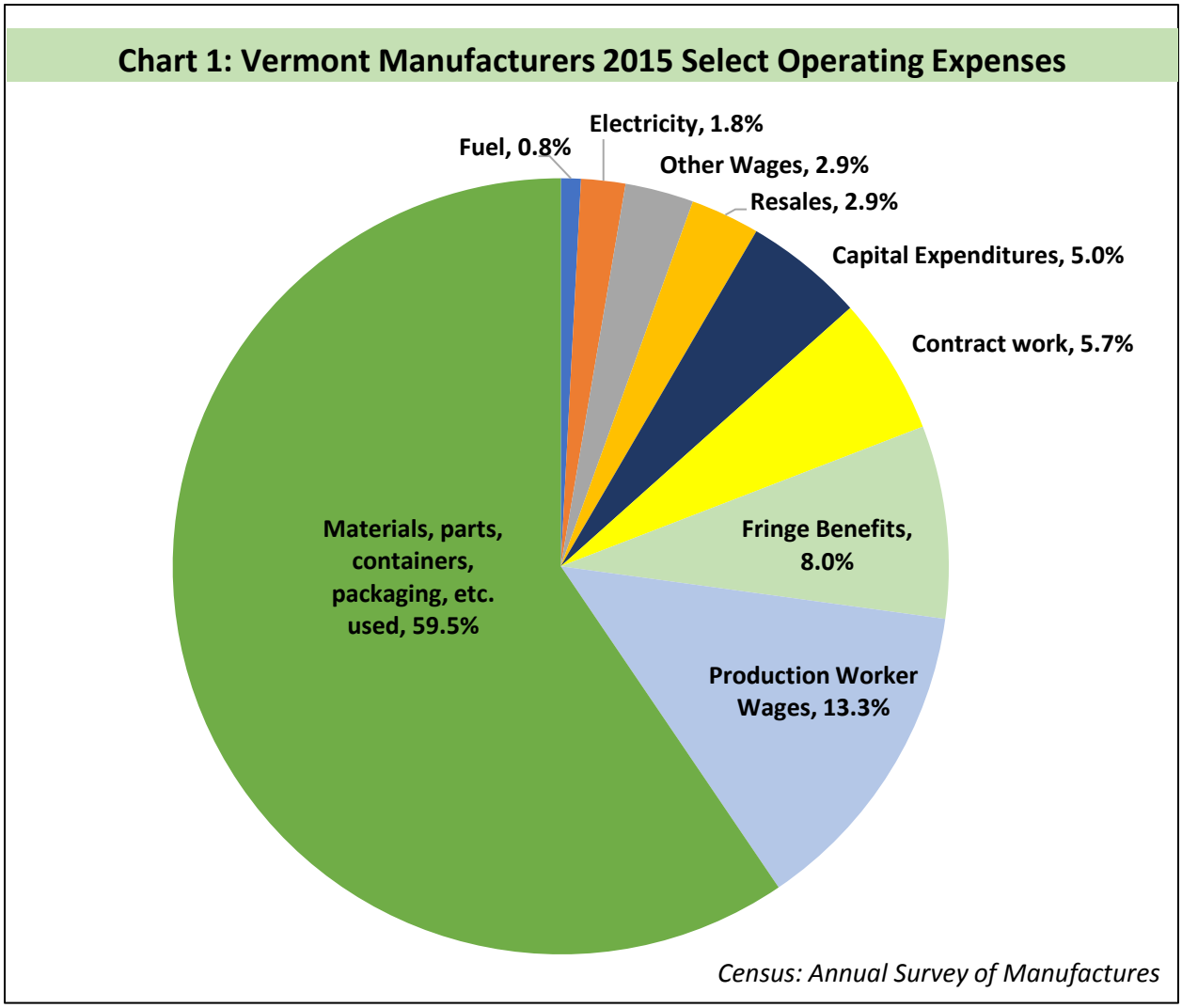
(Fisher, 2013)

It is important to note that while some operating expenses, such as electricity or taxes, may represent a minor percentage of total operating costs in some industries,[47] business often operate with very small profit margins, meaning that a relatively small change in operating costs could diminish firm profitability.[48] Chart 1 below, shows operating cost totals for Vermont manufacturing firms in 2015.

46 Gabe, Kraybill, "The Effect of State Economic Development Incentives on Employment Growth of Establishments," Journal of Regional Science, Vol. 42, No. 4, 2002.

47 Fisher, Peter, "Grading Places: What Do the Business Climate Rankings Really Tell Us?" Good Jobs First, 2013. Available here.

48 For general reading: Thompson, Arthur, "Strategies for Staying Cost Competitive," Harvard Business Review. Available here.



The Annual Survey of Manufactures does not provide state level data for taxes or rent so they are not included in Chart 1.

Moreover, state and local business taxes can be deducted from federal taxes, flattening taxes across states and resulting in smaller differences in effective tax rates than the marginal rates would indicate.[49] This is important when considering whether companies might be motivated to move from one state to another to take advantage of differences in tax rates. Approximately 90 percent of firms nationally are S-corporations, sole proprietorships, and partnerships, where profits are "passed through" to the business owners, and are then taxed as personal income, which are also deductible from federal taxes.[50]

49 Lynch, Robert, "Rethinking Growth Strategies: How State and Local Taxes and Services Affect Economic Development." Economic Policy Institute, 2004. Available here.

50 LaRose, Eric, "How Much Do State Business Taxes Matter?" Federal Reserve Bank of Richmond, 2016. Available here.

Federal Deductibility of State Taxes

This is an example of how federal deductibility of state taxes can flatten tax rates across states. We consider two states, a business with $100 in taxable income, and a 35 percent federal tax rate:

State 1: 8.5% income tax	State 2: 6.5% income tax
Taxable Income: $100	Taxable Income: $100
State Tax: $100 x .085 = $8.5	State Tax: $100 x .065 = $6.5
Federal Tax: $91.5 x .35 = $32.03	Federal Tax: $93.5 x .35 = $32.73
Total State and federal taxes due = state tax + federal tax	Total State and federal taxes due = state tax + federal tax
Total state and federal taxes due: **$40.53**	Total state and federal taxes due: **$39.23**

In this simplified example, the 2% difference in statutory state corporate tax rate results in a 1.3% difference in combined state and federal tax liability.

While taxes are paid on taxable income, this does not necessarily mean that changes in taxes affect businesses equally. Statutory tax incidence—who legally pays a tax—can differ significantly from economic incidence, or how a tax is split between businesses, suppliers, labor, and consumers. Economic incidence varies widely across industries. For example, a tax increase or decrease of one percent may result in a change in tax burden for a business close to, less than, or significantly less than one percent, depending on industry and various market forces.[51] [52] The economic incidence—who pays the tax—differs by the type of good or service; a percentage of corporate income tax incidence is borne by entities other than business.[53] [54]

51 See, generally, Fullerton, Don, and Gilbert, Metcalf, "Tax Incidence," Handbook of Public Economics, 2002, available here.

52 Lynch, Robert, "Rethinking Growth Strategies: How State and Local Taxes and Services Affect Economic Development." Economic Policy Institute, 2004. Available here.

53 Cline, Robert, et al., "The Economic Incidence of Additional State Business Taxes," Tax Analysts, 2010. Available here.

54 Nunns, Jim, "How the Tax Policy Center (TPC) Distributes the Corporate Income Tax," TPC, Urban Institute & Brookings Institution, 2012.

Incentives and the Business Climate

These are edited excerpts from Motoyama and Hui (2015).[55]

Business Climate Rankings

"As the number of ranking reports surged (through the 90s and 2000s), so did scholarly criticisms. First, the rankings vary substantially depending on criteria. Even within a similar theme, such as tax-based rankings, variations in weighting schemes, criteria considered, and method can yield dramatically different rankings of states. Fisher (2005) found that 34 of the 50 states could claim that they were in the top 10 somewhere among the five business climate ranking studies. Kolko et al. (2011) analyzed nine ranking reports and identified seven "number one" states, four of them ranked as low as 46th or 48th in other rankings.

Second, those ranking studies have had little correlation with the actual business outcomes or economic indicators of each state. Skoro (1988) analyzed Thornton and Inc. rankings and found no correlations with economic performance. Similarly, Fisher (2005) did not find any statistically significant and strongly positive correlations between the rankings and firm formation rate, job creation by the state economy, jobs created by fast-growing firms, the number of initial public offerings, or issued patents. While these two studies analyzed a simple correlation, Plaut and Pluta (1983) and Kolko et al. (2011) conducted more sophisticated analyses and reached the same conclusion…the past scholarly studies have unanimously found little relationship between rankings and economic performance."

Third, Fisher (2005) challenged the internal validity of ranking studies. For instance, among the various rankings, the Small Business Survival Index had a relatively selective scope and was intended to measure how well a state creates a nurturing environment for entrepreneurial activity through public policies. However, of the 23 indicators it employed to measure "major government-imposed or government-related costs affecting investment, entrepreneurship, and business" (Keating, 2011, p. 5), it considered only lower taxes, a state's right-to-work status, a state minimum wage lower than that of the federal minimum wage, lower health care and electricity costs, a lower crime rate, and fewer government employees as sources of a better climate (Fisher, 2005). Fisher thus reports that

> *"state spending on infrastructure, the quality of the education system, small business development centers or entrepreneurial programs at public universities, technology transfer or business extension programs, business-university partnerships, small business incubators, state venture capital funding—none of these public activities are considered."*

55 Motoyama, Yasuyuki, and Hui, Iris, "How Do Business Owners Perceive the State Business Climate? Using Hierarchical Models to Examine the Business Climate Perceptions, State Rankings, and Tax Rates." Economic Development Quarterly, Vol. 29, No. 3, 2015.

A further area of research examines how corporate decision-makers understand and view the so-called business climate, taxes, and economic development incentives.

One study surveyed 3,600 business leaders across the U.S. and found that business climate perceptions were most highly correlated with social welfare spending, and to a lesser extent, property tax rates, but were not correlated with corporate, personal income, or sales tax.[56] The study found differences in business owner's perceptions of business climate across business industry, size and development stage. Surveyed business owners noted difficulties in permitting or understanding the tax code rather than the tax rates themselves.[57]

> The findings warn against the use of business climate rankings in making policies that affect small business owners: many popular state rankings do not associate with perceptions of business climate or predict in the wrong direction.
>
> (Motoyama & Hui, 2015)

Several studies of North Carolina's tax credit program examined how it impacted corporate decision-making:

- A 2000 study found that **executives at 118 internationally owned companies located in North Carolina rated government incentives as "far less important" for business location and retention than other local characteristics** such as labor availability and cost, transportation, quality of life, general business climate, and education;[58]
- A 2009 study asked executives to rank the importance of a set of 19 factors on the state's business climate. **State tax incentives were ranked 13th among companies that had received the credit and 12th among companies that had not;**[59] and
- A 2015 study examined the perceptions of North Carolina business leaders engaged in investment and workforce expansion and found that 29 percent of executives at firms receiving a tax credit were aware that their business had received a tax incentive, with 61 percent that they did not believe that their company had received such incentives. **The study concluded that tax credits "…play, at best, a limited role in executive decisions to engage in job creation and investment activities."**[60]

56 Motoyama, Yasuyuki, and Hui, Iris, "How Do Business Owners Perceive the State Business Climate? Using Hierarchical Models to Examine the Business Climate Perceptions, State Rankings, and Tax Rates." Economic Development Quarterly, Vol. 29, No. 3, 2015.

57 Ibid. "How Do Business Owners Perceive the State Business Climate? Using Hierarchical Models to Examine the Business Climate Perceptions, State Rankings, and Tax Rates."

58 Rondinelli, Burpitt, "Do Government Incentives Attract and Retain International Investment? A Study of Foreign-Owned Firms in North Carolina." Policy Sciences 33, 181-205, 2000.

59 Lane, et al, "An Evaluation of North Carolina's Economic Development Inventive Programs," 109-110, 2009. Available here.

60 Jolley, Lancaster, Gao, "Tax Incentives and Business Climate: Executive Perceptions From Incented and Nonincented Firms," Economic Development Quaterly, Vol29(2) 180 – 186, 2015.

Workforce Development

Workforce development describes a broad set of actions and policies intended to develop and maintain a trained and well-educated workforce, and may focus on individuals, businesses, industries, communities, or regions.[61] Workforce development refers to building (and in some cases re-building) the skills of working-age and nearly working-age individuals as well as aiding their participation in the labor force. Such programs include job search assistance, training, apprenticeships, on-the-job training, and job placements, among others.

Broadly, workforce development and tax incentive based economic development policies and programs can be understood as related public policies: workforce development generally aims to increase the supply and quality of labor, while business incentive focused economic development programs generally aim to increase the demand for labor.[62]

Despite their related objectives, workforce development and tax-based economic development programs are usually separate programs. They are often housed in different agencies that may not interact much and their funding streams may be different: federal funding for workforce development and state and local funding for tax-based economic development policies.[63] Organizational goals, performance measurement, and oversight responsibility may differ.[64]

While a variety of workforce training programs exist in the United States, researchers note that the level of public funding for such programs is notably lower relative to GDP than in many other advanced countries, as seen in Chart 2.[65]

In contrast to business incentives, which have grown over the last 30 years, public spending on labor market policies as a percentage of GDP has declined by about 50 percent.

(White House Council of Economic Advisors, 2016)

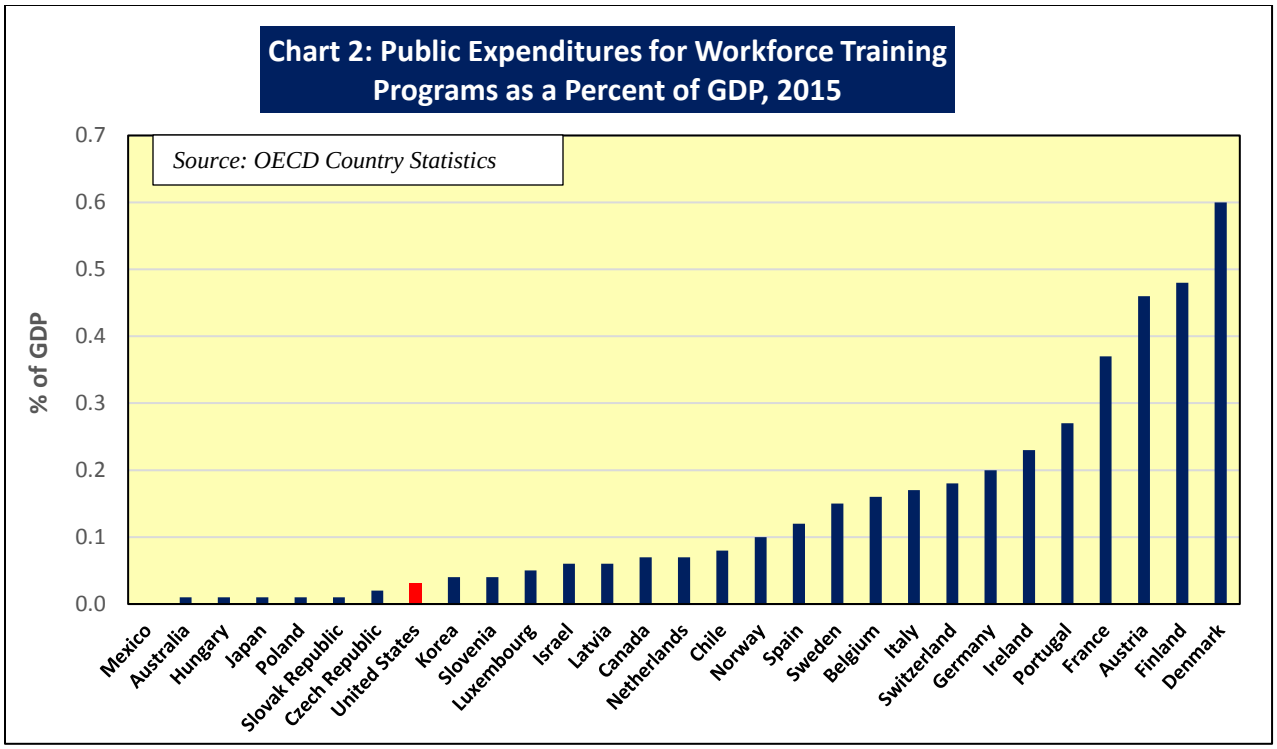
61 Haralson, Lyn, "What is Workforce Development?" Federal Reserve Bank of St. Louis, available here.

62 Harper-Anderson, Elsie, "Measuring the Connection Between Workforce Development and Economic Development," Economic Development Quarterly, Vol. 22, No. 2, 2008.

63 Ibid, "Measuring the Connection Between Workforce Development and Economic Development."

64 Fitzergerald, Joan, "Moving the Workforce Intermediary Agenda Forward," Economic Development Quarterly, Vol. 18, No. 1, 2004.

65 White House Council of Economic Advisors Issue Brief, "Active Labor Market Policies: Theory and Evidence for What Works," 2016, available here.



Evidence indicates that workforce development programs can have positive benefits both for participants, in terms of skill building and subsequent employment and earnings outcomes, and the public, through a more productive workforce, tax revenues, and reduced reliance by participants on public assistance programs.

Researchers note that there is a general perception that workforce development programs are not effective relative to their costs, and that they are unlikely to be successful because they do not properly align skill building with the skills that businesses need.[66] [67] While the effectiveness and efficiency of such programs vary according to their specific attributes, empirical evidence indicates that workforce development programs can generate positive impacts for participants and businesses, and can be cost effective for the public.[68] We highlight evidence from the literature below.

Workforce Development Meta-Analyses

Researchers have conducted several meta-analyses of workforce development literature over the past two decades. Meta-analyses pull together many different studies that examine the same or similar questions—from dozens to hundreds—and conduct statistical analyses to

66 Holzer, Henry, "Workforce Development as an Antipoverty Strategy," Urban Institute, 2008. Available here.

67 Porter, Educaro, "Job Training Works. So Why Not Do More?" The New York Times, July 5, 2016. Available here.

68 See: Card, David, Kluve, Jochen, Weber, Andrea, "What Works? A Meta Analysis of Recent Active Labor Market Program Evaluations," The Economic Journal, Vol. 120, 2010, revised 2017. Available here, revised version, here.

calculate correlations and develop an understanding of the direction of the literature.

The most recent and extensive meta-analysis, updated and revised in 2017, examined 207 studies of workforce development programs and their impact in the short term (one year after program completion), medium term (two years after), and longer-term (three years after).[69] The findings are like those of several other, earlier meta-analyses.[70] [71]

Here are the main conclusions:

- The impact of workforce development programs differs over time: most have small impacts in the short run, and larger impacts in the medium and long term. For studies that examined employment impacts for all program participants, average employment increased relative to those not receiving training between one to three percent in the short term, three to five percent in the medium term, and five to 12 percent in the longer term;
- Job search assistance program impacts do not change much over time. Impacts in the short and long term may be similar because these programs emphasize immediate employment rather than skill development; and,
- Workforce development programs' impacts likely differ across demographic groups. Across studies, the analysis found that female participants experienced larger average effects, as did long-term unemployed participants. Generally, youth and older participants experienced smaller effects.[72]

Job Training Programs

Job training programs are central to workforce development in the United States. Evidence indicates that training programs can have positive impacts on participants, and likely pass benefit-cost tests for public investment, although findings vary across studies by type of program, program intensity, and what demographic groups benefit most.[73]

The Workforce Innovation and Opportunity Act (WIOA) of 2014, which replaced Workforce Investment Act (WIA) programs, is a federal workforce development program that has been the

69 Card, David, Kluve, Jochen, Weber, Andrea, "What Works? A Meta Analysis of Recent Active Labor Market Program Evaluations," The Economic Journal, Vol. 120, 2010, revised 2017.

70 See: Greenberg, David, "A Meta-Analysis of Government-Sponsored Training Programs," Industrial and Labor Relations Review, Vol. 57, No. 1, 2003.

71 See: Kluve, Jochen, "Active Labor Market Programs and the Cycle," Paper prepared for the joint OECD/University of Maryland Conference on "Labor Activation in Times of High Unemployment," November 2011. Available here.

72 Ibid, "What Works? A Meta Analysis of Recent Active Labor Market Program Evaluations."

73 LaLonde, Robert, "Employment and Training Programs," Means-Tested Transfer Programs in the United States, University of Chicago Press, 2000. Available here.

subject of considerable research. WIA programs include adult, dislocated, and youth training programs, as well as others, such as job search assistance programs.[74] [75] [76] Until WIOA programs mature and are studied, we can look to the extensive findings about WIA programs, which are the basis for WIOA. [77]

Several rigorous studies examine the impacts of WIA participation. A 2008 study found that earnings impacts resulting from WIA Adult and Dislocated Worker program varied across program, gender, and how much time had elapsed since training.[78] For example, one quarter after training, average male participants in the WIA Adult Worker Program training experienced a $192 quarterly earnings increase, while female Adult Worker Program and male and female Dislocated Worker Program participants saw decreases in their earnings.[79] Because training takes up time that might otherwise be used for working, the negative earnings impacts in the first quarter for some participants are not surprising: as workers gain new skills and training ends they are likely to earn more and work more hours, resulting in increased earnings.[80]

State-level evaluation of Washington State's workforce development programs in 2006 and 2012, conducted by the W.E. Upjohn Institute for Employment Research found positive long-term net impacts and benefit-cost calculations for worker training, both for the training participant and the public.[81] Importantly, for WIA Adults and WIA Dislocated Workers, benefits exceeded costs for the public by 2.3:1 and 1.4:1, respectively.[82] The analysis indicates that, on average, such programs result in higher benefits for the public, such as increased tax revenues, than the initial training costs over the working lifetime of the participants.[83]

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74 Dislocated workers are workers who have been or will be terminated or laid off and are unlikely to return to a previous industry or occupation or will be terminated or laid off because of a permanent closure or substantial layoff. The term also includes self-employed workers that are unemployed because of general economic conditions or natural disasters, or are displaced homemakers, or are the spouse of active duty members of the Armed Forces who has experienced loss of employment due to permanent change in location.

75 United States Department of Labor, "Workforce Investment Act," available here.

76 McConnel, Sheena, et al., "Providing Public Workforce Services to Job Seekers: 15-month Impact Findings on the WIA Adults and Dislocated Worker Programs," Mathematica Policy Research, May 2016. Available here.

77 Ibid. "Providing Public Workforce Services to Job Seekers: 15-month Impact Findings on the WIA Adults and Dislocated Worker Programs."

78 Adult Worker funds are for adult employment and training activities, with priority given to public assistance recipients and low-income individuals. Dislocated Worker funds are for workers that are unemployed because of general economic conditions in the community in which the individual resides or because of natural disasters and are unlikely to return to the industry or occupation where they were previously employed. Dislocated workers funds can also be used when there is a general announcement of a plant closing.

79 Ibid, "Providing Public Workforce Services to Job Seekers: 15-month Impact Findings on the WIA Adults and Dislocated Worker Programs."

80 Ibid, "Providing Public Workforce Services to Job Seekers: 15-month Impact Findings on the WIA Adults and Dislocated Worker Programs."

81 Hollenbeck, Kevin, Huang, Wei-Jang, "Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State," W.E. Upjohn Institute for Employment Research, 2014.

82 Ibid. "Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State."

83 Ibid. "Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State."

A forthcoming study is worth noting. The "Workforce Investment Act Adult and Dislocated Worker Programs Gold Standard Evaluation," commissioned by the U.S. DOL and conducted by Mathematica Policy Research, a nonpartisan research organization, is expected to report a nationally representative experimental estimate of the impacts of the WIA Adult and Dislocated Worker programs derived from a sample of 35,000 individuals.[84] The study is noteworthy because it randomly assigned participants into groups receiving three different levels of programming and tracked outcomes. Because of its rigorous, experimental design and large sample size, the results of this study will likely be relevant to state-level policy makers interested in workforce development policies. It is scheduled to be released in early 2018.

Sectoral Training

A subset of worker training literature examines sectoral-focused training. Sectoral-focused training concentrates on building workers' skills in a specific industry, for example, information technology, manufacturing, or the medical industry. A key goal is to aid workers in gaining employment in industries that are locally-based and expected to grow, thereby creating a supply of workers for already in-demand positions.[85]

In a 2009 report, Public/Private Ventures, a non-partisan non-profit research organization, reported the impacts of three workforce training programs that had participated in a random assignment evaluation—meaning eligible participants were randomly placed either into training or not. [86] The programs focused on medical and basic office skills, computerized accounting, information technology, and other technical training. The program consisted of both general job readiness training, as well as specific skills needed to perform in a specific industry. The programs were substantial but varied in number of hours: training lasted between 1 and 25 weeks and consisted of 40 – 625 hours.[87]

On average those in the training earned 18 percent, or $4500 more than those in the control group over the two-year length of the study. Most of the increased earnings occurred in the second year after the training was completed, suggesting that the new skills gained in the training resulted in higher earnings. Furthermore, program participants worked on average 1.3 months more than those that had not undergone any training, which explained $1,200 of the $4,500 overall higher earnings.[88]

84 "Workforce Investment Act Adult and Dislocated Worker Programs Gold Standard Evaluation," Mathematica Policy Research. Available here.

85 Maguire, Sheila, et al., "Tuning In to Local Labor Markets," Public/Private Ventures, 2010. Available here.

86 Ibid, "Tuning In to Local Labor Markets."

87 Ibid, "Tuning In to Local Labor Markets."

88 Ibid, "Tuning In to Local Labor Markets."

Other recent experimental studies of sectoral focused programs have found similar impacts for participants, with positive impacts increasing with time.[89]

Work-Based Learning

Work-based learning is comprised of on-the-job training programs where workers are placed with or hired by firms for specific periods of employment during which training takes place, such as apprenticeships and other programs.

Apprenticeship programs, popular in European countries such as Germany, have been the subject of renewed interest in the United States in recent years. Former Federal Reserve Chair Janet Yellen recently noted that apprenticeships:

> "…could play a larger role for low- and moderate-income individuals in our country as part of broader career and technical education efforts. For instance, a state-run program in South Carolina…helps employers develop apprenticeships at no cost to them. Businesses receive a $1,000 annual tax credit per apprenticeship, and the program assists them with information and technical needs, paperwork, and the integration of classroom learning at local technical colleges. The program has led to sizable job gains at a modest cost to the state."[90]

> "Probably the most important workforce development strategy is improving the quality of general education."
>
> (Federal Reserve Chair Janet Yellen, 2017)

The advantages of work-based training can be considerable. Workers receive industry and firm-specific training, in contrast to general training programs, and can use their training experience to obtain other related jobs. Furthermore, work-based training can reduce worker turnover, a substantial cost for many businesses. [91]

There are not many large scale, rigorous studies that examine work-based training in the United States.[92] However, state-level outcomes of Apprenticeship Carolina, mentioned above, and other programs, such as Washington's apprenticeship program suggest that apprenticeship programs can yield positive returns for states.

A net impact and cost-benefit analysis of Washington State's workforce development programs conducted by the W.E. Upjohn Institute for Employment Research found that short term net employment increased by 7.5 percent for apprenticeship program participants, while net

89 See: Hendra, Richard, et al., "Encouraging Evidence on a Sector-Focused Advancement Strategy: Two-Year Impacts from the WorkAdvance Demonstration," Mayor's Fund to Advance New York City, 2016. Available here.

90 Yellen, Janet, "Addressing Workforce Development Challenges in Low-Income Communities," March 28,2017. See full transcript, here.

91 "What Works in Job Training: A Synthesis of the Evidence," United States Department of Labor, July 2014.

92 Ibid. "What Works in Job Training: A Synthesis of the Evidence."

quarterly earnings increased by $3,717.[93] Long-term benefits, defined as nine to twelve quarters after exit, found a $3,447 quarterly increase in earnings. For the public, costs were recouped through tax revenues and other public benefits in about 2 years.[94]

A cost-benefit analysis of the DOL's Registered Apprenticeship program in 10 states, conducted to establish whether the findings in the Washington State study detailed above were likely to hold true nationally, was conducted by Mathematica Policy Research and published in 2012.

The findings of the study indicate that the benefits of the Registered Apprenticeship program far outweigh the costs. Nine years after enrollment, program participants earned $5,839 more than nonparticipants, and were estimated to earn more than $98,000 over their lifetimes than non-participants.[95] Benefits of the program for society were found to outweigh costs by nearly $50,000. Furthermore, the research indicated that state administered programs performed as well as federally run programs, a finding that may be of interest to state policy makers.[96]

Job Search Assistance Programs

Job search assistance programs help individuals find employment and can include one-on-one counseling that might involve finding job openings, application process help, weighing the pros and cons of job offers, job readiness assessment, and job matching, as well group workshops and networking opportunities.[97] Job search assistance programs have been found to be more effective for disadvantaged workers, whereas training and work-based programs appear to be more impactful for workers that have been unemployed for long periods of time.[98]

Job search assistance programs generally have positive short-term employment and earnings impacts. In the medium- and long-term, the benefits of job assistance programs are largely flat, which may be explained by their narrow focus on finding immediate employment for workers, rather than building skills that would result in long-term employment and earnings gains.[99]

93 Hollenbeck, Kevin, Huang, Wei-Jang, "Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State," W.E. Upjohn Institute Employment Research Newsletter, Vol. 24, No. 1, 2017.

94 Ibid. "Net Impact and Benefit-Cost Estimates of the Workforce Development System in Washington State."

95 Reed, Debbie, et al., "An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States," Mathematica Policy Research, submitted to the U.S. Department of Labor Employment and Training Administration, 2012.

96 Ibid, "An Effectiveness Assessment and Cost-Benefit Analysis of Registered Apprenticeship in 10 States."

97 Klerman, Jacob, "Job Search Assistance Programs: A Review of the Literature," Office of Planning, Research, and Evaluation, United States Department of Health and Human Services, December 2012.

98 Card, David, Jochen, Kluve, Weber, Andrea, "What Works? A Meta-Analysis of Recent Labor Market Program Evaluations," National Bureau of Economic Research, Working Paper 21431, April 2017.

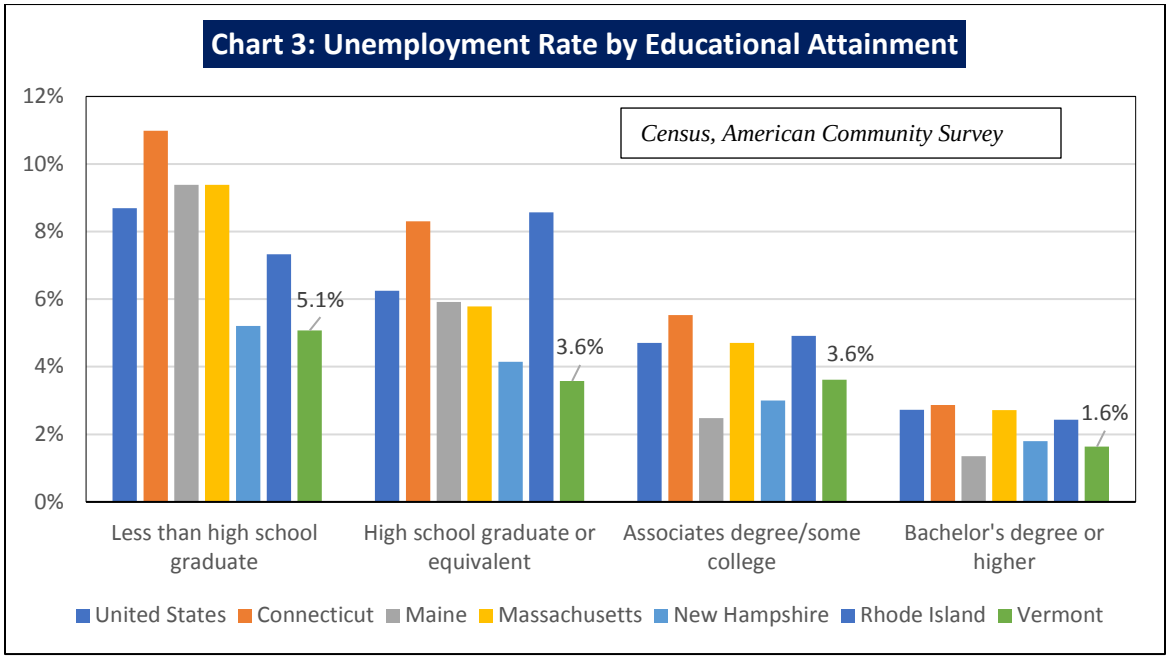
99 Ibid. "What Works? A Meta-Analysis of Recent Labor Market Program Evaluations,"

Community Colleges

Recent evidence suggests that community college credentials, such as associate degrees and certificates, raise earnings and result in increased employment.

Nearly every reliable study has found positive income gains from obtaining an associate degree, and meta-analyses reviewed for this report found positive income gains ranging from 13 percent to 22 percent.[100] [101] Even enrollment in community college courses that do not lead to a degree—such as certificate programs, or simply enrolling in courses—results in earnings increases of 9 or 10 percent.[102]

Such findings support broader educational research indicating that increased educational attainment results in higher earnings and employment.[103] Some research indicates that the United States lags other countries in terms of educational access and equality and posits that increased community college enrollment could reduce such inequities.[104] As seen in Chart 3, those with higher formal educational attainment have a lower average unemployment rate. This is true for Vermont, other New England states, and the United States.



100 Belfield, Clide, Bailey, Thomas, "The Benefits of Attending Community College: A Review of the Evidence," Community College Review, Vol. 39, No. 1, 2011.

101 Card, David, "Estimating the Return to Schooling: Progress on Some Persistent Econometric Problems," Econometrica, Vol. 69, No. 5, 2001.

102 Ibid, "The Benefits of Attending Community College: A Review of the Evidence."

103 See: For the Poor, the Graduation Gap is Even Wider Than the Enrollment Gap, New York Times, 2015 available here.

104 See, for example, here, here, and here.

Early Childhood Education

Workforce development is usually thought of as programs for working-age or near working age adults. However, some researchers have begun to see early childhood education in terms of economic development as well.

> Early childhood programs impact the supply and quality of the labor force because parents of children are more likely to participate in workforce training and be employed when affordable childcare is available.
>
> (Bartik, 2008)

Economists and social scientists have extensively studied the benefits of early childhood education. Many studies have found positive economic benefits to individuals and society, through additional education, improved economic outcomes, and reduced crime.

Generally, research has found that benefits of early childhood programs tend to be highest for programs that target disadvantaged children when compared to lower-risk children. Programs that target at-risk students tend to have positive benefit-cost ratios.[105] [106] For example, an early adulthood follow-up with the well-known Abecedarian program found a benefit-cost ratio of 3.23 at age 21. A Perry Preschool program follow-up at age 40 found that benefits to participants and society each dwarfed the initial program costs, with a range of overall benefit-cost ratios of 1.26 to 17.07.[107] Another recent study randomly assigned 11,571 students in Tennessee to classrooms within their school, and reported two important findings: students in smaller classes were more likely to attend college, and students with more experienced kindergarten teachers had higher average earnings.[108] However, some research has also indicated that some of the reported benefits of early education programs tend to decrease over time, and more research into what types of programs are the most effective is needed.[109]

Importantly, a recent analysis of two types of early childhood programs—universal prekindergarten and home visits to disadvantaged parents—found that they would increase earnings in a state by two to five times the cost, depending on program type and intensity. The study found that more intensive (and therefore more expensive) programs yielded larger

105 See, generally: Garcia, Jorge, et al., "The Life-Cycle Benefits of an Influential Early Childhood Program," National Bureau of Economic Research, Working Paper No. 22993, 2016.

106 Karoly, Lynn, Kilburn, Rebecca, Cannon, Jill, "Early Childhood Interventions: Proven Results, Future Promise," RAND Labor and Population, RAND Corporation, 2005.

107 Ibid, "Early Childhood Interventions: Proven Results, Future Promise," RAND Labor and Population, RAND Corporation, 2005.

108 Chetty, Raj, et al., "How Does Your Kindergarten Classroom Affect Your Earnings? Evidence from Project STAR," National Bureau of Economic Research, Working Paper No. 16381. March 2011. Available here.

109 Duncan, Greg, Magnuson, Katherine, "Investing in Preschool Programs," Journal of Economic Perspectives, Vol. 27, No. 2, 2013. Available here.

expected impacts.[110]

Further research indicates that economic multipliers for the child care industry are high—higher than the median for manufacturing, agriculture, and services. The high multipliers for childcare are because most of the cost —employee wages and rent—remain in the local economy.[111]

Lack of adequate child care for employees can result in significant productivity losses and retention problems for business.[112] In response, some businesses pay for or provide child care services to their employees. For example, outdoor clothing company Patagonia reports that it recoups 91 percent of costs incurred through its on-site child care program located both at its headquarters and distribution hub, through tax breaks and reduced turnover.[113] The company believes the cost of the program is justified by the resulting increase in employee productivity and reduced employee turnover.

Business Assistance and Financing

Another topic of economic development research concerns government provision of managerial and technical assistance to businesses. Such programs aim to help businesses start up and grow, with the goal of spurring economic growth and providing stable and increased employment for a region.

Small businesses tend to have a higher average net growth rate than larger businesses.[114] Startups with less than 20 employees have a net neutral effect on job creation because more than half of new businesses close after five years, while small businesses with 20 – 499 employees have higher survival rates and therefore tend to have a net positive effect on job creation.[115] Small firms create jobs, but the age of the firm is important: estimates indicate that start-ups account for 3 percent of total employment but 20 percent of gross job creation, that is, as firms start-up they create jobs that previously did not exist.[116]

Relevant to Vermont are business issues common in rural communities: relative lack of business and technological expertise, limited capital and financing options, and limited access to human

110 Bartik, Timothy, "The Economic Development Effects of Early Childhood Programs, W.E. Upjohn Institute for Employment Research," 2008.

111 Warner, Mildred, Liu, Zhilin, "The Importance of Child Care in Economic Development: A Comparative Analysis of Regional Economic Linkage," Economic Development Quarterly, Vol. 20, No.1, 2006.

112 Macewan, Arthur, "Early Childhood Education, Economic Development, and the Need for Universal Programs: With a Focus on New England," Economics, Management, and Financial Markets, Vol. 10, No. 1, 2015.

113 Feintzeig, Rachel, "The Case for Day Care at the Office," The Wall Street Journal," September 2016. Available here.

114 See: Haltiwanger, Ron, Miranda, Javier, "Who Creates Jobs? Small Versus Large Versus Young," The Review of Economics and Statistics, May 2013.

115 Dilger, Robert, "SBA Assistance to Small Business Startups: Client Experiences and Program Impact," Congressional Research Service, 2013. Available here.

116 Ibid, "Who Creates Jobs? Small Versus Large Versus Young,"

resources and markets. [117] At the same time, such communities have advantages, too, such as relatively stable labor forces and high levels of social capital.[118]

Small businesses face a myriad of challenges that differ significantly from larger business, including access to capital, and lack of internal knowledge and experience in marketing and distribution, human resources, and accounting.[119] Even when business owners have significant experience, substantial knowledge gaps about core business functions can exist, and owners or management may not be prepared for various changes that occur when embarking on business expansions.[120]

Technical and managerial assistance programs increase business survival and contribute to short- and long-term growth. Research suggests that low- and high-performing businesses benefit from different types of outside assistance. Low-performing businesses that are in danger of going out of business benefit from assistance with primary business functions, such as marketing, financial management, and general management. High performing businesses benefit most from assistance for secondary business functions, such as human resources.[121]

The amount of time spent with business assistance counselors or consultants appears to impact outcomes as well: more assistance is correlated with firm survival and sales and revenue growth.[122] In one study, clients receiving less than three hours of counseling were less likely to continue to be in business than those receiving three or more hours, and counseling hours were statistically significant predictor of financial outcomes.[123]

"Recent national-level research estimates indicate that business assistance programs, such as job training and manufacturing extension programs, may provide benefits up to 10 times as much per dollar as tax incentives."

Bartik, Timothy, "Who Benefits From Economic Development Incentives?" W.E. Upjohn Institute for Employment Research, Technical Report 12-034, 2018. Available here.

117 Ring, Kirk J., Peredo, Ana, Chrismas, James, "Small Rural Community Business Networks as a Form of Entrepreneurship for Economic Development," Entrepreneurship Theory and Practice, 2009.

118 Ring, Kirk J., Peredo, Ana, Chrismas, James, "Small Rural Community Business Networks as a Form of Entrepreneurship for Economic Development," Entrepreneurship Theory and Practice, 2009.

119 Seo, Joo Hwan, et al., "Who Benefits Most? The Effects of Managerial Assistance on High-Versus-Low-Performing Small Businesses," Journal of Business Research, No. 67, 2014.

120 Ibid, "Who Benefits Most? The Effects of Managerial Assistance on High-Versus-Low-Performing Small Businesses."

121 Ibid, "Who Benefits Most? The Effects of Managerial Assistance on High-Versus-Low-Performing Small Businesses."

122 Chrisman, James, McMullan, Ed, Hall, Jeremey, "The Influence of Guided Preparation on the Long-Term Performance of New Ventures," Journal of Business Venturing, Vol. 20, 2005.

123 Solomon, George, et al., "Survival of the Fittest: Technical Assistance, Survival and Growth of Small Businesses and Implications for Public Policy," Technovation, Vol. 33, 2013.

Small Business Administration business assistance programs are a significant provider of business counseling and include 63 Small Business Development Center (SBDC) networks nationwide, which have over 900 locations.[124] SBDCs provide counseling to both established businesses and those that are in development.

Based on 2010 survey responses of long-term clients (businesses that receive five or more hours of counseling), the SBA estimates that 75,166 full-time equivalent jobs were created because of SBDC business consulting, at a cost of $3,153 per job.[125] The performance improvements in business sales and revenues reportedly caused by counseling were estimated to produce $2.27 in tax revenues for every $1 spent on the entire SBDC program. [126]

However, a review of research conducted by RAND notes that there is a dearth of rigorous and independent studies of small business assistance programs. RAND notes that all 22 studies of Small Business Development Centers conducted over the last 35 years report a positive association between SBDC services and business outcomes.[127]

A key methodological issue for such studies—including those cited above—is the impact of variables outside of firms' and counselors' control. The competitive environment, industry trends, and broad macroeconomic effects all impact outcomes. For example, the quality and impact of a business counseling program may be difficult to determine if a significant percentage of counseled businesses failed because of an economic downturn. Furthermore, some studies rely on the survey data from small businesses, which may not be reliable.[128]

Business Incubators

Business incubators are typically non-profit organizations that provide support to new businesses in a region, including reduced rate office space, management and technical assistance, skills development, and help finding outside financing.[129] Business incubators may also aid business development and job growth by creating networking opportunities, which are important because other local business owners can be a vital source of information about local market conditions.[130]

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124 U.S. Small Business Administration, Office of Small Business Development Centers. Available here.

125 Chrisman, James, "Economic Impact of Small Business Development Center Counseling Activities in the United States: 2010-2011," 2012, prepared for the Small Business Administration. Available here.

126 Ibid, "Economic Impact of Small Business Development Center Counseling Activities in the United States: 2010-2011."

127 Gu, Qian, Karoly, Lynn, Zissimopoulos, Julie, "Small Business Assistance Programs in the United States," RAND Working Paper, 2008. Available here.

128 See here for general research methodology discussion.

129 Hacket, Sean, Dilts, David, "A Systematic Review of Business Incubation Research," The Journal of Technology Transfer, Vol. 29, 2004.

130 Ibid. "A Systematic Review of Business Incubation Research."

There is no research consensus regarding the impact of incubators as an economic development tool; some have found positive impacts, while others have found mixed or negative impacts. A key issue in measuring effectiveness is that incubators usually select firms that they believe likely to grow, so finding a group of comparison businesses is difficult.[131]

Positive impacts found from reviewed studies include that:

- At incubator affiliated businesses, compared to a control group, average overall employment and sales growth increased by 3.5 and 2.2 percent, respectively, and upon graduating from the incubator, increases by 6.7 and 5.1 percent, respectively;[132] and
- According to a national study, firms at incubators generated 58 percent more jobs than non-incubator firms. The study randomly selected incubators from a national list and then matched them with comparable firms.[133]

Other research indicates that businesses might not benefit from incubator affiliation, including that:

- Business participation in an incubator has been found to decrease business survival, which may occur because business owners in an incubator may realize that their business will not be economically viable sooner than those that are not in incubators.[134]
- "Graduating," or ending business incubator affiliation after a certain period, may negatively impact firm survival.[135]

Business Financing

Most state governments aim to help small business with financing for a variety of reasons. Micro and small businesses sometimes have trouble accessing credit because of the high fixed cost for banks relative to potential return.[136] For lenders, evaluating the risks of providing credit to small businesses can be problematic, as collecting sufficient information to assess such risks can be difficult.

Financing has become even more problematic since the end of the Great Recession with

131 Stokan, Eric, Thompson, Lyke, Mahu, Robert, "Testing the Differential Effect of Business Incubators on Firm Growth," Economic Development Quarterly, Vol. 29, No. 4, 2015.

132 Amezcua, Alejandro, "Boon or Boondoggle? Business Incubation as Entrepreneurship Policy," 2010. Available here.

133 Ibid. "Testing the Differential Effect of Business Incubators on Firm Growth."

134 Ibid, "Boon or Boondoggle? Business Incubation as Entrepreneurship Policy."

135 Schwartz, Michael, "Beyond Incubation: An Analysis of Firm Survival and Exit Dynamics in the Post-Graduation Period," Journal of Technology Transfer, Vol. 34, 2009.

136 "Opportunities and Challenges in Online Marketplace Lending," United States Department of the Treasury, 2016.

significant tightening of available credit.[137] Notably, women- and minority-owned firms tend to operate with less capital and a different mix of debt and equity capital, relying much more heavily on owner equity investments.[138] Further, some small businesses may not fully understand what their financing options are.

In response to the dearth of available financing, some businesses have turned to online financing. While consumer protections extend to these online institutions, such lenders sometimes operate in a less-than-transparent manner.[139] Other non-traditional solutions include crowdfunding, peer-to-peer lending, and online marketplace lending. Businesses turn to these alternatives when traditional financing does not meet their needs.[140]

Governments may try to fill in the gaps with a variety of initiatives, such as programs that reduce risk for lenders. Research indicates that lending programs may positively impact local economies: the level of Small Business Administration (SBA) lending in a market is associated with future income growth in that market.[141] The magnitude of the relationship is small but is significant for both rural and urban markets.[142]

The methodological difficulties in assessing whether loans cause business growth mirror those of counseling activities discussed above, as many variables influence growth. SBA lending accounts for less than 10 percent of all lending in local economies nationwide and comparing firms that participate in such programs with firms that do not can be problematic because of selection bias, which can be positive or negative.[143] [144] Loans may help businesses survive and grow but may cause overextension resulting in increased risk of failure. SBA calculations may be problematic as well because they are based on borrowers' loan application statements, which may not be reliable.[145]

According to PricewaterhouseCoopers and the National Venture Capital Association, per capita venture capital investments in Vermont—investments in projects that are new or expanding

137 See here and here and here.

138 Robb, Alicia, "Access to Capital among Young Firms, Minority Owned Firms, Women owned Firms, and High-Tech Firms," United States Small Business Administration, Office of Advocacy, 2013.

139 "Opportunities and Challenges in Online Marketplace Lending," United States Department of the Treasury, 2016.

140 Segal, Miriam, "What is Alternative Finance?" United States Small Business Administration, Office of Advocacy, September 2016.

141 Craig, Ben, Jackson, William, Thomson, James, "The Economic Impact of the Small Business Administration's Intervention in the Small Firm Credit Market: A Review of the Research Literature," Journal of Small Business Management, Vol. 47, No. 2, 2009.

142 Craig, Ben, et al., "Small Firm Finance, Credit Rationing, and the Impact of SBA-Guaranteed Lending on Local Economic Growth," Journal of Small Business Management 2007 45(1).

143 Cortes, Bienvenido, "Impact of Small Business Administration Lending on State-Level Economic Performance: A Panel Data Analysis," The International Journal of Business and Finance Research, Vol. 4, No. 3, 2010.

144 Brown, David J, Early, John, "Do SBA Loans Create Jobs?" U.S. Census Bureau, Center for Economic Studies, 2012 & 2013. Available here.

145 Ibid, "Do SBA Loans Create Jobs?"

and have substantial risk—are middle-of-the pack when compared to other states. Not surprisingly, Vermont per-capita venture capital investments are significantly lower than high-venture capital states, such as Massachusetts, California, and New York. Venture capital has historically and continues to flow to densely populated areas, such as the Bay Area in California and the Boston-NYC-Washington Corridor on the east coast. This holds true globally as well, with high venture capital investments in London, Paris, Moscow, Shanghai, Mumbai, etc..[146]

The SBA operates several programs intended to help fill the gaps for businesses that cannot access sufficient capital from traditional lending institutions. These programs include the Section 7(a) Loan Program, Certified Development Program and the MicroLoan program. Loan programs that lower the cost of capital for a business can raise employment. On the other hand, a firm may decide to invest more heavily in technology that reduces the need for labor.[147]

Several studies have found positive economic impacts.[148] For example, the Census Bureau conducted an econometric examination of the effects of SBA Section 7(a) loans on employment using large data sets from 1976 to 2010. The goal was to determine whether SBA loans increase employment, and at what cost per job. The study estimated that 5.4 jobs are created per million dollars of loans, a cost of $14,000 per job.[149] The study does not include a cost-benefit analysis and does not account for all possible benefits of the program.[150]

Infrastructure

Infrastructure is widely recognized as a core component necessary for economic growth, and nationally states and localities pay for approximately 75 percent of all infrastructure investments.[151]

The need for infrastructure investments in the United States has been widely reported. However, compared to other G-7 countries (Canada, France, Germany, Italy, Japan, Great Britain), the quality of U.S. infrastructure and our investments as a percent of GDP is about average.[152] Infrastructure includes a broad range of investments, including electrical grids,

146 Florida, Richard, "The Rise of Global Startup Cities," 2016. Available here.

147 Brown, David J, Early, John, "Do SBA Loans Create Jobs?" U.S. Census Bureau, Center for Economic Studies, 2012, revised 2013. Available here.

148 Cortes, Bienvenido, "Impact of Small Business Administration Lending on State-Level Economic Performance: A Panel Data Analysis," The International Journal of Business and Finance Research, Vol. 4, No. 3, 2010.

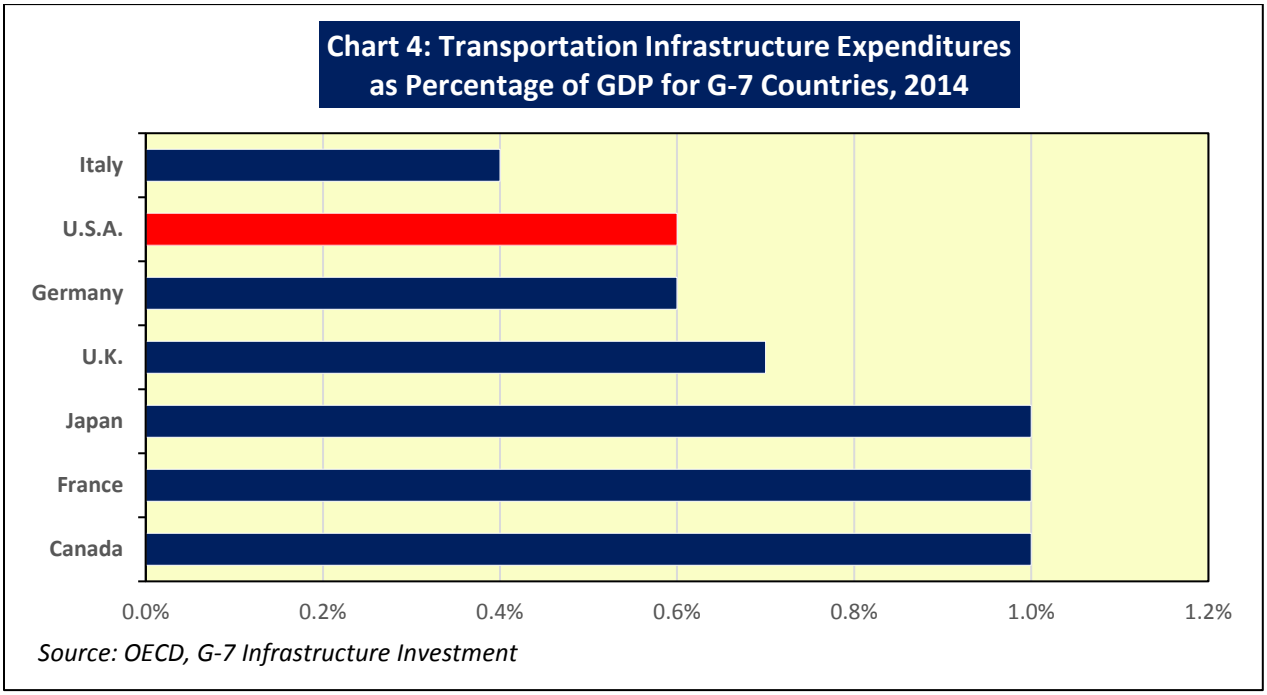
149 The cost per job is not $1,000,000/5.4 jobs because it is a loan program. For discussion of the authors' calculation, see page 34 of the report, available here.

150 Ibid, "Do SBA Loans Create Jobs?"

151 "Spending on Infrastructure and Investment," Congressional Budget Office, 2017. Available here.

152 "The Economic Benefits of Investing in U.S. Infrastructure," The Economic Report of the President, White House Council of Economic Advisers, 2016. Available here.

telecommunications, schools, hospitals, and public buildings. Transportation infrastructure, which includes roads, rail, waterways, ports, and airports are often of particular interest because they directly improve market accessibility for businesses, labor mobility, and overall productivity.[153] Chart 4 compares transportation infrastructure expenditures as a percentage of gross domestic product among G-7 countries.



A recent report by the Federal Reserve Bank of Boston indicates that from 2000-2012, state and local governments in New England spent less on capital investments than the rest of the United States, when measured per capita, as a share of personal income, and as a share of state and local government spending. [154] On average, state governments in New England states spend similar amounts on public capital, while local governments in New England spend significantly less—$331 per capita in Vermont—compared to an average of $724 per capita for local governments nationally.[155] The authors do not find any one reason for low infrastructure spending by governments in New England. Rather, they indicate that a myriad of factors, such as public concern about state debt levels, may play a role. The authors found no evidence that population growth rates or other social and economic conditions impact capital spending, and it does not reflect a higher quality of public capital in New England compared to other states.[156]

Research indicates that infrastructure investment increases economic growth. In the short-

153 See: "Infrastructure investment," The Organization for Economic Co-operation and Development, available here.

154 Fisher, Ronald, Sullivan, Riley, "Why Is State and Local Government Capital Spending Lower in the New England States Than in Other States?" New England Public Policy Center, Federal Reserve Bank of Boston, Policy Report 16-1, 2016. Available here.

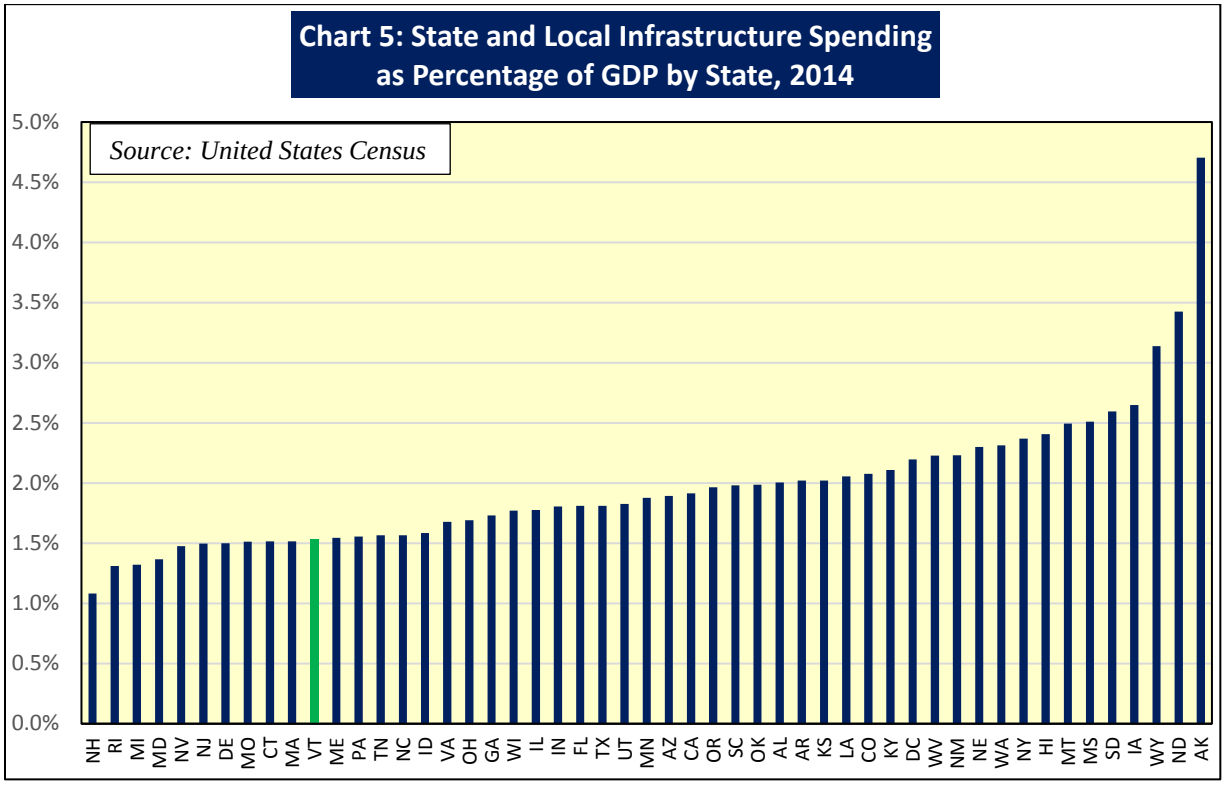
155 Ibid, "Why Is State and Local Government Capital Spending Lower in the New England States Than in Other States?"

156 Ibid, "Why Is State and Local Government Capital Spending Lower in the New England States Than in Other States?"

term, spending on infrastructure by governments is usually predicted to increase economic output, and higher productivity in the long-term.[157] The magnitude of the growth is not clear, and may depend on at what point during the business cycle investment occurs and how investments are financed.

Research also shows that there is likely a difference in impact that government spending, including spending on infrastructure, can have across the business cycle. That is, the economic impact of government spending would be greater during a recession than during expansions.[158] This makes sense intuitively: during recessions, there is slack (underutilized capacity) in the economy and, therefore, increased government spending reduces slack and increases output. In contrast, during expansions there is much less slack, so increased government spending on infrastructure may simply be diverting resources rather than increasing total output.[159]

A meta-analysis of 68 studies from 1983-2008 found that a one percent increase in regional core infrastructure stock—public assets like roads, railways, airports, utilities in a region—results in a statistically significant long-run increase in private-sector economic activity.[160]

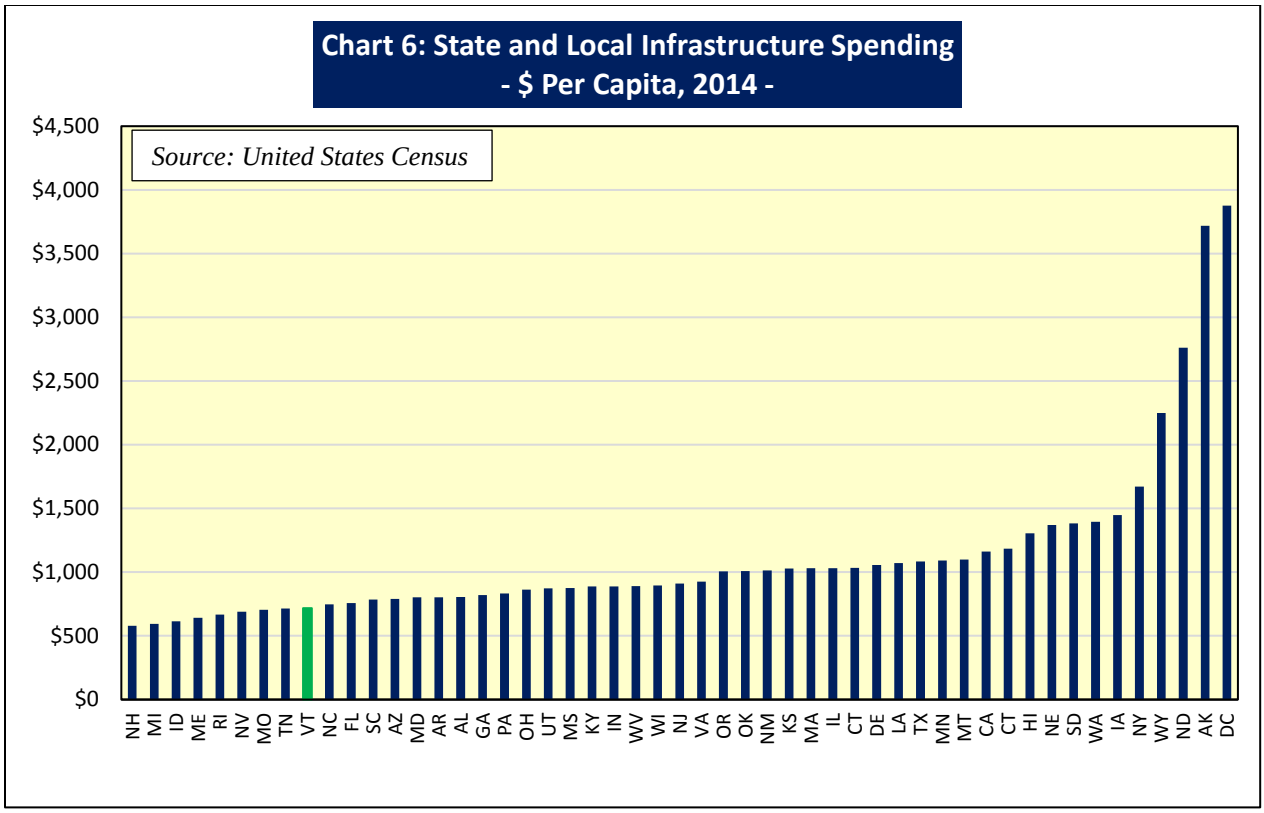


157 "Economic Impact of Infrastructure Investment," Congressional Research Service, July 2017.

158 Auerbach, Alan, Gorodnickenko, Yuriy, "Measuring the Output Responses to Fiscal Policy," American Economic Journal: Economic Policy, Vol. 4, No. 2, 2012. Available here.

159 "Economic Impact of Infrastructure Investment," Congressional Research Service, July 2017.

160 Bom, Pedro, Ligart, Jenny, "What Have We Learned from Three Decades of Research on the Productivity of Public Capital," Journal of Economic Surveys, Vol. 28, No. 5.



Broadband Infrastructure

Broadband internet access is a common theme of economic development literature. Broadband is delivered through various technologies, including cable, telephone wires, satellites, and fiber, and allows users to receive and send large quantities of digital information, and is sometimes shorthand for high-speed internet access.[161]

According to the Federal Communications Commission (FCC), 27 percent of Vermonters living in rural areas lack access to broadband.[162] [163] Furthermore, there is little direct competition between broadband providers, especially in rural areas, reducing consumer benefits possible from market competition. [164] [165] Sparse development remains the central barrier to rural broadband availability, as firms have less incentive to make significant upfront investments

161 Kruger, Lennard, Gilroy, Angele, "Broadband Internet Access and the Digital Divide: Federal Assistance Programs," Congressional Research Service, December 2016. Available here.

162 Defined as speeds of at least 25 Mbps for downloading, and 3 Mbps for uploading. See Congressional Research Service report, here.

163 In 2014 Vermont's Telecommunications Plan noted that 29 percent of Vermonters lack access to broadband. The State's goal is service that has a minimum downstream speed of 100 megabits per second. See: here, here.

164 Ibid, Congressional Research Service.

165 38 percent of Americans have more than one choice of providers for fixed advanced telecommunications capability. The competitive options for such services are even more limited in rural areas with only 13 percent of Americans living in rural areas having more than one choice of providers of these services compared to 44 percent of those living in urban areas. See FCC report, here.

such as installing cable or fiber over long distances to bring broadband to a relatively small number of customers, when compared to the relatively short distances and high number of customers available in more densely populated areas.[166]

Researchers have considered the economic development potential of expanded access to broadband in rural areas.[167] Some hypothesize that access to broadband allows for digital skill development, education, jobs, e-commerce development, and increased educational opportunities, all of which could have important implications for the region. At the same time, researchers suggest that broadband availability and access in rural areas can have negative economic impacts. For instance, rural consumers may purchase goods from internet providers rather than local stores, resulting in decreased local economic activity and an outflow of dollars from the local economy.[168]

Because broadband is a relatively new technology, research examining its economic impact is less than two decades old. Research indicates that broadband is associated with increased firm productivity and sales, and is correlated with business, household income, and employment growth.[169] While many recent studies find positive associations between broadband and economic growth, few establish causal relationships because it is difficult to determine whether broadband availability impacts economic growth or economic growth spurs broadband availability.[170] [171]

If broadband is only a result of increased economic growth, then there is little need for economic development policies that expand broadband.[172] However, if broadband availability and adoption spurs economic growth, then policy makers can add broadband expansion policies to their economic development "tool kit." Below, we highlight relevant literature from peer reviewed journals and federal agencies, emphasizing studies that examine causal links.

One of the first comprehensive studies on the economic impacts of broadband examined broadband availability between 1998 and 2002. Controlling for confounding variables that impact the adoption of broadband, the study examined community-level data for the entire

166 Kang, Cecilia, "How to Give Rural America Broadband? Look to the Early 1900s," The New York Times, 2016. Available here.

167 Corasaniti, Nick, "In New York, Bringing Broadband to Everyone by 2018," March 20, 2017, available here.

168 Kim, Younjun, Orazem, Peter, "Broadband Internet and New Firm Location Decisions in Rural Areas," American Journal of Agricultural Economics, November 2016. Available here.

169 Ibid, "Broadband Internet and New Firm Location Decisions in Rural Areas."

170 Prieger, James, "The Broadband Digital Divide and the Economic Benefits of Mobile Broadband for Rural Areas," Telecommunications Policy, Vol. 37, 2013.

171 Whitacre, Brian, Roberto, Gallardo, Strover, Sharon, "Broadband's Contribution to Economic Growth in Rural Areas: Moving Towards a Causal Relationship." Telecommunications Policy, Vol. 38, 2014.

172 There may be other reasons for encouraging broadband, such as equity or education.

United States. The study matched similar broadband adopting and non-adopting communities to determine what impact broadband availability and adoption might have and found that communities that had significant broadband adoption experienced faster growth in terms of employment, the number of businesses, and the number of businesses in information technology sectors.[173]

A 2007 study of the same period supported the above findings, and concluded that broadband increased the local employment growth rate and the business establishment growth rate by 1.0 – 1.4 percent and 0.5 – 1.2 percent, respectively.[174] A 2012 study examining broadband expansion from 1996 – 2006 found that economic growth is correlated with broadband expansion, and that lower population density zip codes see more employment growth associated with broadband availability.[175] Importantly, this study specifically examined the question of causal direction discussed above. It asks whether broadband providers are targeting areas where high economic growth is expected and finds that later employment growth does not predict earlier broadband growth. The author states that the findings may suggest a causal relationship between broadband expansion and employment growth.[176]

> "With regard to place-based broadband policies that increase broadband availability in specific areas, many of the places that are unserved and underserved by broadband are so because terrain, remoteness, or low population density raises the cost of broadband provision. The ambiguous effect of expanding broadband availability for local residents raises the question whether public money designated for broadband infrastructure might have a larger effect on economic or social outcomes if the funds were allocated instead toward subsidizing broadband adoption or other needs of disadvantaged households, regardless of where they live."
>
> Kolko, 2012

A 2014 analysis showed that higher broadband adoption rates (more than 60 percent of the households) in rural areas from 2001 to 2010 was associated with higher growth in median household income, while lower broadband adoption rates (less than 40 percent of households), had about 3 percent lower employment growth rates than high adoption areas.[177] Importantly, this study parsed both broadband availability and adoption, and found that measures of availability were only weakly correlated with economic impacts, while adoption saw strong

173 Lehr, William, et al, "Measuring Broadband's Economic Impact," Broadband Properties, Vol. 24. No. 12, January 2006, available here. For in-depth study design and analysis of study, see here.

174 Gillet, Sharon, et al., "Measuring the Economic Impact of Broadband Deployment," Prepared for the U.S. Department of Commerce, 2006. Available here.

175 Kolko, Jed, "Broadband and Local Growth" Journal of Urban Economics, Vol. 71, 2012.

176 Ibid, "Broadband and Local Growth."

177 Whitacre, Brian, Roberto, Gallardo, Strover, Sharon, "Broadband's Contribution to Economic Growth in Rural Areas: Moving Towards a Causal Relationship." Telecommunications Policy, Vol. 38, 2014.

associations.[178] In other words, growth doesn't necessarily occur when broadband technologies become available, but rather when they are actually adopted, a distinction that may be important for broadband-as-economic-development efforts. Several recent studies have reached similar conclusions.[179]

Other research indicates that firms are more likely to locate in rural towns with broadband availability than towns without broadband. This is true on a regional level as well.[180] The FCC notes that small businesses use broadband services when they are available, which leaves rurally-located small businesses at a significant disadvantage when adequate broadband connections are not available.[181] These findings may be of interest for local policy makers pursuing town or county-level economic development policies.

Our literature review indicates that broadband availability and adoption may be a useful economic development tool for policy makers and citizens. However, we were not able to find any relevant cost-benefit or return-on-investment studies that relate state broadband policies to economic outcomes.

Energy Policy as Economic Development

Energy policy is often addressed at the state level, as states regulate and make policy related to utilities and transportation.[182] Recent research explores where economic development and energy policy converge. We reviewed research that examines energy policy as economic development and present our findings below.

Energy and economic development policies both focus on utilizing and developing competitive local assets and innovation, and state policies wield a relatively large influence over the two fields.[183] Energy-based economic development includes programs meant to increase the energy self-sufficiency of a community or region, diversifying energy sources to increase energy reliability and security, and energy-focused programs that result in increased employment, often labeled "green jobs."[184] Other areas where economic development initiatives and energy policy overlap include workforce development programs, where residents are trained to

178 Ibid. "Broadband's Contribution to Economic Growth in Rural Areas: Moving Towards a Causal Relationship."

179 For example, see: "Broadband's Contribution to Economic Health in Rural Areas" here, and "Exploring the Relationship Between Broadband and Economic Growth," here.

180 Kim, Younjun, Orazem, Peter, "Broadband Internet and New Firm Location Decisions in Rural Areas," American Journal of Agricultural Economics, November 2016. Available here.

181 Federal Communications Commission, "2016 Broadband Progress Report," available here.

182 Yusuf, Juita-Elena, Neill, Katharine, "State Energy-Based Economic Development Policies and Examples," Economic Development Quarterly, Vol. 27, No. 3, 2013.

183 Carley, Sanya, et. al., "Energy-based Economic Development," Renewable and Sustainable Energy Reviews, Vol. 15, 2011.

184 Ibid, "Energy-based Economic Development."

conduct weatherization, energy efficiency assessments, facility upgrades, or energy-related efficiency improvements, and entrepreneurship and start-up development, which can be encouraged by energy tax incentives and direct energy efficiency assistance.[185]

Many states already assess their energy programs in economic terms. Evaluations are primarily conducted by state agencies that administer such programs, which may in some cases impact their impartiality and, therefore, validity. Generally, these programs have reported positive benefit- cost ratios. For example, New York State's energy efficiency program estimated a 2.6 benefit – cost ratio, while Wisconsin's program is estimated at 3 to 5.7 to 1.[186] [187]

The Vermont Public Service Department reports that Efficiency Vermont, the statewide energy efficiency utility, delivers a 2.1 to 1 benefit-cost ratio, and estimates that the net lifetime economic value of electric and thermal energy efficiency investments made in 2015 would equal $89,700,000, with $172,800,000 in net present value benefits minus $83,100,000 in costs.[188] [189]

It is likely that energy efficiency policies are most effective when they target certain consumers. Research suggests that energy efficiency measures are frequently not adopted even when the economic benefits outweigh the economic costs. This is often referred to as the "energy efficiency gap"— the difference between the available and economically sensible energy efficiency measures and their level of adoption.[190] For example, households that use more energy than comparable households tend to be less aware of energy efficiency opportunities.[191] Landlords, who often do not pay for energy utilities, may be less willing to make investments in energy efficiency, since the cost of efficiency measures will not be recouped.[192] Residential and industrial energy users alike may be unaware of the full range of energy efficiency options. Programs that provide energy efficiency information to consumers vary widely, but numerous studies have found that both residential and business consumers respond to relatively simple information. For example, consumers that have access to real-time

185 Carley, Sanya, et. al., "Energy-based Economic Development," Renewable and Sustainable Energy Reviews, Vol. 15, 2011.

186 Energy Efficiency Assessment: New York State Energy Plan 2009.

187 Tonn, Bruce, Peretz, Jean, "State-Level Benefits of Energy Efficiency," Energy Policy, Vol. 35, 2007.

188 Vermont Public Service Board, "2015 Energy Efficiency Utility Program Revenues and Expenditures," January 23, 2017. Available here.

189 In contrast to some state energy efficiency programs whose evaluations are done in-house, Efficiency Vermont is a regulated utility and is independently evaluated by the Vermont Department of Public Service. See evaluations and reports here.

190 Gerarden, Todd, et al, "An Assessment of the Energy-Efficiency Gap and its Implications for Climate-Change Policy," Harvard Kennedy School of Government Faculty Research Working Paper Series, 2015.

191 Ibid, "An Assessment of the Energy-Efficiency Gap and Its Implications for Climate-Change Policy."

192 Allcott, Hunt, Michael, Greenstone, "Is There An Energy Efficiency Gap?" National Bureau of Economic Research Working Paper 17766, 2012. Available here.

energy use and cost information induces average energy savings of 5 – 12 percent.[193] Labeling requirements, such as Energy Star and others, have also been found to change consumer behavior and result in further energy efficiency.[194]

A further line of research examines the "non-energy" benefits of energy efficiency policies that may be important to economic development.

- Low-income households are better able to pay bills, while utilities benefit from fewer late payments.
- Energy efficiency efforts create safer homes for residents. For example, installation of new furnaces or more frequent tune-ups of old ones can lead to fewer fires and carbon monoxide emissions.[195]
- Environmental benefits, such as reducing air pollution, can be substantial, too.
- Long-term health benefits, especially for vulnerable populations, can be significant: numerous studies indicate that deviation from a relatively small housing temperature range can significantly impact childhood health outcomes, and childhood health outcomes have been shown to impact long-term achievement.[196]

One analysis of non-energy benefits suggests that the total benefits of non-energy benefits to a community may equal the direct energy benefits. However, exact measurement is difficult because the broad range of non-energy benefits is significantly affected by other factors, such as weather, broad social and economic trends, and technological changes.[197]

Energy resource development is another area where economic development and energy policy meet. As discussed in the Import Substitution section, when money is spent on energy imported from out-of-state, it is no longer available to be (re)circulated for in-state economic activities that spur further growth (i.e., the multiplier effect). This may be important in states where a significant percentage of energy is imported from outside the state as is the case with Vermont, where energy spending is substantial. The U.S. Energy Information Administration estimates that Vermont's total energy expenditures per capita were $4,273 in 2015 even though our energy consumed per capita (MBTU) is comparatively low. [198] [199]

193 Gillingham, Kenneth, et al., "Energy Efficiency Economics and Policy," National Bureau of Economic Research, Working Paper 15031, available here.

194 Ibid, "Energy Efficiency Economics and Policy."

195 Tonn, Bruce, Peretz, Jean, "State-Level Benefits of Energy Efficiency," Energy Policy, Vol. 35, 2007.

196 See: "Unhealthy Consequences: Energy Costs and Child Health," Child Impact Working Group, 2007, available here.

197 Doris, Elizabeth, et al, "Energy Efficiency Policy in the United States: Overview of Trends at Different Levels of Government." National Renewable Energy Laboratory, U.S. Department of Energy, Technical Report, 2009. Available here.

198 U.S. Energy Information Administration, "Vermont: State Profile and Energy Estimates," available here.

199 Ibid. Available here.

Furthermore, renewable energy initiatives represent an economic development opportunity for states, although they are not all equal in terms of the local impact. For example, local communities might get only about 15 percent of the economic impacts from the construction of wind projects, as materials and labor are often brought in from the outside.[200] The U.S. Department of Energy (DOE) notes that economic development impact of such projects on local communities can be significantly higher when the project is a "community wind" project where ownership is local, and can include local farmers, businesses, universities, and cooperatives, among others. Such locally owned projects increase the likelihood that local labor is used in construction and maintenance, profits are kept in-state, and may rely on local financing from regional banks.[201] For example, construction employment impacts are an estimated 1.1 – 1.3 times higher for locally owned projects than outside owned projects, while post-construction operation employment impacts are 1.1 – 2.8 times higher.[202] A further benefit of community-based economic development energy policies is that local involvement is likely to bolster local participation and acceptance of such projects.[203]

A common energy-based economic development policy is the implementation of renewable energy portfolio standards (RPS), which encourage an increase in renewable energy technology and energy markets. RPS vary widely from state to state in their composition, varying in what they mandate as to how much energy should be produced from specified sources by a certain year. While RPS has not been shown to cause green business industry expansion, states with RPS policies have a higher number of green businesses than those without RPS policies.[204]

A wide range of studies have found that state RPS policies can drive the development and generation of renewable energy.[205] The Lawrence Berkeley National Laboratory reports that RPS requirements constituted 50 percent of total renewable energy growth in the United States since 2000, and have been critical in renewable energy growth in the Northeast.[206] A 2017 analysis by the Laboratory found that the benefits derived from RPS policies significantly outweigh the costs. While the Laboratory considered factors that are not directly related to the scope of this report, such as the social benefits resulting from a reduction in pollution, it found

200 Lantz, E., and Tegen, S., "Economic Development Impacts of Community Wind Projects: A Review and Empirical Evaluation," National Renewable Energy Laboratory, U.S. Department of Energy, 2009. Available here.

201 Lantz, E., and Tegen, S., "Economic Development Impacts of Community Wind Projects: A Review and Empirical Evaluation," National Renewable Energy Laboratory, U.S. Department of Energy, 2009. Available here.

202 Ibid, "Economic Development Impacts of Community Wind Projects: A Review and Empirical Evaluation."

203 Ibid, "Economic Development Impacts of Community Wind Projects: A Review and Empirical Evaluation."

204 Bowen, William, Park, Sunjoo, and Elvery, Joel, "Empirical Estimates of the Influence of Renewable Energy Portfolio Standards on the Green Economies of States," Economic Development Quarterly, Vol. 27, No. 4, 2013.

205 Carley, Sanya, "The Era of State Energy Policy Innovation: A Review of Policy Instruments," Review of Policy Research, Vol. 28, No. 3, 2011.

206 Barbose, Galen, "U.S. Renewables Portfolio Standards, 2017 Annual Status Report," Lawrence Berkley National Laboratory. Available here.

that meeting current RPS requirements nationwide would result in 4.7 million full-time job years in renewable energy related employment.[207] A further multi-year analysis of state-policies found that RPS policies would, in the long run, reduce electricity costs for consumers, and lower natural gas prices.[208]

Tourism Promotion

Tourism plays a significant part in many state economies. Nationwide, state leaders tout tourism as economic development: residents and visitors from other states, and around the world spend money on food, accommodations, and leisure activities, which supports local businesses, spurs employment growth, and increases state tax revenues.[209] We could not find independent data for Vermont, but the Department of Tourism & Marketing estimated eight percent of state gross domestic product can be attributed to tourism.[210] It is clear that tourism plays an important and significant role in many state economies.[211] However, the relationship between state governments' activities and tourism levels is difficult to establish.

To maximize the inflow of tourism dollars, most state governments fund tourism marketing efforts. Proponents often claim that taxpayer-funded tourism advertising is an investment with significant returns.[212] Despite the widespread adoption of these programs, rigorous and impartial examination of effectiveness of tourism marketing is rare.[213] Some studies have addressed the question and we outline the findings below.

There is consensus that tourist decision-making is influenced by a broad assortment of factors, as tourists rely on a wide variety of informational inputs that influence their decision to visit a location. The influence of past experiences, word-of-mouth from friends and family and other marketing campaigns is considerable.[214] The influence of any one factor is difficult to separate from other factors and the relationship between factors is unclear.

Research indicates that the impact of tourism marketing may depend on existing attractiveness of a destination. Destinations that are widely known as attractive tourist destinations reap less

207 Mai, Trieu, et al., "A Prospective Analysis of the Costs, Benefits, and Impacts of U.S. Renewable Portfolio Standards," National Renewable Energy Laboratory, Lawrence Berkeley National Laboratory, 2016. Available here.

208 "Multi-Year Analysis Examines Costs, Benefits, and Impacts of Renewable Portfolio Standards," National Renewable Energy Laboratory, Lawrence Berkeley National Laboratory, 2016. Available here.

209 McDowell, Edwin, "States Turn Entrepreneurial to Augment Tourism Funds," The New York Times, available here.

210 See: here.

211 Bureau of Economic Analysis, "Travel and Tourism Satellite Account: Second Quarter 2017," 2017. Available here.

212 Deskins, John, Seevers, Matthew, "Are State Expenditures to Promote Tourism Effective?" Journal of Travel Research, Vol. 50, No.2, 2011.

213 Platzer, Michaela, "U.S. Travel and Tourism: Industry Trends and Policy Issues for Congress," Congressional Research Service, 2014. Available here.

214 See: E. Sirakaya, A.G. Woodside, "Building and Testing Theories of Decision Making by Travelers," Tourism Management Vol. 26, 2005.

benefits from marketing than lesser known destinations or those that are perceived as less attractive. One study examined all 50 states over a 20-year period, and found that states with low levels of tourism made significant gains in tourism expenditures, and saw very small but statistically significant increases in state employment growth.[215] In contrast, states that had strong existing tourism industries saw weak returns on tourism marketing, and overall, experienced negative employment outcomes.[216] This finding is echoed in broader advertising research which indicates weak and strong brands benefit differently from advertising.[217]

State government studies consistently report that benefits from their tourism promotion activities outweigh the costs. Given the wide diversity of funding levels and program structures and strategies, and the methodologies they employ, researchers caution against taking these reported results at face value.[218] States risk expending resources based on studies that may or may not be properly and impartially designed, which may result in less than efficient and effective government programs. Furthermore, analyses of the work of contracted firms should be viewed with caution, as they have a clear incentive to deliver positive return-on-investment results: some clients may decline to award future contracts to consultants that do not deliver strong evidence for their mission.[219]

> Some studies are commissioned to support a particular policy or program rather than to find objective truth. "Often, this results in the use of mischievous procedures that produce large numbers that study sponsors seek to support a predetermined position. Examples are selected primarily from the reports of ostensibly expert consultants that illustrate 10 of these mischievous procedures: including local residents in surveys; inappropriate aggregation; inclusion of time-switchers and casuals; abuse of multipliers; ignoring costs borne by the local community; ignoring opportunity costs; ignoring displacement costs; expanding the project scope; exaggerating visitation numbers; and inclusion of consumer surplus."
>
> (Crompton, 2006)

Surveys and studies seeking to establish tourism marketing return on investment or costs and benefits must account for a variety of confounding factors. Sampling methodologies must be carefully constructed, and account for various biases, such as nonresponse bias. Some visitors may have decided to visit an area before they saw an advertisement, or they researched visiting an area, and encountered targeted advertising as a result.[220]

215 Deskins, John, Seevers, Matthew, "Are State Expenditures to Promote Tourism Effective?" Journal of Travel Research, Vol. 50, No.2, 2011.

216 Ibid, "Are State Expenditures to Promote Tourism Effective?"

217 Broadbent, Simon, "What Do Advertisements Really Do for Brands?" International Journal of Advertising, Vol. 19, No. 2, 2000.

218 Deskins, John, Seevers, Matthew, "Are State Expenditures to Promote Tourism Effective?" Journal of Travel Research, Vol. 50, No.2, 2011.

219 Crompton, John, "Economic Impact Studies: Instruments for Political Shenanigans?" Journal of Travel Research, Vol. 45, 2006.

220 Ibid, "Are State Expenditures to Promote Tourism Effective?"

Because of the difficulties of conducting such studies, many states hire firms to evaluate the impact of their state tourism marketing efforts. These firms specialize in conducting tourism economic impact studies, and their products are often used to make subsequent state tourism marketing funding decisions. Consultants often report large benefits to states for each tourism marketing dollar. However, some literature indicates that such studies may not be reliable.

Case Study: Tourism Marketing Consultants and Colorado Tourism

In our review of tourism marketing research and other state's tourism marketing reports, the SAO repeatedly encountered reports written by consulting firms that specialize in tourism marketing return-on-investment studies. To highlight the issues in relying on tourism marketing consultants may pose, we will discuss the case of Colorado since the 1990s below.

After the tourism and marketing budget in Colorado was eliminated in 1993, a widely contracted tourism-marketing consultant claimed that the elimination of Colorado's $15 million state tourism budget led directly to more than $2 billion dollars a year in tourism revenue losses (a $6 billion a year industry for the state), and led to a relative decline in the state's tourism market share nationally.[221] [222] The consultant's estimates are part of a proprietary return-on-investment methodology that they do not share with their clients or the public. While such confidentiality is important to the consultant's long-term success, it can be problematic in terms of public accountability: without the ability to examine the methodology used to calculate tourism marketing return-on-investment or benefit-cost ratio, state governments cannot assess the veracity of these estimates. In the Colorado example, the consultant claimed that the elimination of the state tourism marketing budget was the *direct cause* of the tourism industry downturn, and that tourism only increased after the state government reinstated $5 million in tourism funding in 2000 and $9 million in 2006.[223]

A regional review of tourism and travel conducted Kansas City Federal Reserve, including Colorado, mentions Colorado state tourism marketing funding as an indicator that policy makers believe that the industry is important, but does not indicate that tourism marketing funding played a significant role.[224] Rather, the report highlights several other factors:

- The region's tourism trends differed from those of the broader United States from the late 1980s to the early 2000s, possibly because it relied less on business and international travelers and more on domestic travelers than the United States as a whole;
- Sluggish growth in skier visits throughout the country in the 1990s may have

221 "The Rise and Fall of Colorado Tourism Case Study," Longwoods International, available here.

222 See here.

223 Ibid. "The Rise and Fall of Colorado Tourism Case Study."

224 Wilkerson, Chad, "Travel and Tourism: An Overlooked Industry in the U.S. and Tenth District." Kanas City Federal Reserve. Available here.

disproportionally impacted ski-tourism reliant Colorado;

- Low snowfall amounts in Colorado from 1993-1994, and from 1997-2002 depressed skier visits; and the March 2001 Recession and the September 2001 terrorist attacks depressed tourism nationally.[225]

Further considerations not mentioned in the Federal Reserve's report include:

- Colorado was cast into the national spotlight in 1993 when voters passed a controversial law viewed as anti-gay, which led to a widely publicized national boycott of the State's tourism industry;[226]
- No evidence suggests that Colorado's substantial private tourism industry ceased marketing activities when the state government did.[227]

Each of these factors may have played a role in how Colorado's tourism industry grew, and it is unclear whether or how much a reduction in the state government's marketing expenditures impacted tourism.

According to the Economic Census, the Arts, Entertainment, and Recreation industry spends about three percent of total business expenses on marketing and advertising. Accommodations and Food Services spends a bit more than three percent. The Bureau of Economic Analysis reports that the Vermont Gross State Product for those two industries in 2016 was over $3.4 billion. Therefore, it is reasonable to assume that private sector spending on marketing and advertising for those two industries totaled about $100 million. The State spent less than $4 million that year (which includes considerable overhead). Thus, the State's expenditure likely represented about four percent of all tourism-related marketing and advertising. There is no methodology available to estimate the impact of our public expenditures in the context of the total amount spent.

Housing

Housing policies are frequently examined from a social welfare perspective, where aid is provided to those that cannot afford safe housing. [228] [229] But some research analyzes housing from an economic development perspective, as well.

Since 1980, national median rents have risen faster than median household income: inflation adjusted rents increased by 64 percent while inflation adjusted median household income only

225 Wilkerson, Chad, "Travel and Tourism: An Overlooked Industry in the U.S. and Tenth District." Kanas City Federal Reserve. Available here.

226 Johnson, Dirk, "Colorado Faces Boycott Over Its Gay-Bias Vote," The New York Times, December 1992. Available here.

227 Searches of local and newspapers and other publications conducted on LexisNexis, a legal and business document search service, yielded no results that would indicate that private Colorado businesses followed the lead of the state and reduced their tourism expenditures.

228 See discussion of housing as economic development in: Arku, Godwin, "The Housing and Economic Development Debate Revisited: Economic Significance of Housing in Developing Countries," available here.

229 Kotval, Zenia, "The Economic Impact of Affordable Housing," New England Journal of Public Policy, Vol. 16, No. 2, 2001.

increased 18 percent.[230] The Vermont Housing Finance Agency reported that 47 percent of renters and 38 percent of owners in Vermont paid more than 30 percent of household income —a standard measure of housing affordability—for housing costs.[231] A 2018 report by the National Low Income Housing Coalition found that a two-bedroom residence in Vermont requires a household wage of $22.40 / hour.[232] Much of the available research relevant to economic development examines the causes and effects of housing supply, prices, and regulation.

Recent national research suggests that in places where housing supply is more constrained, an increase in labor demand may result in less employment growth than in places where housing is relatively less constrained.[233] In other words, if labor demand cannot be met because of low housing supply, the full potential employment of a locality or region may not be reached.

Multiple studies have found that areas with more regulation are correlated with less housing construction, leading to tighter supply and higher prices.[234] However, this research does not definitively establish a causal link, and other literature indicates that higher housing prices and land use restrictions are likely to develop contemporaneously, and that locations with restrictive geographic features—such as lakes, mountains, and wetlands—are more likely to have a tighter supply of housing.[235] [236]

Land use regulation is correlated with many other variables, including population, economic conditions, and geography, which make accurate measurement difficult.[237] Most areas regulate land use in some way, and have at least several restrictions, so determining the relative effect of each restriction is difficult.[238] Large studies of housing regulation and housing incentivization are difficult, because housing policy is overwhelmingly controlled by local governments, which have found differing and creative ways to implement housing policy.[239] One type of policy or regulation can be substituted for another and result in similar outcomes. For these reasons, rigorous data collection and analysis can be difficult.

230 "Housing Development Toolkit," The White House, September 2016, available here.

231 "Between a Rock and a Hard Place: Housing and Wages in Vermont," Vermont Housing Finance Agency, 2011. Available here.

232 "Out of Reach 2017," National Low Income Housing Coalition, 2018, available here.

233 Chakrabarti, Ritashree, Zhang, Junfu, "Unaffordable Housing and Local Employment Growth," Federal Reserve Bank of Boston, New England Public Policy Center, Working Paper 10-3. Available here.

234 Gyourko, Joseph, Molloy, Raven, "Regulation and Housing Supply," National Bureau of Economic Research, Working Paper 20536. See here.

235 Saiz, Albert, "The Geographic Determinants of Housing Supply," The Quaterly Journal of Economics, August 2010. Available here.

236 Ibid. "The Geographic Determinants of Housing Supply,"

237 Ibid, "Regulation and Housing Supply."

238 Ibid, "Regulation and Housing Supply."

239 Ibid, "Regulation and Housing Supply."

Construction as an industry has one of the highest economic multipliers, both in overall terms and for employment multipliers.[240] One national input-output estimate finds that the construction of multifamily residential units creates 1.13 full-time equivalent jobs per unit, and generates $14,000 in state in local taxes, while a new single-family home creates 2.97 full time equivalent jobs, and over the course of construction generates a total about $36,000 in state and local taxes to state, county, municipal, or other local jurisdictions.[241] The same analysis finds that $100,000 in remodeling could be expected to create .89 full time equivalent jobs while generating nearly $8,000 in state and local government revenue.[242] [243]

Local Purchasing, Import Substitution, and Anchor Institutions

Import substitution aims to replace imported goods or services with locally produced goods or services. Comparative advantages—the ability to produce something at a higher quality or lower cost than others—may exist in a local or regional economy, and both export-focused and input substitution strategies can be implemented to exploit them.[244] While much of economic development is focused on enhancing exports of locally produced products, some research has found that import substitution can be an effective economic development policy as well, such as local energy production.[245] [246]

The benefits of import substitution are often explained through the analogy of a "leaky bucket."[247]

The development of local industries supplying

In the "leaky bucket" analogy, the local or regional economy is a bucket. When money is spent on locally produced goods and services, the money stays inside the bucket, and can be spent on other goods and services produced in the local economy. When money is spent on goods or services imported from outside, money "leaks" out because it is no longer available for local spending. For example, most of the money spent by Vermonters importing electricity from outside the state is lost to our local economy. Actions taken to replace imports with locally produced goods or services are "plugging" the leaks.

240 Boldrin, et al., "Reconstructing the Great Recession," Federal Reserve Bank of St. Louis, Research Division Working Paper Series. See here.

241 "Impact of Home Building and Remodeling on the U.S. Economy," National Association of Home Builders, 2014.

242 Ibid. "Impact of Home Building and Remodeling on the U.S. Economy."

243 This estimate is from the National Association of Home Builders (NAHB). Such estimates can vary widely based on the assumptions included in the model. For example, the study assumed the cost of a new home as $378,000, which is quite a bit higher than in Vermont. The NAHB utilizes Bureau of Economic Analysis input-output tables and Census data to arrive at its estimates. NAHB estimates have been used by housing policy groups such as the Center for Housing Policy, and are commonly used by states and municipalities across the United States. Economic multipliers differ by region.

244 Cooke, Stephen, Watson, Philip, "A Comparison of Regional Export Enhancement and Import Substitution Economic Development Strategies," The Journal of Regional Analysis & Policy, Vol. 41, No.1, 2011.

245 Kilkenny, Maureen, Partridge, Mark, "Export Sectors and Rural Development," American Journal of Agricultural Economics, Vol. 91, No. 4, 2009.

246 Ibid, "A Comparison of Regional Export Enhancement and Import Substitution Economic Development Strategies."

247 "Plugging the Leaks," New Economic Foundation Workshop materials, available here.

the local economy can have an economic ripple effect and "deepen" the economy.[248] For example, local agricultural production may result in the development of local value-added industries, such as food processing (i.e., local livestock cultivation may make local meat processing economically viable).[249] Consumers are able to buy locally processed meat, and as a result more money and jobs remain in a region than if the processing had occurred elsewhere.[250]

Several studies have examined the impact of a wide variety of import substitution policies.

A 2013 analysis of Wabash County, Illinois, a rural county with a population of 12,000 people, found that substituting 10 percent of existing local demand for imported products with local products would result in 335 new jobs in the county.[251] With about 470 people unemployed in the county, such a substitution would likely result in lower unemployment.[252]

A separate 2006 input-output analysis examined a substitution of 5 percent of imported goods and services with locally produced products in Marshall County, Iowa. Marshall County had a population of about 39,000. The 5 percent substitution across the county would result in nearly $40 million in additional output, $12.2 million in labor income, generate 385 additional jobs.[253]

A further study, employing the methodology of the Marshall County study above, examined the economic impact of import substitution in Blue Earth and Nicollet Counties, both in Minnesota. The scenario was again a 5 percent substitution of imported goods with locally produced goods, and included industrial, household, and governmental purchasing.[254] The study found local output, labor income, and employment multipliers of 1.43, 1.54, and 1.53, respectively. Importantly, the study considered what industries already existed in the county and their ability to scale up production, as well as other possible limitations such as available land for agricultural imports.[255] Consideration of established businesses and local resources is important for this type of analysis, as some industries do not lend themselves to import substitution.

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248 Cooke, Stephen, Watson, Philip, "A Comparison of Regional Export Enhancement and Import Substitution Economic Development Strategies," The Journal of Regional Analysis & Policy, Vol. 41, No.1, 2011.

249 Martinez, Steve, et al., "Local Food Systems: Concepts, Impacts, and Issues," Economic Research Service, United States Department of Agriculture, 2010. Available here.

250 Ibid, "Local Food Systems: Concepts, Impacts, and Issues."

251 Shuman, Michael, "Growing the Wabash County Economy from the Inside Out," 2013. Available here.

252 Ibid, "Growing the Wabash County Economy from the Inside Out."

253 Swenson, Dave, "Buying Local in Marshall County and Marshalltown, Iowa: An Economic Impact Assessment." Department of Economics, Iowa State University. Available here.

254 Tuck, Brigid, Nelson, David, "The Economic Impact of Increasing Local Buying in Blue Earth and Nicollet Counties, Minnesota," University of Minnesota Extension Center, 2009. Available here.

255 Ibid, "The Economic Impact of Increasing Local Buying in Blue Earth and Nicollet Counties, Minnesota."

An important methodological consideration is that substitution studies may generally be thought of as accounting frameworks rather than behavioral models: the availability of local goods and services does not mean that consumers will necessarily buy them, especially if they are unaware of their existence or perceive them to be of lower quality, or higher cost.[256]

Another analysis studied the economic impact of consumer spending at locally owned and operated businesses with purchasing at large "chain" companies in a Chicago neighborhood. Controlling for the size of businesses, the study found that for every $100 spent at local businesses, $68 dollars stay in the local economy, while for large nationally owned businesses, $43 dollars stay in the local economy.[257] The study found that local businesses were twice as likely to contract with locally-based businesses than national companies.[258] Similarly**, a study of local spending in the Portland, Maine, area found that $100 spent at a local business generated $58 in additional local impact, compared to $33 in local impact when spent at a national chain**.[259] Note that the economic impact of local spending may differ substantially for state and local geography because of their unique economic characteristics.

Other research supports the notion that ownership matters**.** One study compared the per capita density of locally owned business and non-resident owned business across the United States. The study found a positive relationship between small (10-99 employees) locally owned firms and economic growth, and a negative relationship between large (more than 500 employees overall) non-locally owned business.[260] This finding held true in both rural and urban areas. Other studies have largely supported these findings.[261] Why a higher density of smaller, locally owned businesses is associated with economic growth is not clear, but possible explanations include: locally owned businesses may have deeper social and business networks, may be more likely to contract with other local businesses, owners that reside in a community may be more interested in long-term community outcomes, or larger firms may force other retailers out of business which reduces income in a community over time.[262] [263]

256 Swenson, Dave, "Buying Local in Marshall County and Marshalltown, Iowa: An Economic Impact Assessment." Department of Economics, Iowa State University. Available here.

257 Cunningham, Mat, Houston, Dan, "The Andersonville Study of Retail Economics," Civil Economics, 2005.

258 Ibid, "The Andersonville Study of Retail Economics. " Impacts found in Chicago may not be easily applied to other localities, as the unique characteristics of each location likely alter economic impacts. However, such analyses may be useful for economic development efforts.

259 Patel, Amar, Martin, Garret, "Going Local: Quantifying the Economic Impacts of Buying from Locally Owned Businesses in Portland, Maine," Maine Center for Economic Policy, 2011.

260 Fleming, David, Goetz, Stephan, "Does Local Firm Ownership Matter?" Economic Development Quarterly, Vol. 25, No. 3, 2011.

261 Jarmin, Ronald, Klimek, Shawn, Miranda, Javier, "The Role of Retail Chains: National, Regional and Industry Results," National Bureau of Economic Research, 2005. Available here.

262 Ibid. "The Role of Retail Chains: National, Regional and Industry Results," National Bureau of Economic Research, 2005. Available here.

263 Fleming, David, Goetz, Stephan, "Does Local Firm Ownership Matter?" Economic Development Quarterly, Vol. 25, No. 3, 2011.

Other analyses reviewed by SAO were industry-specific. Increased regional and national interest in local food purchasing has resulted in studies of the economic impact of agricultural production.[264] Examples include:

- An academic study of the State of New York's food hub program, including central distributers of local and regional foods, estimated an output multiplier of 1.75 and an employment multiplier of 2.14.[265] The multipliers include diverted sales from other sectors to ensure that the increase in output and employment did not negatively impact other parts of the economy. The authors suggest that such multipliers may indicate that the development of food hubs could aid rural economies;[266]
- Studies of "Farm to school" programs, which aim to substitute a certain percentage of food served in schools with locally produced food have been a focus as well, including a study of potential economic impact of local food purchases by Vermont schools.[267] These analyses have found income multipliers between 1.3 to 2.8;[268] and,
- Farmers Markets spur economic growth, although most estimates of their impact are small, because they cause a loss of some business that would otherwise be spent at grocery stores. Nevertheless, several studies have found that farmers markets have positive net impacts on local and state economies, both in terms of total economic output and employment.[269] [270] Furthermore, researchers have found that farmers markets are business incubators: many farmers market participants are able to learn business skills, such as pricing and marketing, increase their customer base, and expand their product lines.[271] [272]

Vermont Sustainable Jobs Fund (VSJF)

The VSJF is a non-profit organization created by the legislature in 1995 to stimulate sustainable agriculture and forest products through grants, loans, technical assistance, and the development of state-wide networks. Grantees of the Jobs Fund include biofuel projects, organic farming associations, dairy associations, meat producers, and farmer's market coordination efforts, among others. According to the Farm to Plate program, the Vermont food system added 6,000 net new jobs from 2009-2015.

(Source: Vermont Sustainable Jobs Fund)

264 See, for example, here.

265 Jablonski, B.B.R., et al., "Assessing the Economic Impacts of Food Hubs on Regional Economies: A Framework that Includes Opportunity Cost," Agricultural and Resource Economics Review, Vol. 41, No. 1, 2016.

266 Ibid. "Assessing the Economic Impacts of Food Hubs on Regional Economies: A Framework that Includes Opportunity Cost."

267 See: "Economic Contribution and Potential Impact of Schools Purchase of Local Foods in Vermont," available here.

268 Becot, Florence, et al., "Do Farm-to-School Programs Create Local Economic Impacts?" Choices, Vol. 32, No. 1, 2017. Available here.

269 Brown, Cheryl, "Review of Research on Farmers Markets and Community Supported Agriculture," American Journal of Agricultural Economics," 2008.

270 Hughes, David, et al., "Evaluating the Economic Impact of Farmers' Markets Using an Opportunity Cost Framework," Journal of Agricultural and Applied Economics, Vol. 40, No. 1, 2008.

271 Ibid. "Review of Research on Farmers Markets and Community Supported Agriculture," American Journal of Agricultural Economics," 2008.

272 Jensen, Jennifer, "Local and Regional Food Systems for Rural Futures," Rural Policy Research Institute," No. 1, 2010.

A methodological concern for the above studies is worth noting: How these analyses calculate the opportunity cost of buying locally produced food impact such estimates.[273] In the absence of locally produced food, consumers would still buy food, and not all the benefits of food purchases would "leak" out of the state. Depending on the assumptions made for each analysis, reported economic impacts may differ.[274] The above studies may not account for all confounding factors.

Anchor Institutions

Anchor institutions are large organizations with deep community ties, typically hospitals and universities ("Eds and Meds"), as well as other non-profits. These institutions often own substantial real estate, have significant purchasing power, and employ local workers, although they may not pay property taxes. Because of their long history and place-based missions, these organizations are unlikely to leave communities and are therefore frequently interested in long-term local and regional prosperity. The significant economic contribution of Eds and Meds has been well-documented, in terms of employment and income impacts for the local population.[275] [276] Studies of expansions of Eds and Meds have found local multipliers of 1.6 – 1.8 and have been found these institutions to be anchors of rural and metropolitan communities alike.[277] [278] [279]

Anchor institutions can aid local economies when they leverage their significant resources. Anchor institutions purchase a significant amount of goods and services on a regular basis and may be able to adjust their supply chain to work more with local vendors, providing a steady stream of business. Such a stable source of revenue could allow

> The University of Vermont Medical Center provides over 1.5 million meals a year and spends 44 percent of its $4 million food budget on food from Vermont.
>
> *Journal of Foodservice Management & Education, Vol. 10, No. 1, 2016.*

273 Jablonski, B.B.R., et al., "Assessing the Economic Impacts of Food Hubs on Regional Economies: A Framework that Includes Opportunity Cost," Agricultural and Resource Economics Review, Vol. 41, No. 1, 2016.

274 Jablonski, B.B.R., Schmit, T.M., Kay, D., "Assessing the Economic Impacts of Food Hubs to Regional Economies: A Framework for Including Opportunity Cost," Working Paper, 2015. Available here.

275 The impacts of local institutions depends on the characteristics of that institution as well as those of the community they are located in. See: Bartik, Timothy, Erickcek, George, "The Local Economic Impact of 'Eds & Meds'," Brookings Institution, 2008. Available here.

276 Impact studies sometimes produced by universities have been called into question because reported impacts are frequently very high. Critics cite cases where reported impacts are larger than the local economy, or have multipliers of 10 or 15. See critical presentation here.

277 Bartik, Timothy, Erickcek, George, "The Local Economic Impact of 'Eds & Meds'," Brookings Institution, 2008. Available here.

278 Hospitals especially: Research indicates that 10 – 15 percent of jobs in many rural communities are in health care. See: Doeksen, et al., "Economic Impact of Rural Health Care," October 2016, National Center for Rural Health Works. See: here and here.

279 Mandich, Anne, Dorfman, Jeffrey, "The Wage and Job Impacts of Hospitals on Local Labor Markets," Economic Development Quarterly, Vol. 31, No. 2, 2017.

businesses to scale up in a way that would otherwise be risky and difficult.[280] To purchase more from their surrounding community, anchor institutions can unbundle larger contracts to make them accessible to smaller businesses and can encourage or contractually obligate larger firms to contract with local suppliers.[281] Local purchasing may not always be possible, as some goods and services may be available from only a few suppliers nationally or internationally.[282]

Anchor institutions and pension plans have invested in local and regional economic development efforts. For instance, from 2003 to 2009, the University of Cincinnati invested $148 million in real estate development in Cincinnati, providing low-interest loans and grants for redevelopment projects.[283]

In 2015, the U.S. Department of Labor (DOL) issued new guidance on Employee Retirement Income Security Act (ERISA), which sets minimum standards for private pension and health plans. The guidance dealt with economically targeted investments (ETIs), or investments that are selected for the economic benefits they create in addition to the investment return, such as community or environmental-based benefits. The DOL issued the new guidance because there was confusion about whether such plans can invest assets in economically targeted investments.[284] The new guidance notes that ERISA plans may invest assets in economically targeted investments if:

- The investment return for a traditional investment and an ETI is the same, and the additional benefits are considered as a "tie breaker;" and,
- The economic benefits of ETIs are more than tie breakers; that is, the environmental, social, or governmental factors have a direct relationship with the economic and fiscal value of an investment and are key components of the fiduciary analysis of competing investments. [285]

Since 2014, the Vermont State Treasurer has had the authority to commit up to 10 percent of the State's average available cash to local investments and has obligated $33 million primarily in housing and energy.

Treasurer's report available here.

280 Denning, Brannon, Graff, Samantha, and Wooten, Heather, "Laws to Require Purchase of Locally Grown Food and Constitutional Limits on State and Local Government: Suggestions for Policymakers and Advocates," Journal of Agricultural, Food Systems & Community Development, 2010.

281 Porter, Michael E., "Anchor Institutions and Urban Economic Development: From Community Benefit to Shared Value." ." Inner City Economic Summit, Initiative for a Competitive Inner City, San Francisco, CA, October 26, 2010.

282 Zeuli, Kim, Ferguson, Lena, Nihuis, Austin, "Creating an Anchored Local Economy in Newark," Initiative for a Competitive Inner City, 2014. Available here.

283 See: Uptown Consortium, Inc.

284 "Interpretive Bulletin Relating to the Fiduciary Standard under ERISA in Considering Economically Targeted Investments," Department of Labor, Employee Benefits Security Administration. Available here.

285 Ibid. "Interpretive Bulletin Relating to the Fiduciary Standard under ERISA in Considering Economically Targeted Investments."

There are hundreds of retirement plans with ETIs. For example 1) the Wisconsin Private Debt Program, comprised of public retirement system funds, provides loans to businesses headquartered or operating in Wisconsin, with about $17 billion in investments and 2) the California State Teachers' Retirement System, which purchases green bonds as part of its plan, focusing on environmental issues such as climate change.[286]

State Governments and Local Purchasing

Like anchor institutions, state governments are frequently interested in maximizing the economic impact that the government can have. Much of state government spending already impacts state economies directly in the form employee salaries and benefits, public education, and infrastructure spending.[287] But states can also use their substantial purchasing power to provide local businesses with a stream of revenues, boosting state economies. However, state governments are limited in giving preferential treatment to local businesses to aid economic growth by the U.S. Constitution and other federal restrictions.[288]

The Commerce Clause of the Constitution grants Congress the power to regulate interstate commerce. The U.S. Supreme Court has ruled that there are implied limits on states and municipalities which limit their ability to regulate interstate commerce. These implied limits are known as the "dormant Commerce Clause." States may only pass laws or produce regulations which discriminate against out-of-state goods if a federal law permits them to, as is the case with the National School Lunch Act, which allows nutrition programs to favor locally produced food.[289] The dormant Commerce Clause would, however, prohibit a state from passing a law that bans the import of out-of-state products merely to protect in-state products. Vermont could not, for instance, ban out-of-state milk to boost the fortunes of the Vermont dairy industry, as it would be discriminatory and protectionist.

To pass constitutional muster, both the intent and the effect of a law cannot be discriminatory in nature. If a law affects interstate commerce, but the purpose and effect are found not to be discriminatory or protectionist, courts may examine the constitutionality of the law and consider whether the interstate burdens of the law are smaller than the benefits of the law.[290]

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286 See: Pacific Community Ventures, "Economically Targeted Investments by U.S. Pension Funds." Available here.

287 Francis, Norton, Randall, Megan, "State Economic Development Strategies, State and Local Finance Initiative, Urban Institute, 2017.

288 The following information is not a legal brief, but stems from a literature review focused on economic development conducted by the SAO.

289 Erchull, Chris, "The Dormant Commerce Clause: A Constitutional Barrier to Sustainable Agriculture and the Local Food Movement," Western New England Law Review, Vol. 36, 2014.

290 Denning, et al, "Laws to Require Purchase of Locally Grown Food and Constitutional Limits on State and Local Government: Suggestions for Policymakers and Advocates." Journal of Agriculture, Food Systems, and Community Development, Vol. 1, No. 1, 2010.

To avoid legal challenges based on the dormant Commerce Clause, the literature indicates that local preference policies or regulations should:

- Be defined geographically broadly, and if possible include out-of-state geographies such as parts of bordering states;
- Not be discriminatory towards out-of-state goods or services in intent and effect;
- Ensure that the legislation stresses the effect on state-level health or environmental outcomes; and,
- Provide cash subsidies rather than tax credits if subsidies are part of the policy. [291] [292] [293]

The Vermont legislature passed legislation related to local purchasing. For example, 29 V.S.A. § 903 (b)(10) and (c) address local purchasing in Vermont. The statute instructs the Commissioner of Buildings and General Services, when making purchasing decisions, to consider "the economy of the State and the need to maintain and create jobs in the State…"

Despite constitutional barriers, the dormant commerce clause does not entirely bar states from preferential treatment of in-state businesses. When a state is acting as a "market participant," that is, when the state is purchasing or selling goods and services, it can largely act as a private business would, and choose to contract with local or out of state businesses.[294] As with anchor institutions, state governments may seek to bolster in-state economic conditions by creating a consistent stream of revenue for local businesses.

Sales Tax Holidays

Sales tax holidays—temporary exemptions from the sales tax for consumers—are sometimes cited as a type of tax incentive that can spur economic activity. Proponents reason that a tax holiday, usually a single day or weekend, induces consumers to purchase more goods because they are temporarily less expensive to buy, thereby benefiting consumers and businesses.

291 Ibid. "Laws to Require Purchase of Locally Grown Food and Constitutional Limits on State and Local Government: Suggestions for Policymakers and Advocates."

292 Ibid. "The Dormant Commerce Clause: A Constitutional Barrier to Sustainable Agriculture and the Local Food Movement."

293 Ibid, "The Dormant Commerce Clause: A Constitutional Barrier to Sustainable Agriculture and the Local Food Movement."

294 *Reeves v. William Stake*, 447 U.S. 429

Businesses may be aware that consumers are drawn to make purchases during sales tax holidays and may not offer the sales and discounts that they otherwise might. The result: despite avoiding taxes, consumers may not pay less for the products they purchase.[295]

Vermont has had multiple sales tax holiday weekends. The most recent, in March of 2010, covered items costing $2000 or less that would normally be subject to sales tax. The Vermont Legislative Joint Fiscal Office estimated that a two-day sales tax holiday for items costing $2000 or less would reduce revenues to the state by $2.5 million.

Source: Joint Fiscal Office

High income individuals and families are most likely to benefit from sales tax holidays, as they are most likely to be able to shift purchasing decisions so that they can avoid paying taxes. [296] Low income earners, in contrast, are less likely to have the liquidity to make purchasing decisions based on a short sales tax holiday.[297] Sometimes, tax holidays are timed to coincide with periods of higher expected consumption, such as back-to-school shopping.[298] Estimates from economists at the Federal Reserve Bank of Chicago indicate that the wealthiest households have the largest response to back-to-school tax holidays.[299]

States might benefit from a sales tax holiday if consumers in bordering states shift their purchasing to take advantage of the temporary tax reduction, resulting in revenues that would not have otherwise occurred. Because New Hampshire has no sales tax, Vermont would be unlikely to draw New Hampshire consumers over the border. Furthermore, there are more large retail stores on the New Hampshire side of the border.[300]

295 Janssen, Cari Beth, "(Un)Happy Holidays: The True Meaning of Sales Tax "Holiday" Policy, Loyola Consumer Law Review, Vol. 24, No. 3, 2012. Available here.

296 "Sales Tax Holidays: An Ineffective Alternative to Real Sales Tax Reform," Policy Brief, Institute on Taxation and Economic Policy, July 2016. Available here.

297 Ibid. "Sales Tax Holidays: An Ineffective Alternative to Real Sales Tax Reform."

298 Aladangady, et al., "The Effect of Sales-Tax Holidays on Consumer Spending," FEDS Notes, Board of Governors of the Federal Reserve System, March 2017. Available here.

299 Marwell, Nathan, McGranahan, Leslie, "The Effect of Sales Tax Holidays on Household Consumption Patterns," Federal Reserve Bank of Chicago, 2010. Available here.

300 "The Cross-Border Issue: An Ongoing Analysis Affecting Multiple Taxes;" available here.

DATA

Here we address some common myths that can influence decision-makers and we provide facts that challenge those myths. The three areas of interest are:

- Business Climate
- Taxes
- Migration

"Hey, that line's moving a lot faster!"

Part 1: BUSINESS CLIMATE

Claim: Vermont is anti-business

Frequently cited rankings consistently rate Vermont as bad for business. If the rankings accurately reflect actual economic conditions, the top 10 states in each ranking would surpass Vermont in standard indicators. We tested that assumption for these rankings.

- Forbes: Best and Worst States for Business, 2017 (VT ranked 48th)
- ALEC:[301] Rich States, Poor States, 2017 (VT ranked 49th)
- Tax Foundation: State Business Tax Climate Index, 2018 (VT ranked 47th)

As the graphs below show, Vermont performed better on two key measures[302] than many of the top ten in all three rankings. This is not surprising since "scholarly studies have…found little relationship between rankings and economic performance."[303] Therefore, public officials should use caution in relying on such rankings when defining problems and considering policy options.

[301] American Legislative Exchange Council.

[302] Percent change in inflation-adjusted per capita GDP (2009 – 2016) and Personal Income (2009 – 2015, latest available). Source: US Department of Commerce, Bureau of Economic Analysis.

[303] Motoyama, Yasuyuki, and Hui, Iris, "How Do Business Owners Perceive the State Business Climate? Using Hierarchical Models to Examine the Business Climate Perceptions, State Rankings, and Tax Rates." Economic Development Quarterly, Vol. 29, No. 3, 2015.

Forbes: Best and Worst States for Business, 2017

Chart 1: Percent Change in Real Per Capita GDP, 2009 - 2016
- Vermont and the Forbes Top Ten -

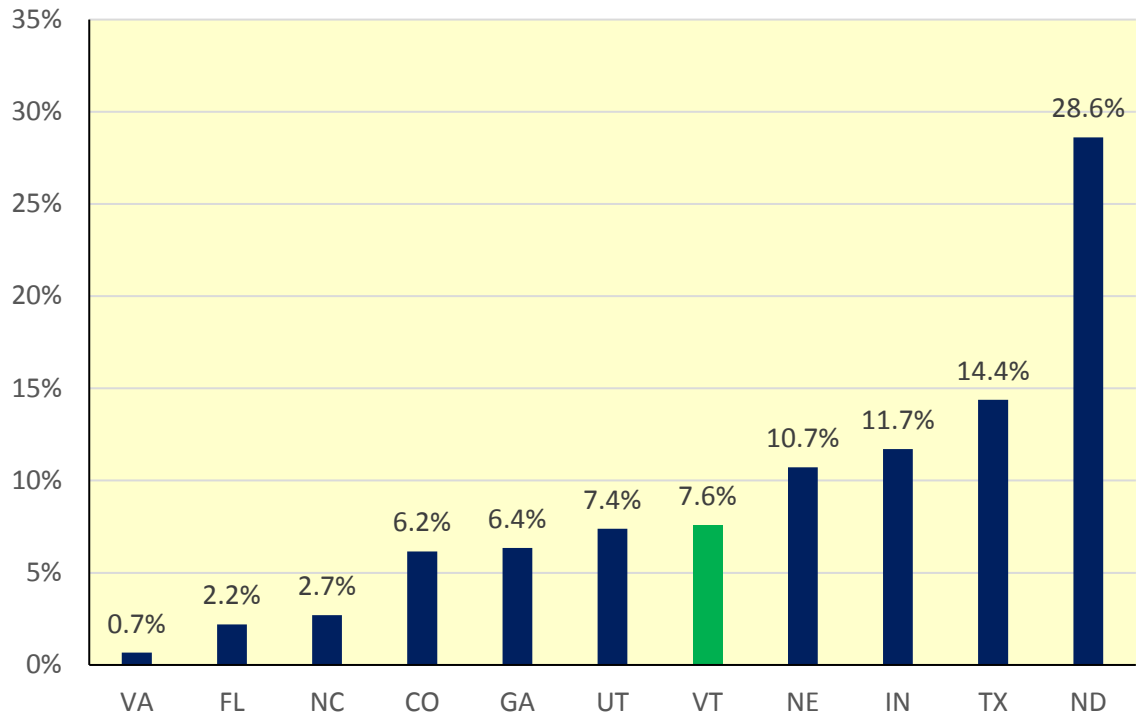
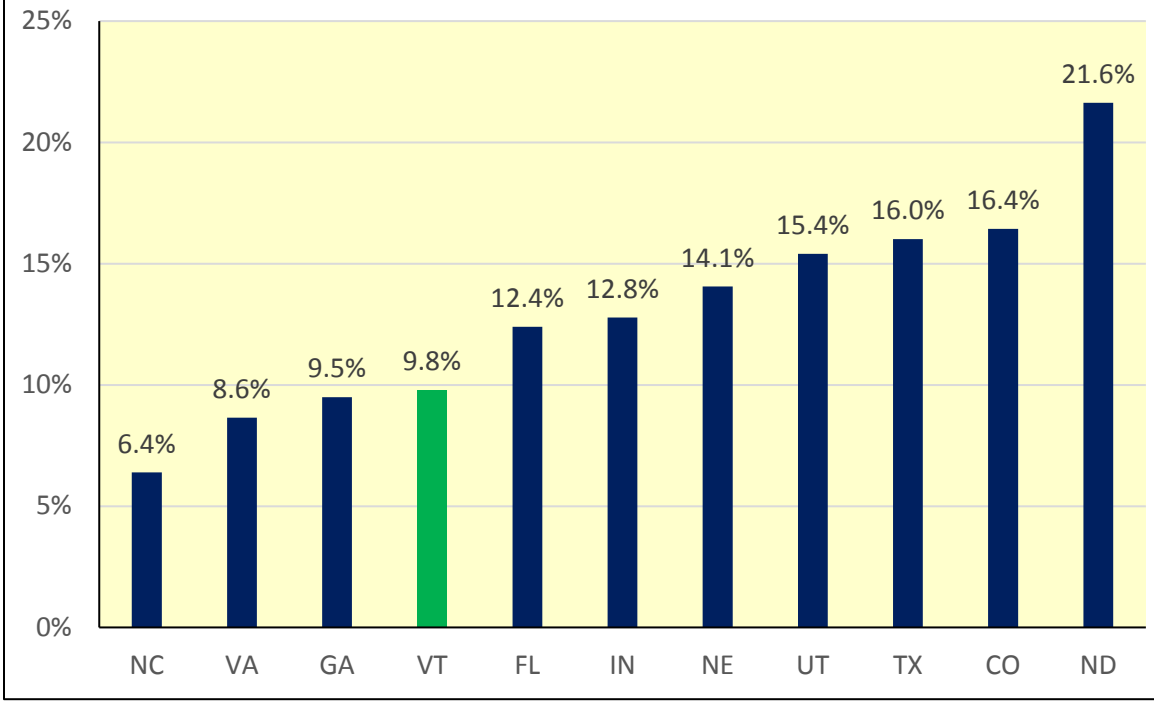


Chart 2: Percent Change in Real Per Capita Personal Income
2009 - 2015
- Vermont and the Forbes Top Ten -



ALEC: Rich States, Poor States, 2017

Chart 3: Percent Change in Real Per Capita GDP, 2009 - 2016
- Vermont and the ALEC Top Ten -

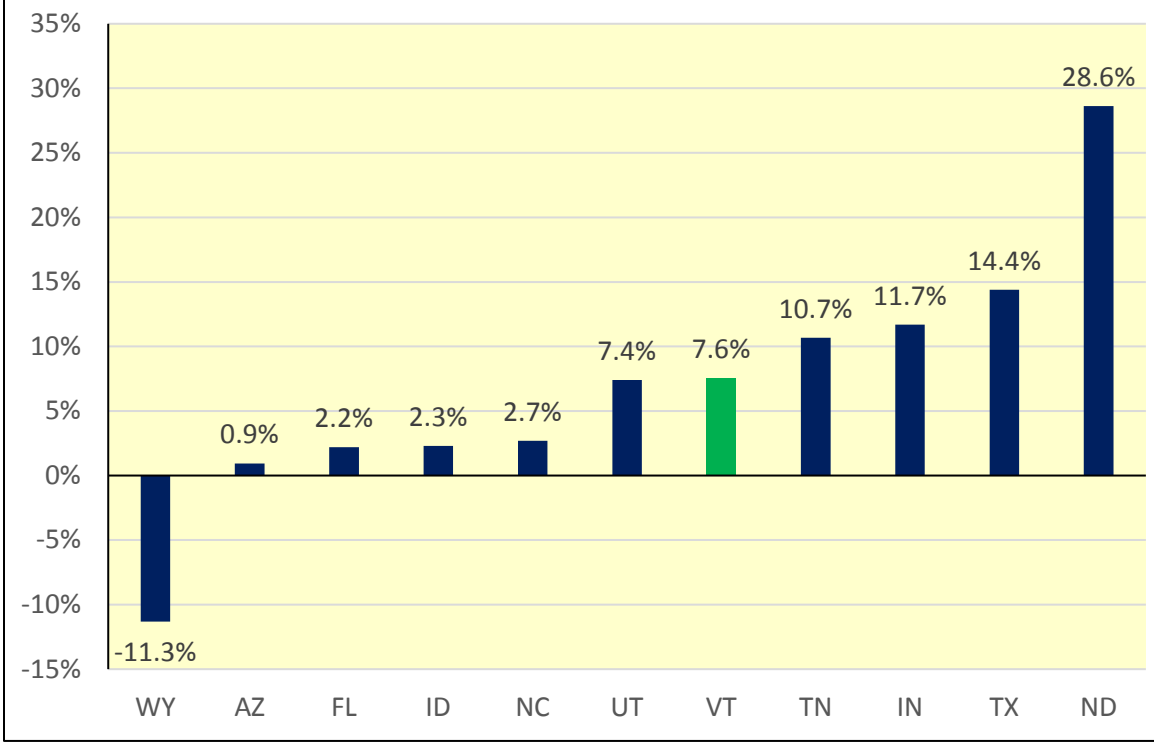
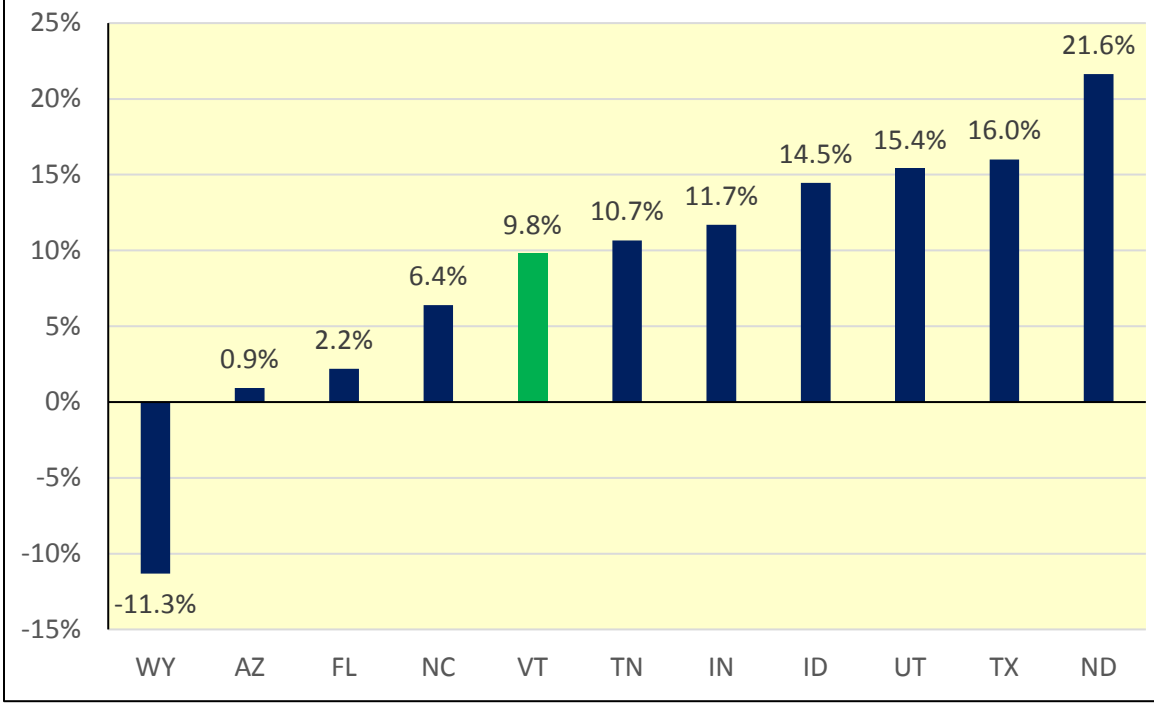


Chart 4: Percent Change in Real Per Capita Personal Income 2009 - 2015
- Vermont and the ALEC Top Ten -



Tax Foundation: State Business Tax Climate Index, 2018

Chart 5: Percent Change in Real Per Capita GDP, 2009 - 2016
- Vermont and the Tax Foundation Top Ten -

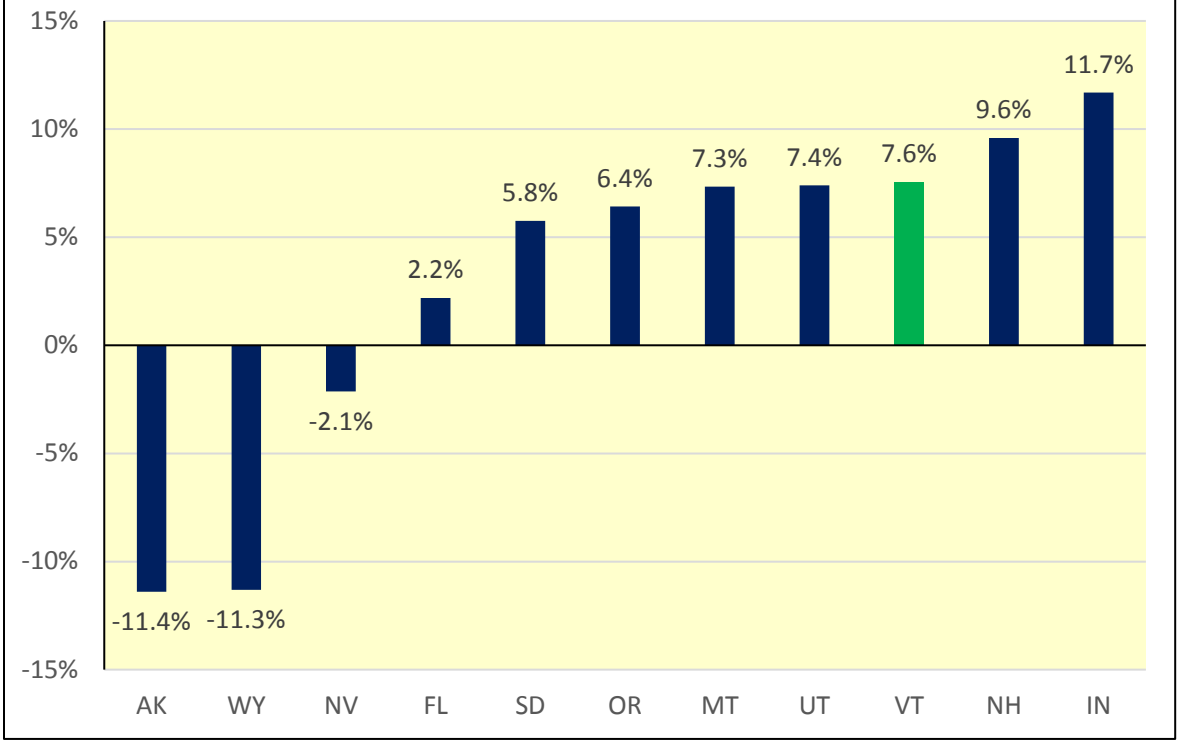
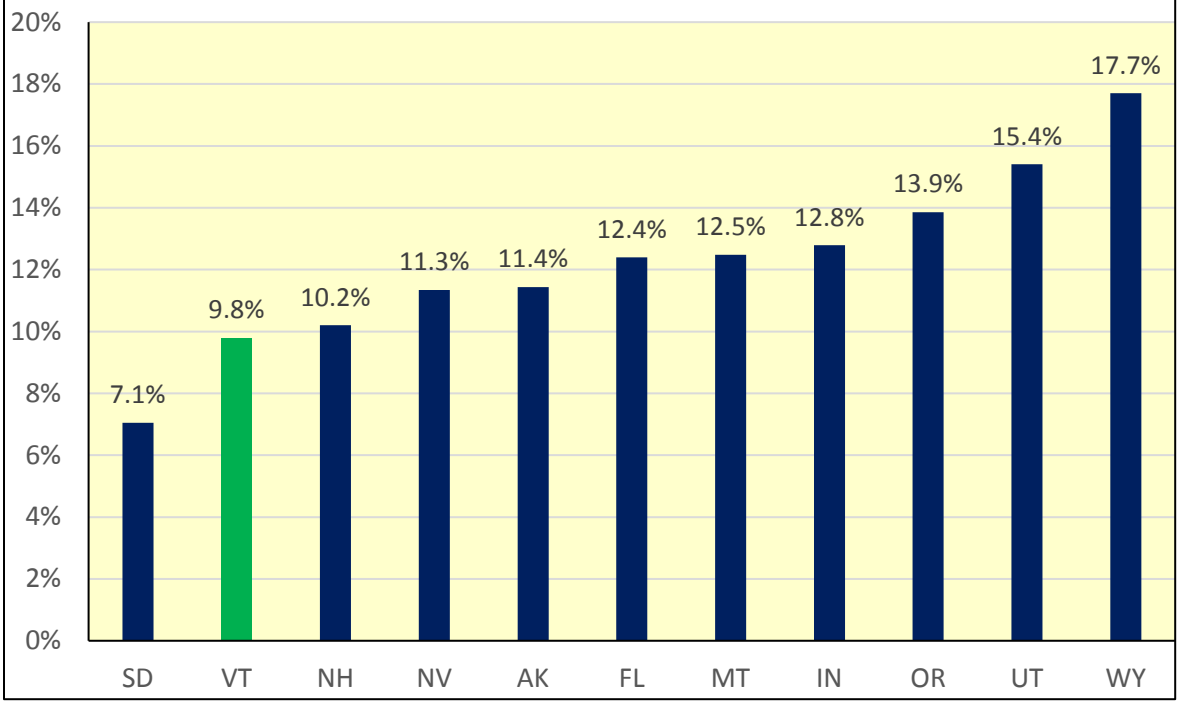


Chart 6: Percent Change in Real Per Capita Personal Income 2009 - 2015
- Vermont and the Tax Foundation Top Ten -



Part 2: TAXES

Claim: Vermont is a high tax state

If we measure total state and local taxes paid as a percent of total income Vermont is a comparatively high tax state. But using aggregate or per capita data is misleading because it ignores the distribution of the "tax burden" (see Graphs 7 – 11 below).[304]

Vermont is often ranked poorly because our top marginal income tax rate is high (8.95%), but

1. It only impacts the top 1%,
2. It only applies to income over $415,600, and
3. It is applied to federal taxable income rather than AGI.

Because of Vermont's graduated income tax, effective rates are much lower than the marginal rates. This is evident when state income taxes are estimated for families with different characteristics, including Adjusted Gross Income (AGI), number of filers, marital and housing status, etc. (see Graphs 12 – 15 below).[305]

We make no judgment about whether Vermont taxes are too high, only that claims about the "burden" of Vermont taxes can be misleading. Finally, those that focus on taxes alone ignore the other side of the issue, which is how tax revenues are used and what that means in terms of the services provided and quality of life, which is an important consideration for businesses and families.

[304] "Who Pays? A distributional Analysis of the Tax Systems in All 50 States," Institute on Taxation and Economic Policy, January 2015.
[305] "The Vermont Tax Study 2005 – 2015," Joint Fiscal Office.

Total State and Local Taxes

Chart 7: State & Local Taxes as a Share of Family Income for Non-Elderly Taxpayers - Lowest 20% of Households -

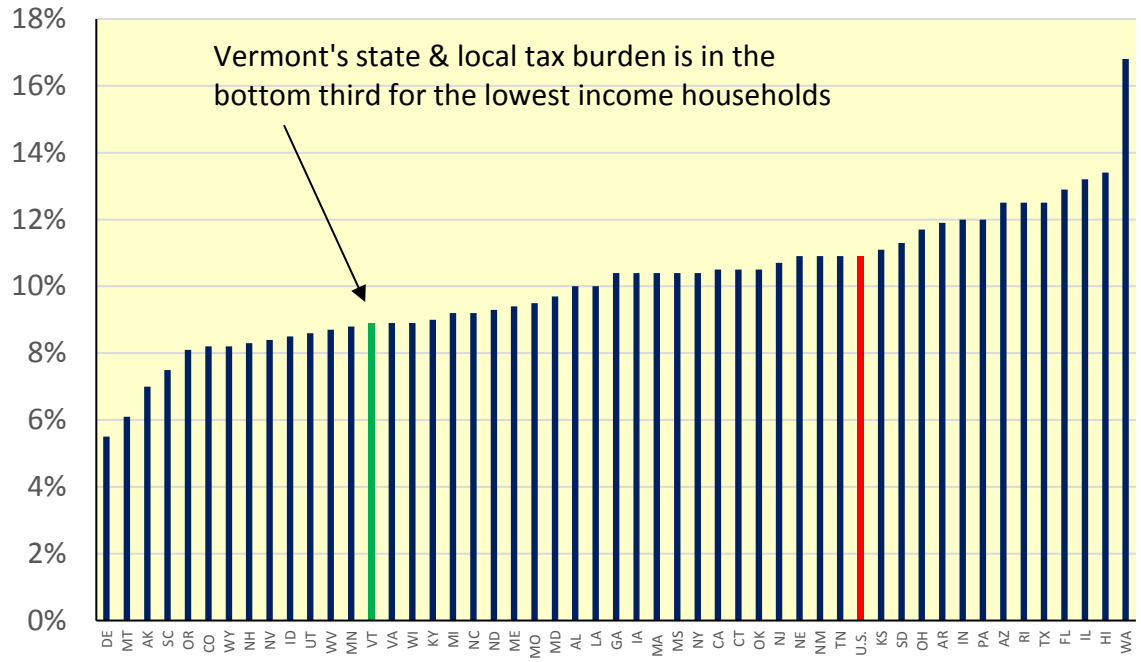


Chart 8: State & Local Taxes as a Share of Family Income for Non-Elderly Taxpayers - Second Lowest 20% of Households -

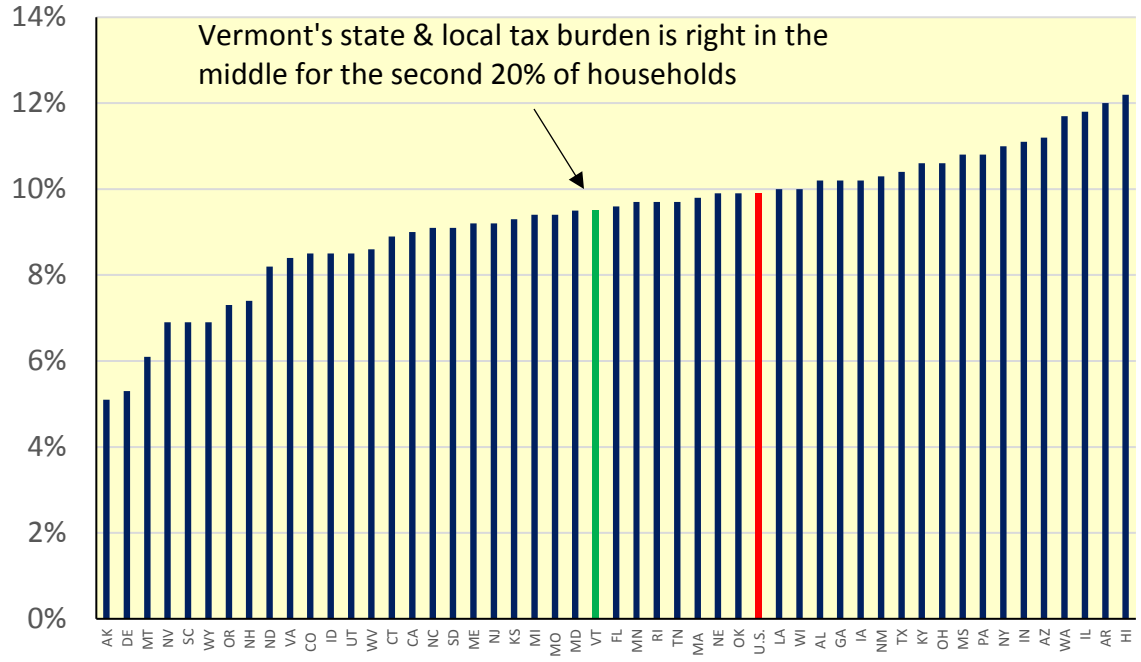


Chart 9: State & Local Taxes as a Share of Family Income for Non-Elderly Taxpayers - Middle 20% of Households -

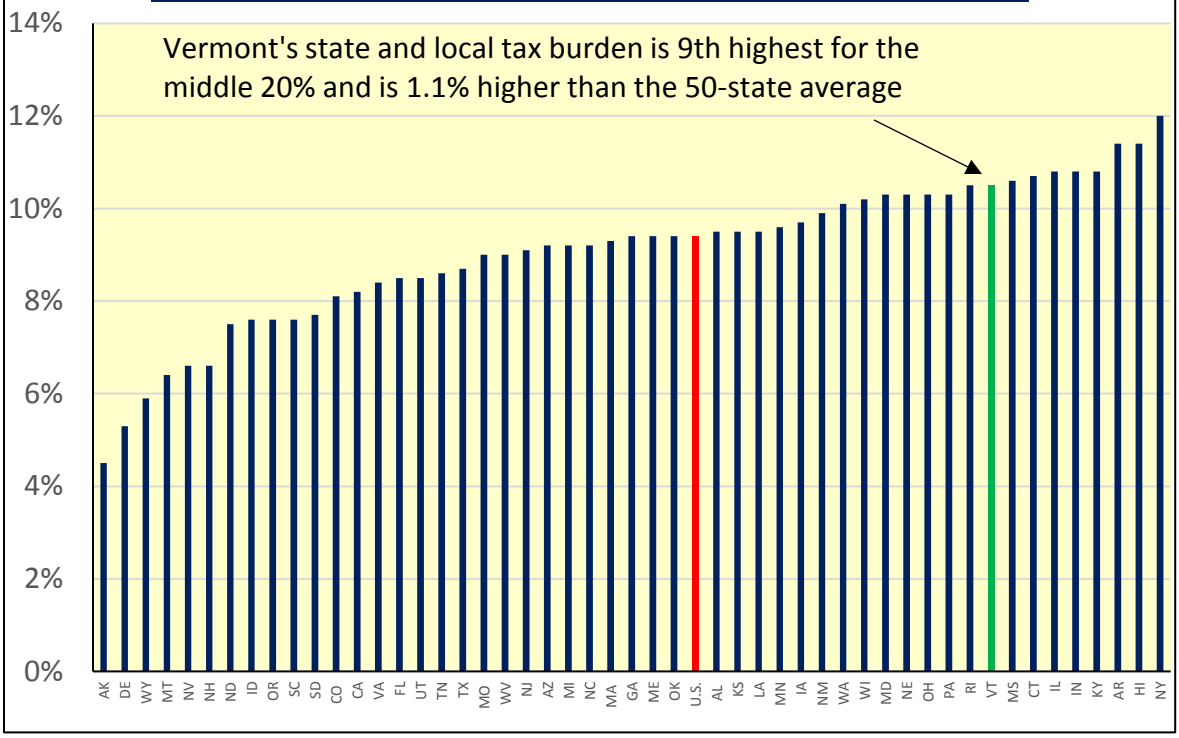
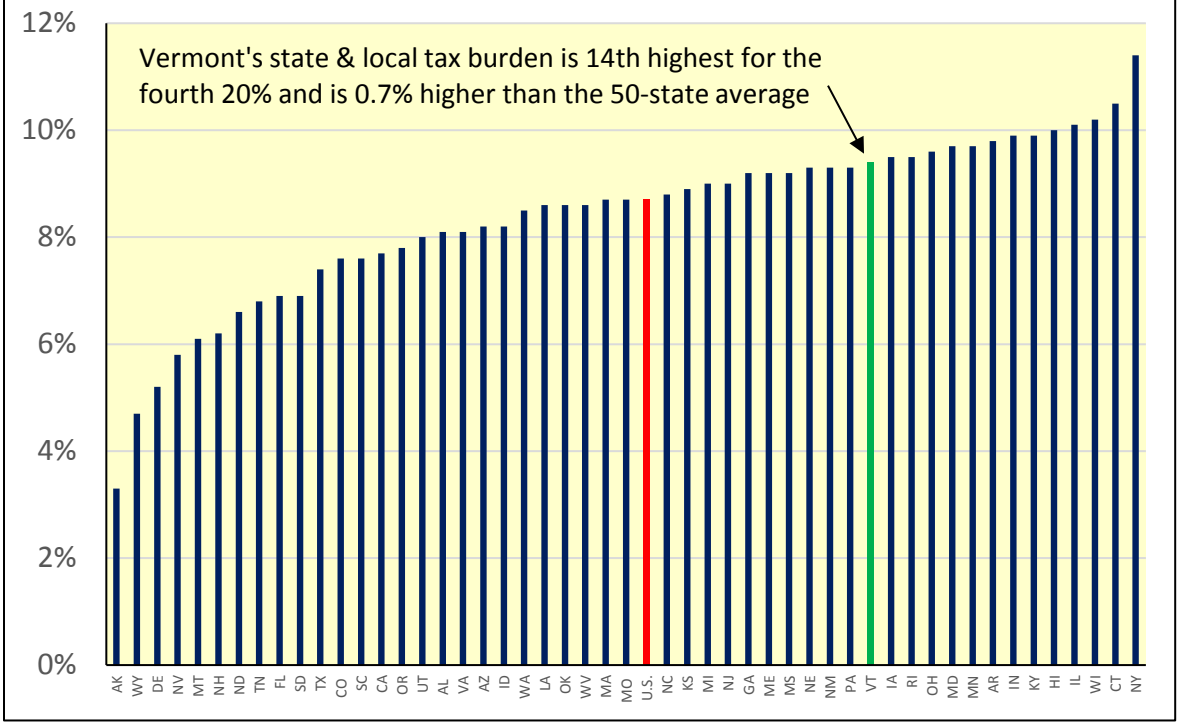


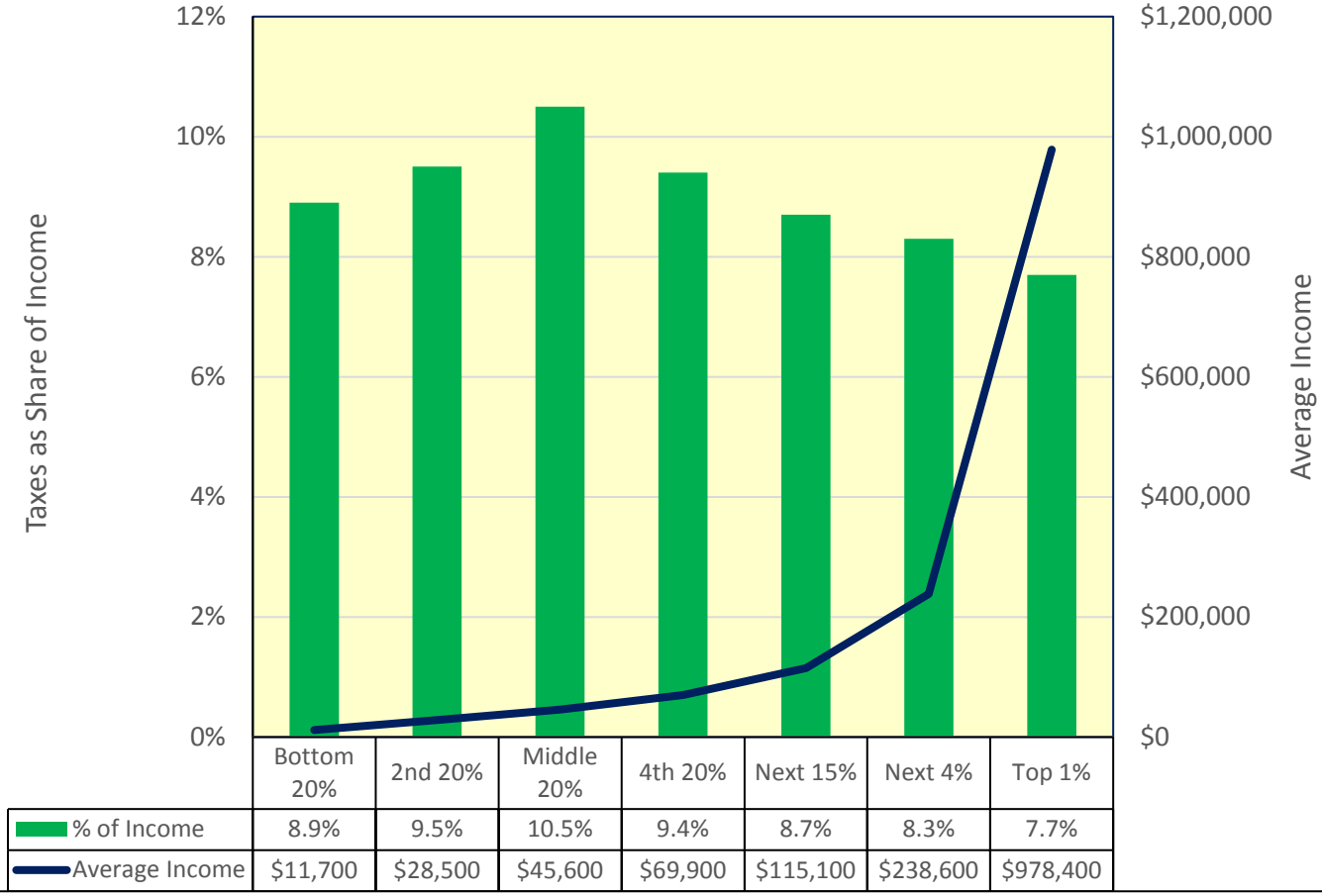
Chart 10: State & Local Taxes as a Share of Family Income for Non-Elderly Taxpayers - Fourth 20% of Households -



TAX EQUITY

The Institute on Taxation and Economic Policy ranks Vermont's tax system as one of the most progressive in the country because of the steeply graduated income tax, the State earned income tax credit, and the income-sensitized education property tax. But our reliance on regressive sales and municipal property taxes means that higher income Vermonters pay a smaller percentage of income for state and local taxes than low- and moderate-income taxpayers.

Chart 11: Vermont: Estimated Total State & Local Taxes as a Share of Family Income for Non-Elderly Taxpayers, 2015



	Bottom 20%	2nd 20%	Middle 20%	4th 20%	Next 15%	Next 4%	Top 1%
% of Income	8.9%	9.5%	10.5%	9.4%	8.7%	8.3%	7.7%
Average Income	$11,700	$28,500	$45,600	$69,900	$115,100	$238,600	$978,400

STATE INCOME TAX

Chart 12: Estimated State Income Tax Liability
Head of Household, 3 exemptions, $25,000 AGI, Renter

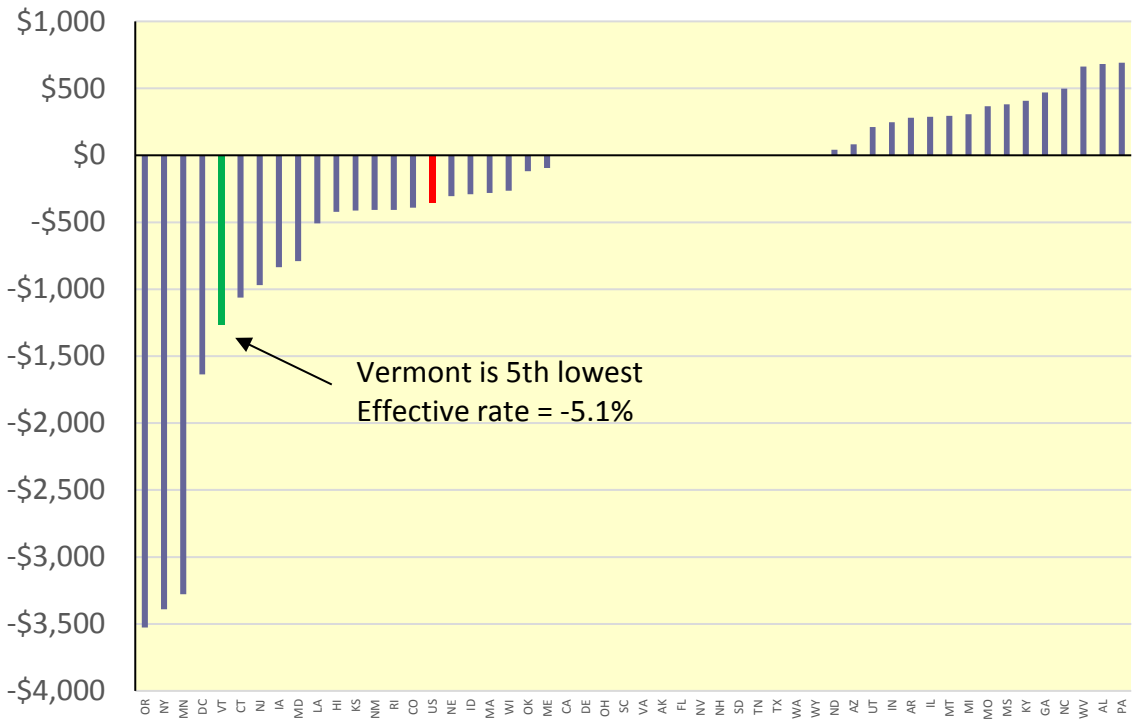


Chart 13: Estimated State Income Tax Liability
Married Filing Jointly, 5 exemptions, $45,000 AGI, Renter

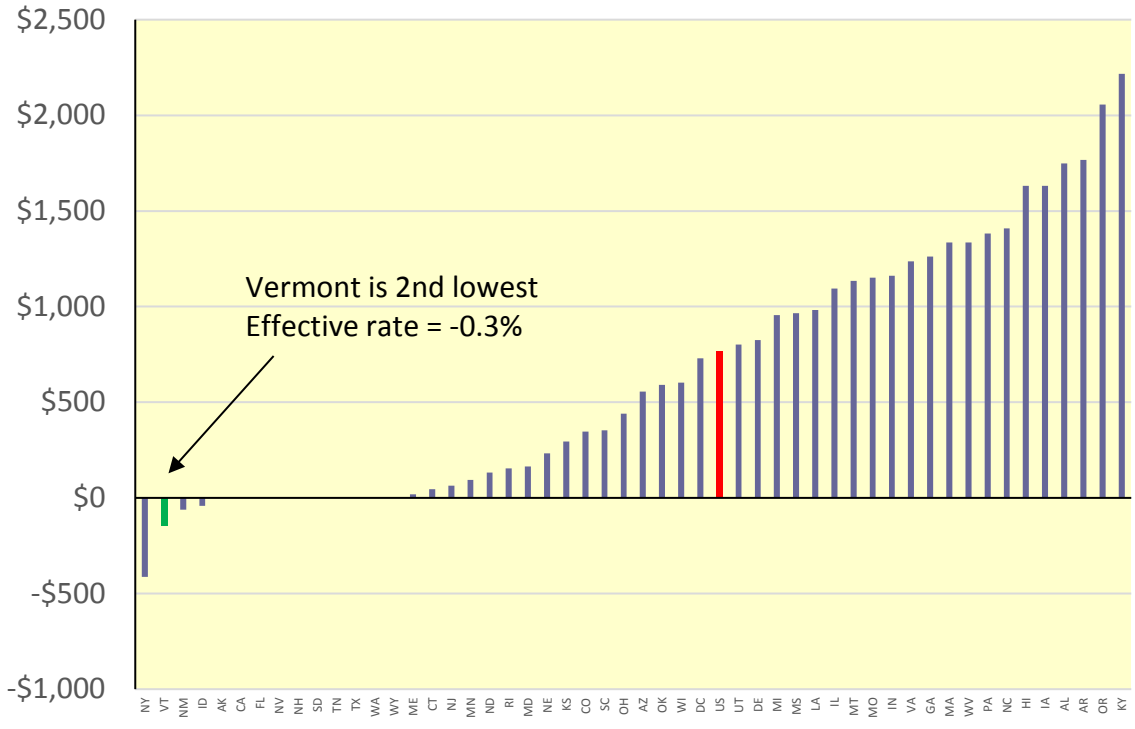


Chart 14: Estimated State Income Tax Liability
Single, 1 exemption, $80,000 AGI, Homeowner

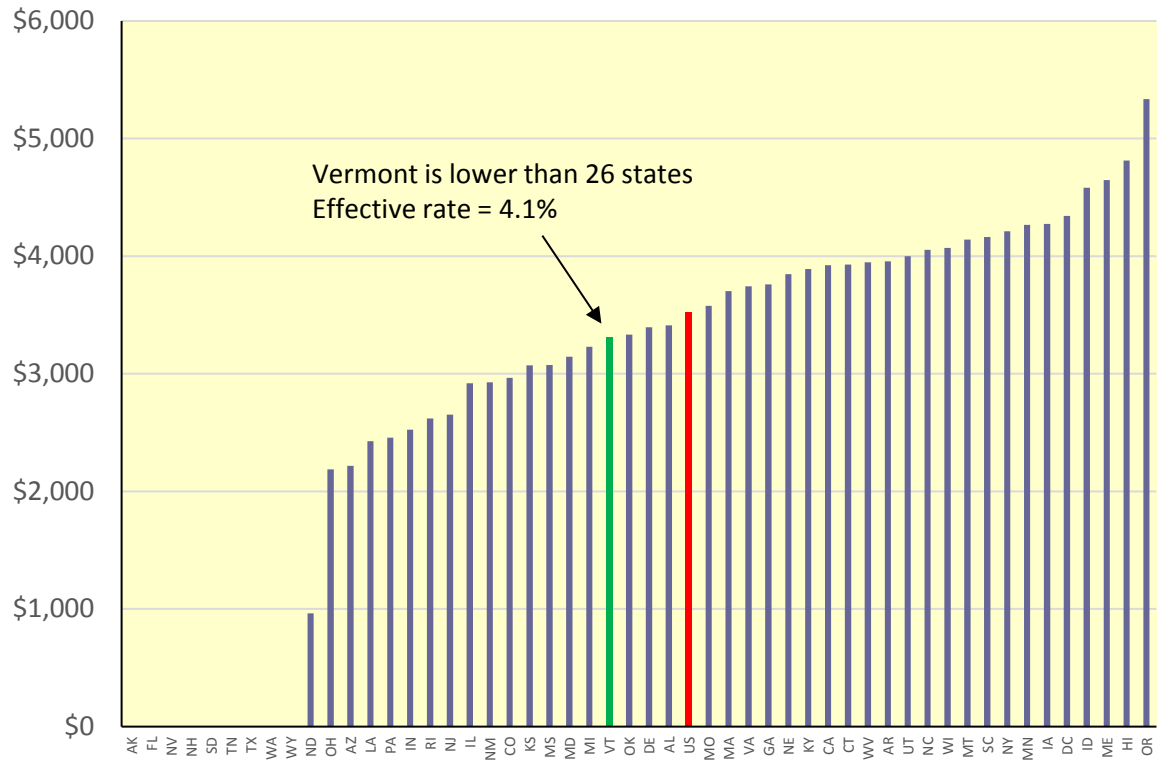
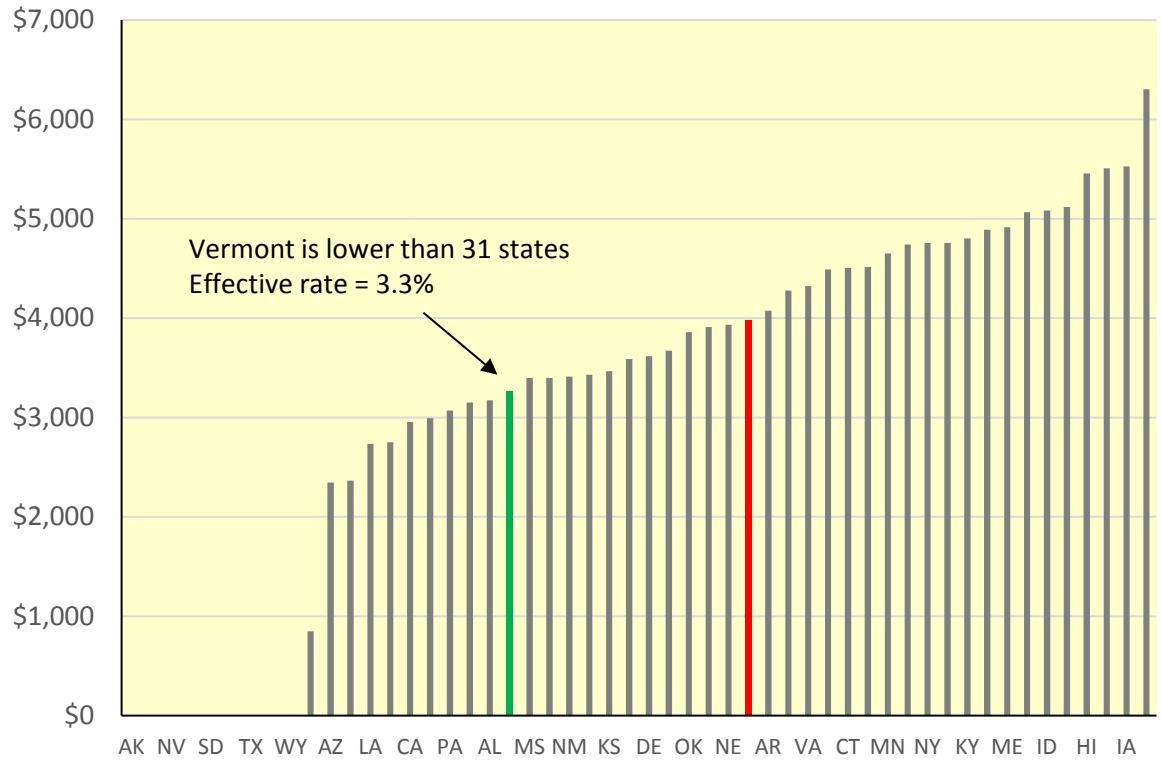


Chart 15: Estimated State Income Tax Liability
Married Filing Jointly, 2 exemptions, $100,000 AGI, Homeowner



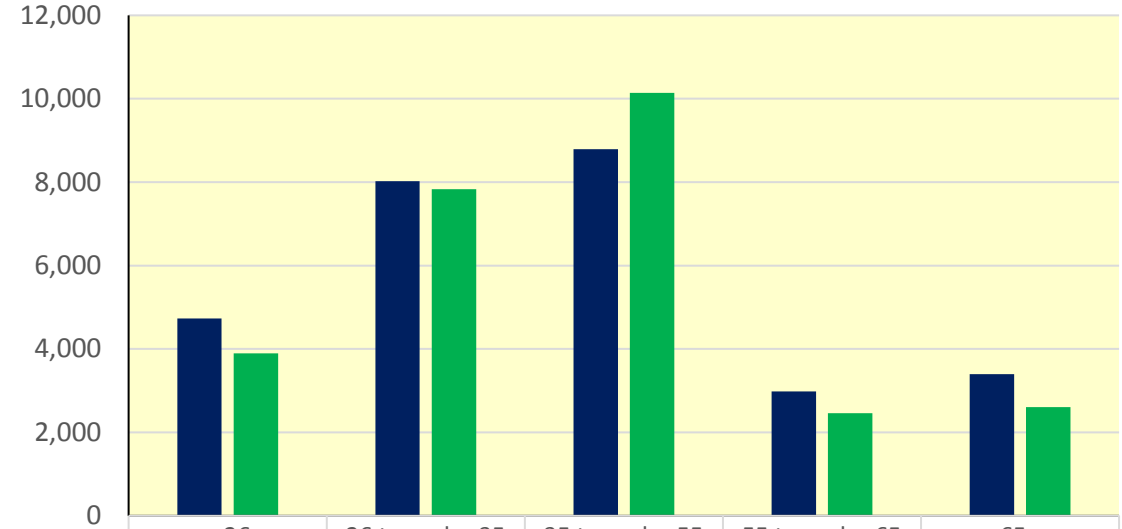
Part 3: MIGRATION

Claim: Vermont's high taxes and cost of living are driving people away

IRS migration data does not support the view that Vermont is hemorrhaging people or is uniquely disadvantaged. For example:

- From 2014 – 2016, 27,925 people moved out of Vermont, while 26,940 moved in. The data shows that more people in their prime working years (35 to <55) moved in than moved out and there was a rough equivalence for the group just below (26 to <35; Chart 16).
- For those reporting incomes of $100,000 or more, the number of people coming and going was virtually identical from 2012 – 2016 (Chart 17).
- From 2005 – 2014 (latest available), more high-income filers ($300,000+) came to Vermont than left (Chart 18).
- Over the last five years, the number of senior citizens leaving NH is more than twice that of VT, which is reasonable since NH has twice our population. But it calls into question the assertion that the outflow of seniors from VT is a result of high taxes here since NH has no personal income tax but is losing seniors at the same rate (Chart 19).
- There is concern about the number of young people leaving Vermont. While the issue is important, context is too. For example, over the last five years, the average annual percent of tax filers under 26 leaving VT was 9.5%; the figure for NH was 9.3% (Chart 20).

Chart 16: Number of People Moving Into and Out of Vermont by Age, 2014 - 2016

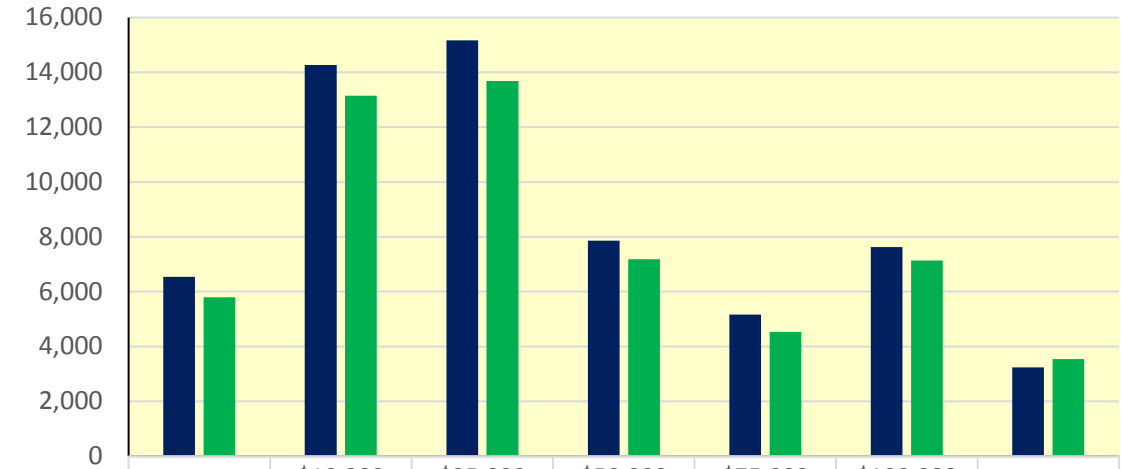


	< 26	26 to under 35	35 to under 55	55 to under 65	65+
Outflow	4,731	8,027	8,792	2,980	3,395
Inflow	3,897	7,834	10,140	2,460	2,609

Outflow Inflow

Source: IRS

Chart 17: Number of People Moving Into and Out Of Vermont by Income Class, 2012 - 2015

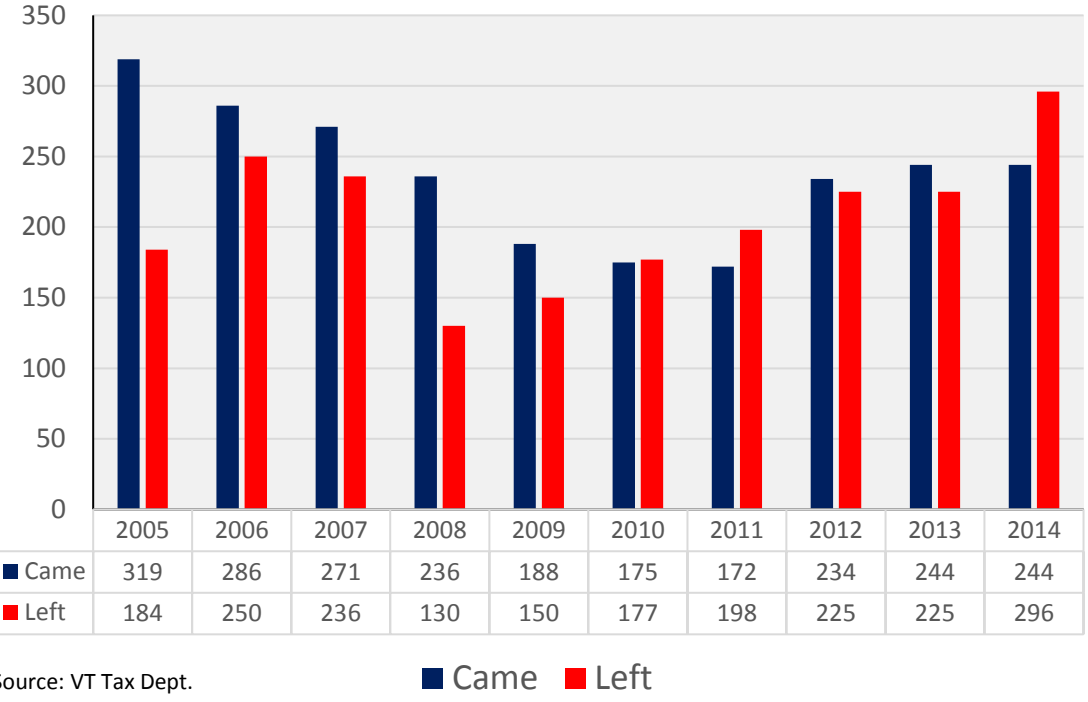


	$1 under $10,000	$10,000 under $25,000	$25,000 under $50,000	$50,000 under $75,000	$75,000 under $100,000	$100,000 under $200,000	$200,000 or more
Outflow	6,543	14,264	15,173	7,857	5,161	7,626	3,234
Inflow	5,799	13,145	13,690	7,181	4,532	7,133	3,535

Outflow Inflow

Source: IRS

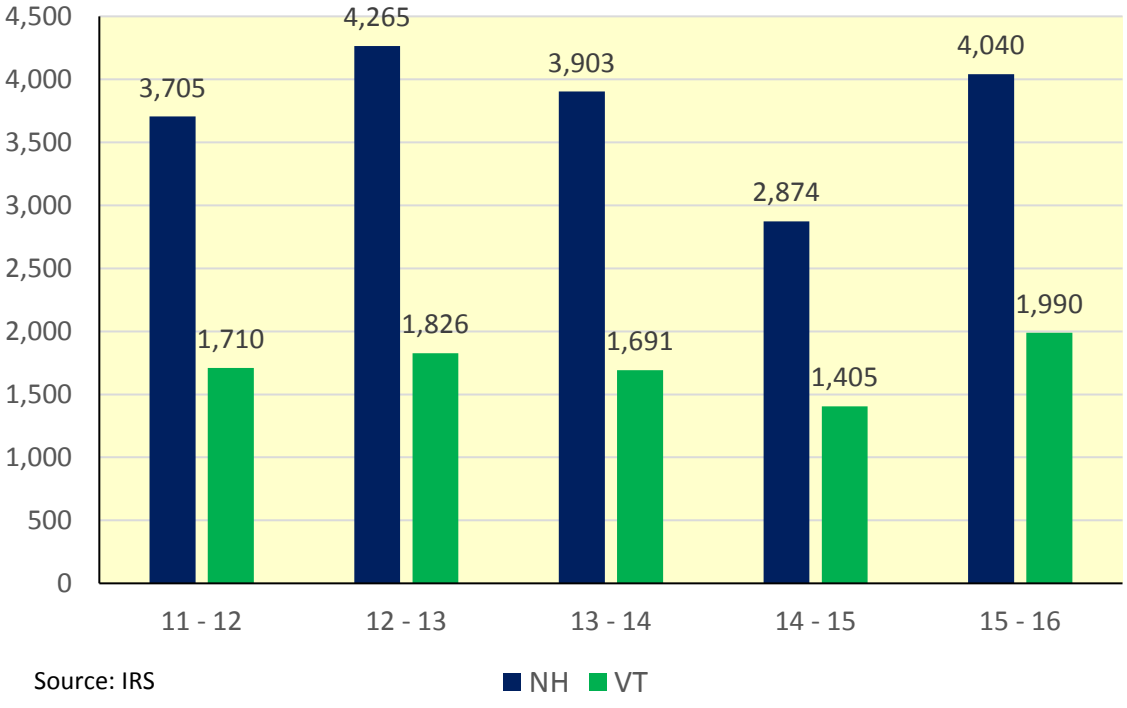
Chart 18: Migration of Vermont High-Income Filers (≥$300,000 AGI), 2005 - 2014



	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Came	319	286	271	236	188	175	172	234	244	244
Left	184	250	236	130	150	177	198	225	225	296

Source: VT Tax Dept.

Chart 19: Number of People 65 and Older That Moved Out of Vermont and New Hampshire, 2011 - 2016



Source: IRS

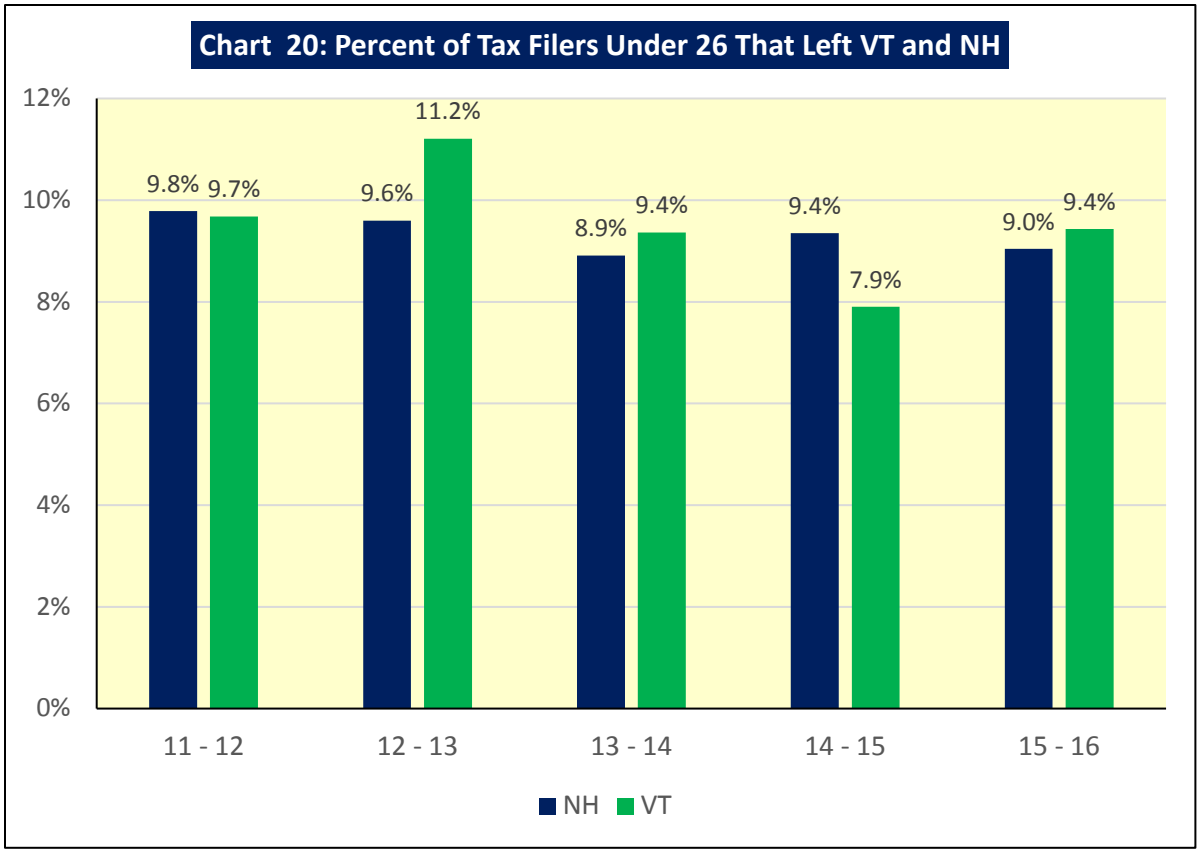


Chart 20: Percent of Tax Filers Under 26 That Left VT and NH
12%
10%
8%
6%
4%
2%
0%
9.8%
9.7%
9.6%
11.2%
8.9%
9.4%
9.4%
7.9%
9.0%
9.4%
11 - 12
12 - 13
13 - 14
14 - 15
15 - 16
NH
VT

A REALITY CHECK

As noted, Vermont is not unique in losing almost 10% of its young workers each year. Some return to their home state after college (70% of UVM undergrads are from out of state[306]), while others can't find jobs in their fields of interest. Not surprisingly, large metropolitan areas have many more opportunities and pay higher wages than in Vermont.[307] We can't do anything about the former but, as we learned in Economics 101, if we pay them, they may come (or stay).

	Total employ-ment	Hourly median wage	Annual openings
Human Resources Specialists			
Boston metro	12,180	32.49	
NY City metro	26,910	34.31	
Vermont	1,080	26.22	26
Market Research Analysts & Marketing Specialists			
Boston metro	18,300	34.63	
NY City metro	50,730	35.50	
Vermont	1,520	25.74	54
Accountants and Auditors			
Boston metro	30,900	36.49	
NY City metro	90,790	41.00	
Vermont	3,050	31.45	116
Computer Programmers			
Boston metro	6,810	43.50	
NY City metro	16,710	38.41	
Vermont	420	32.06	10
Web Developers			
Boston metro	3,570	37.38	
NY City metro	9,660	37.65	
Vermont	560	27.76	26

	Total employ-ment	Hourly median wage	Annual openings
Occupational Therapists			
Boston metro	3,610	41.99	
NY City metro	5,420	46.59	
Vermont	270	36.15	7
Registered Nurses			
Boston metro	62,040	42.21	
NY City metro	123,640	42.45	
Vermont	5,850	31.36	229
Dental Hygienists			
Boston metro	4,310	40.45	
NY City metro	6,670	43.12	
Vermont	740	32.07	13
Carpenters			
Boston metro	12,620	27.98	
NY City metro	29,600	29.86	
Vermont	3,130	21.17	135
Electricians			
Boston metro	12,170	31.21	
NY City metro	30,630	36.59	
Vermont	1,140	23.05	40

	Total employ-ment	Hourly median wage	Annual openings
Electrical Engineers			
Boston metro	8,490	51.44	
NY City metro	5,390	48.88	
Vermont	490	41.18	14
Clinical, Counseling & School Psychologists			
Boston metro	3,090	35.67	
NY City metro	7,490	43.90	
Vermont	410	30.16	41
Urban and Regional Planners			
Boston metro	990	38.06	
NY City metro	980	36.48	
Vermont	180	26.77	7
Librarians			
Boston metro	3,630	33.39	
NY City metro	6,940	31.59	
Vermont	750	21.40	13
Graphic Designers			
Boston metro	4,160	27.63	
NY City metro	18,690	29.35	
Vermont	530	20.24	25

[306] Fall 2015 - Spring 2016 https://www.uvm.edu/~oir/sbinfo/fsave.pdf

[307] BLS, OES 2016.