

9-23-1992

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Recommended Citation

Woolf, Arthur G. (1992) "The Cost of Home Ownership in Vermont, 1975-1990," *New England Journal of Public Policy*. Vol. 8: Iss. 2, Article 6.

Available at: <https://scholarworks.umb.edu/nejpp/vol8/iss2/6>

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The Cost of Home Ownership in Vermont 1975–1990

Arthur G. Woolf

Housing prices in Vermont, like those in the other New England states, shot up dramatically during the economic boom of the 1980s. This article investigates the causes of that price increase and focuses on the cost of home ownership in Vermont in the years 1975 to 1990. Cost of home ownership is defined as the percentage of family income needed to finance an average-price home. Although prices skyrocketed during the 1980s, the actual cost of home ownership as a percentage of income was about 15 percent greater in 1990 than it was during the mid-1970s. Housing price increases are expected to moderate during the 1990s because of slower economic growth and changing demographic forces. The cost of home ownership will continue to decline from the peak reached in 1988.

The Vermont housing sector produced a large number of housing units in the 1980s. Between 1980 and 1990, 48,060 units were built, a 22 percent increase in the state's housing stock.¹ This compares to an increase of 24,400 units in the previous decade. What is perhaps even more interesting is that during the 1970s, the state's population increased by 67,000, while during the 1980s, population growth was 51,000. Thus, twice as many housing units were built during the 1980s as in the 1970s. Moreover, this occurred despite the fact that Vermont population growth in the 1970s was 30 percent greater than in the 1980s. As will be shown later, changing state demographics explain a large part of this rapid housing growth compared to a relatively low rate of population growth.

As may be seen from Table 1, Vermont has a long tradition of above-average rates of home ownership. Despite the rapid growth in the number of new housing units built in the state, that tradition was called into question in the late 1980s. Escalating home and land prices were viewed by many as placing home ownership out of reach of the average Vermonter. This would imply that, if nothing was done, the historical

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pattern of home ownership would reverse. But as Table 1 reveals, preliminary U.S. census data show that notwithstanding the escalation in housing prices in the 1980s, Vermont home ownership rose during that decade, in contrast to a slight decline for the nation as a whole.²

Table 1

Percentage of Owner-Occupied Housing Units in Vermont and the United States, 1930-1990

Year	Vermont	United States
1930	59.8	47.8
1940	55.9	43.6
1950	61.2	55.0
1960	53.6	61.9
1970	69.1	62.9
1980	68.7	64.6
1990	69.0	64.2

Source: Census of Housing, various years.

This article analyzes the cost of home ownership in Vermont from 1975 to 1990 by examining the two key elements of home ownership: the purchase price and the mortgage costs of the house. Because the income required to finance a home is vitally important, I also examine the incomes of Vermonters over this period. I do not attempt to analyze rental housing, although movements in rental costs should generally parallel changes in housing costs. The article is, therefore, an analysis of the owner-occupied housing market for middle-income Vermonters, not low-income renters or others.

My study finds that the cost of home ownership as a percentage of income has exhibited different trends in three different periods. In the late 1970s, costs as a percentage of income were fairly stable. In the early 1980s, extremely high interest rates and sluggish income growth caused by the recessions of 1980 and 1981-1982 combined to make those costs high and volatile. In the final subperiod, 1985 to 1990, home ownership costs as a percentage of income were markedly below the levels of the early 1980s. While they exhibited a slight upward trend from 1985 to 1988, there was a significant decline in costs from 1988 to 1990. By 1990, costs as a percentage of income were about 10 to 15 percent above the level that prevailed in the mid to late 1970s.

While the costs of home ownership as a percentage of income was not at historical highs in 1990, the price of housing was at an all-time high.³ The rapid escalation of housing prices in Vermont is not, however, an isolated phenomenon. The states of the Northeast and the West Coast all experienced dramatic housing price increases during the late 1980s, although these have moderated and began to decline in 1989 or 1990. In contrast, the industrial Midwest and most of the Sunbelt states did not experience this growth. In some of those areas, housing prices have declined by a substantial amount in real, inflation-adjusted terms from their peak levels of the late 1970s and early 1980s. Indeed, the average rate of housing price appreciation for the

nation as a whole has been less than the rise in the consumer price index in every year since 1982.

The causes of rapidly increasing housing prices in Vermont are not altogether clear, but they are similar to those found elsewhere. Key factors include the strength of the local economy and the relatively low cost of Vermont land and houses compared to metropolitan areas of the Northeast. In addition, demographic factors have had major impacts, for example, members of the baby-boom generation moving into their prime home-buying years, an increase in the number of single-person households, and an increase in the number of elderly people remaining in their own homes. Two other crucial factors are the growing second-home market, which put upward pressure on land and housing prices in many areas of the state, and the passage of the 1986 Tax Reform Act, which left owner-occupied housing as one of the few tax shelters remaining for middle-income Americans.

The resulting upswing in the price of housing has many Vermonters concerned that home ownership is becoming a goal that is increasingly out of reach of the average citizen. Their fears are based on the rapid escalation of housing prices in most, if not all, parts of the state. However, the price is only one component of the overall cost of owning a house, the next important factor being that of financing the building and the land — the interest rate on home mortgages. Other costs, such as property taxes, energy, and insurance, while important, are dwarfed by the monthly payments of principal and interest. Because it is relatively large, only property taxes are included in the cost analysis.

The article also focuses on income growth in the state in relation to Vermonters' ability to meet housing payments, the historical trend of down payments and other closing costs, and the overall burden of housing costs on income.

Housing Price Issues

A report by Century 21 found that, in 1988, Vermont's housing price appreciation was second highest in the nation, with the average price of a house rising by 15.4 percent from 1987.⁴ A Federal Home Loan Bank (FHLB) data series shows that in 1980 an average house in Vermont sold for \$53,000. By 1990 the average price had escalated to \$121,900.⁵ This increase of 130 percent far outstrips the 58 percent increase in the U.S. Consumer Price Index over the same period.

Housing Prices

While most discussion about the cost of housing has focused on the price, it is quite difficult to get good data on average housing prices in Vermont for any length of time. The housing price series used in this study was compiled by the FHLB. Based on a monthly sample of all units purchased, including residential, vacation, and mobile homes, it is the one used by the Joint Housing Study Committee of the Vermont Legislature.⁶

However, a number of other sources can be used to obtain a measure of the average price of owner-occupied housing in Vermont. Appendix A discusses these measures in detail and analyzes their accuracy. It concludes that, although the FHLB data are the most widely used, the average price measure probably overstates the true median price of a residential house in Vermont by at least 15 percent.

But the FHLB data contain some anomalies. A large jump in prices from 1981 to 1982 is followed by a steep decline in 1983 and a smaller decline from 1984 to 1985. These patterns, rather than reflecting the true course of housing prices, may simply stem from the FHLB's small sample size.⁷ The alternative housing price series in Appendix A serves as a consistency check on the FHLB series and confirms that its conclusions are a reasonable, albeit high, estimate of the true course of housing prices in the state.

Housing prices in general have shown a steady increase over fifteen years ending in 1990, with the exceptions of 1983 and 1985, the rise being particularly steep from 1985 to 1989. Housing prices, which had been relatively steady from 1982 through 1985, in 1986 began a period of rapid increase, rising by 18 percent in that year, 15 percent in 1987, 12 percent in 1988, then tapering off to 8 percent in 1989 and only 1.1 percent in 1990. Although average Vermont housing prices increased by 65 percent from 1985 to 1990, it is important to note that housing price appreciation has slowed from its peak in 1986.

Comparing Vermont housing prices with inflation yields the following information.⁸ Over the entire 1975–1990 period, the average price of houses in Vermont rose at an average rate of 7.8 percent per year while consumer prices generally rose at 6.1 percent. This conceals some important changes occurring in different subperiods. Vermont housing prices tracked the national Consumer Price Index fairly well from 1975 through about 1985. But from 1985 to 1990, the national index rose by only 21 percent, one third of the 64 percent increase in average Vermont housing prices.

An examination of the components that make up the price of owner-occupied housing is necessary for a better understanding of the sources of housing price increases. The price of a house is based on the construction materials and supplies needed to build it, the labor necessary to put the materials and supplies together, and the improved land upon which the house is constructed.⁹ From 1975 to 1990, the price of an average house in Vermont increased at a compound average annual rate of 8.0 percent. Wages of Vermont contract construction workers increased at a compound average annual rate of 5.9 percent. Although we do not have measures of the cost of housing materials in Vermont, there is no reason to assume that the prices of lumber and other building materials in the state do not follow national trends. At the national level, these prices rose at a compound average annual rate of 4.7 percent.¹⁰ Thus, two of the three most important components of the cost of building a house, labor and materials, both rose at a rate lower than the rate at which home prices increased. This means that the price of land must have risen at a rate higher than the 8.0 percent rate of housing price appreciation.

According to many Vermont bankers and real estate appraisers, land prices are roughly 30 percent of the total price of a house; of the remaining 70 percent, approximately 40 percent represents labor and 60 percent materials. Housing prices are the weighted average of the cost of materials, labor, and land. From these data, it can be calculated that land values have been rising at a compound rate of 14.5 percent, far greater than either labor or materials costs.¹¹ Clearly, then, the cost of land and its improvements is the key factor driving up the price of housing.

This brings up the issue of whether land investors have been bidding up the price of land. This question can be addressed by examining the returns to be gained from the purchase of land and comparing it to alternative investments. If investors in land

are realizing abnormally high profits, the returns should be far greater than those that can be obtained from investing in other assets.

The gross rate of appreciation of improved land is greater than that of stock price appreciation. The Standard & Poor's 500 Stock Index appreciated at a compound rate of 9.5 percent from 1975 to 1990, compared to the 14.5 percent annual rate for land. However, landowners must pay an annual property tax, which reduces their annual return. The average statewide effective property tax rate during this period was about 1.7 percent. Accounting for the tax deductibility of property tax payments and netting out these factors from the return on land yields a net after-tax return of 13.2 percent. To obtain a true measure of the return to holding stocks, however, one must add the dividend yield on stocks to the 9.5 percent stock price appreciation. The Standard & Poor's average dividend yield was 4.4 percent over the period. Accounting for the taxation of dividend yields gives a total after-tax return to stockholders of 12.8 percent from 1975 to 1990.¹²

Thus, over the fifteen-year period, the average annual return to land as an investment (13.2%) was nearly identical to the return on stocks (12.8%). On average, then, investors in land did not make profits over and above those they could have realized on alternative investments.

Over the more recent 1980–1990 period, however, the findings are different. Performing the same analysis for those years as for the entire period results in a compound annual after-tax return on Vermont land of 19.0 percent, while the compound annual after-tax return on stocks was 14.1 percent. Over that ten-year span, returns to owners of land were 35 percent higher than those available to investors in the stock market.¹³

It is not coincidental that this rise in land values came at a time of unprecedented growth in the state's economy. The boom in land values resulted in returns greater than those available from alternative investments, as from stocks, and was of great benefit to Vermont landowners who realized large capital gains from the sale of land. While sellers of land experienced financial windfalls, the high land prices led to higher prices in the housing market, with corresponding problems for many potential home buyers, especially first-time buyers who had no equity from previous home or land ownership.

Housing Quality

People who purchase a house buy a set of quality factors associated with it. These include the size of the house, quality of construction, energy efficiency, aesthetics, and numerous other dimensions, such as the number of bathrooms and the type of interior and exterior appointments. An average house built in 1989 was of higher quality than a house built in previous years. Focusing only on the price of a house ignores this quality dimension: it is reasonable to expect housing prices to increase if the quality of the house increases. Although the data with which to measure the changes in the quality of homes purchased in Vermont in the 1980s are not available, it is possible to examine the quality of new homes built in the United States during this period.

The figures in Table 2 show that new homes built in 1989 were on average bigger and of better quality than houses built in 1980. The average size of new homes constructed in 1990 was 19 percent larger than in 1980 and 38 percent larger than in 1970. In 1970, fewer than half of all newly constructed homes had two or more

bathrooms; by 1980, 73 percent of new houses had two or more bathrooms, and by 1990, 87 percent did. The percentage of new homes with garages increased from 58 percent in 1970 to 69 percent in 1980. By 1990, more than four out of every five new houses were built with garages.

Table 2

Measures of Quality of New Homes in the United States			
Year	Median Square Feet Floor Area	Percentage With Two or More Bathrooms	Percentage With Garages
1970	1,385	48	58
1980	1,595	73	69
1984	1,605	76	69
1985	1,605	77	70
1986	1,660	80	74
1987	1,755	83	79
1988	1,810	86	78
1989	1,850	86	80
1990	1,905	87	82

Source: Characteristics of New Housing, U.S. Bureau of the Census, various years.

While these are national statistics, it is unlikely that Vermont's new housing stock differs substantially from national standards. In addition, 56 percent of residential year-round houses purchased in Vermont in 1988 and 25 percent of those purchased in 1989 were new and can therefore be expected to be similar to the national averages.¹⁴ All these quality improvements have increased the cost of building and the price of buying new homes. Moreover, as these types of amenities become desirable qualities in a home, owners of older homes tend to improve them through renovations and remodeling, resulting in correspondingly higher values and prices of existing homes.

A final component of the quality of houses is the environmental characteristics required of housing in Vermont. As in many states, environmental, zoning, and other state and local regulations ensure that certain minimum quality standards are met. The Vermont Act 200 Study Committee, which analyzed these issues in the context of affordable housing developments in Vermont, found that a maximum of 17 percent of the cost of housing could be explained by these types of regulations. At least half these costs involve impact fees levied on projects.¹⁵ Given that affordable housing projects involve lower-cost units than average-price units, and that most regulatory costs are fixed ones that are invariant to the total cost of a house, these percentages probably overestimate the component of the price of an average house that can be accounted for by such regulations. These estimates are similar to findings at the national level.¹⁶

Vermont's housing stock is different in one important qualitative dimension from the national average, namely, our relatively heavy reliance on mobile and manufactured homes. In 1980, 6.8 percent of the housing stock in the state consisted of these types of units, compared to 5.3 percent nationally. Further, by 1988 the stock of

mobile and manufactured homes in Vermont grew by 5,000 units, a 33 percent increase — double the 16 percent increase in the overall stock of housing units in the state during the same period.¹⁷

Demographics

One of the major factors influencing the price of housing in Vermont is the increased demand caused by the changing demographics of the state. The oldest members of the baby-boom generation — those people born from 1946 to 1964 — began to reach their late twenties in the early 1970s. The average age of first marriage in Vermont is twenty-four for females and twenty-six for males, so by the early 1980s, large numbers of baby-boomers were reaching the traditional age — twenty-five to thirty-four — and marital status at which people begin to purchase their own homes.¹⁸

The early 1980s, however, were years of very high interest rates and two back-to-back national economic recessions, which combined to put home ownership out of reach for many such potential first-time buyers. The economic recovery, which began in late 1982, allowed for growth in incomes, but high interest rates still made the cost of housing expensive by historical norms. Therefore, a great deal of pent-up housing demand in the early 1980s manifested itself in the middle and late 1980s.¹⁹

The magnitude of these demographic influences on housing prices can be seen by an examination of Vermont population statistics. In 1970, 11.9 percent of the state's population, or 52,700 people, had reached the age at which they would normally purchase a first home. By 1980, the population in this age group had increased to 17 percent of the total population, or 87,200 people. Nine years later, an estimated 103,000 Vermonters, or 18 percent of the state's population, were in this age category. The tremendous increase in the age group that puts the highest demand on housing put a strain on the state's housing sector. This helps to explain three interconnected events in the 1980s: lower overall state population growth than in the 1970s, a greater number of houses constructed in the 1980s as compared to the 1970s, and a rapid escalation of housing prices in the decade of the 1980s.

Demographic changes will work to moderate future housing-price trends in the state as the numbers of Vermonters in their prime home-buying years declines. By 1995 there will be 97,000 Vermonters in the twenty-five to thirty-four age group, accounting for 16.6 percent of the state's total population. By the year 2000, the 90,000 people in this age bracket will account for only 15 percent of the total state population.²⁰

Income Growth

Vermont's surge in economic growth during the mid and late 1980s put additional demands on the state housing stock. The state's income growth in this period was one of the strongest in the nation, with per capita personal income growing by 43 percent from 1984 to 1989 compared to a 34 percent gain for the nation as a whole. Therefore, Vermont's per capita income growth for that five-year period was 26 percent greater than that of the nation as a whole. The growth came partly from higher wages and partly from an increasing number of dual-income households, both of which put upward pressure on the price of Vermont housing as higher incomes allowed buyers to purchase bigger, better, and more expensive homes.

Vacation Homes

The growth in the state's economy was closely tied to the strength of the New England economy. Part of the regional growth influenced Vermont's economy through the vacation and tourism industry. But regional growth also put added strains on the housing market in Vermont because its housing and land prices are less expensive than those of other areas in the Northeast. This, plus the state's attractive geography and topography, led to a significant rise in vacation home construction in Vermont: in 1980, there were 35,328 vacation or seasonal homes; by 1990, nearly 10,00 additional vacation units had been built, representing a 28 percent increase in ten years.²¹

The pace of overall home construction in Vermont has not, however, been skewed significantly toward vacation units and away from year-round units, as Table 3 shows. Despite the rapid pace of vacation home development, the percentage of Vermont housing stock accounted for by vacation homes increased very little in the 1980s.²² The overall pattern revealed in Table 3 does mask markedly different patterns in different regions of the state. In Windham County, for example, 43 percent of all the new units constructed in the 1980s were vacation units. Nonetheless, the housing industry, responding to economic forces, built large numbers of year-round as well as vacation homes in the state.

Table 3

Vacation Units in Vermont, 1980-1990

Year	Year-Round Units	Vacation Units	Vacation Units as Percentage of Total Housing Units
1980	187,958	35,328	15.8%
1985	204,821	37,308	15.4%
1986	208,937	39,364	15.8%
1987	212,953	40,416	15.9%
1988	217,951	42,412	16.3%
1989	219,786	43,728	16.6%
1990	225,809	45,405	16.7%
Percentage Increase, 1980-1990	20.1%	28.5%	

Source: Population and Housing Estimates, Vermont Department of Health, various years, 1990 United States Census, Summary Tape File 1A (Vermont).

Tax Advantages

The 1986 federal tax reform legislation eliminated many deductions from the federal income tax code. The base of what is included in taxable income was broadened in order to lower tax rates. Many of the largest remaining deductions that are available to individuals are associated with home ownership. The most important is the deductibility of mortgage-interest expenditures, which cost the federal government about \$38 billion in lost tax revenues in 1990.²⁴ The deductibility of property taxes also comes with home ownership. The loss to the federal government for this tax advantage is estimated to be about \$10 billion in 1990.

Home owners receive an additional tax benefit because the federal government does not tax the value of imputed rent to home owners. The net rental income of

home owners who lease their homes to others is taxed. The in-kind income received by owners who occupy their homes goes untaxed.²⁵

When a home owner sells a house, capital gains on the sale are not taxed if the seller buys another house of equal or greater value within two years. This increases the attractiveness of housing as an investment because, unlike other investments, no capital gains taxes are due at the time of sale. In addition, home owners over fifty-five receive a one-time tax exclusion of up to \$125,000 from capital gains when selling a primary residence. This also has the effect of increasing the demand for housing as investment, not just consumption goods.

The elimination of other deductions from the tax code has increased the attractiveness of home ownership as both an investment and a means to reduce tax liabilities.²⁶ These changes have helped to increase the demand for homes by people who would not otherwise choose to purchase one as well as for more expensive homes from existing home owners.

It is difficult to estimate the dollar value of tax benefits to Vermonters from these tax advantages, but they clearly have helped to increase demand, and hence the price, of homes in the state.

Finally, it should be noted that all these tax advantages have existed for some time in the tax code. While they result in housing prices being higher than they otherwise would be, other than the changes resulting directly from the 1986 Tax Reform Act, they do not explain the increase in housing prices in the 1980s; they explain only their relative level.²⁷

Other Factors

Other demographic factors will put additional demands on Vermont housing stock. We will be unable to quantify many of these until the full 1990 census returns are published, probably sometime in 1993. Nonetheless, the general pattern of these trends is clear. The state's population will continue to age considerably, a pattern that has already begun and will continue for several decades. In 1989, 5.3 percent of the population was over seventy-five, compared to 4.8 percent in 1980 and 4.3 percent in 1970. By the late 1990s, approximately 6 percent of the state's population will be older than seventy-five. In the past, elderly people tended to live with relatives, but their pattern now is to live in their own homes. This reduces the number of houses that would otherwise have been made available for other home buyers and hence the overall supply of housing for younger people.

In addition, there has been a trend to smaller household sizes, as families have fewer children, more people postpone marriage to a later date, more people remain unmarried, and more divorces lead to an increased number of single-person households. In 1970 the ratio of population to nonvacation housing stock in the state was 2.98 to one. By 1980 it had declined to 2.72 to one and in 1990 it was 2.49 to one. Smaller average household size results in an increased demand for housing units now and, if these trends continue, into the future.

Besides the fundamental economic factors that influence housing prices, psychological factors may also be important. These can lead to a mentality that foresees a continuing housing boom and escalating housing prices. This explanation gives a great deal of weight to people's expectations of rising housing prices, apart from any fundamental economic reasons.²⁸ That is, if people believe that the boom in housing prices will continue, there is a very good chance that it will.

Despite this psychological interpretation, the current economic downturn in New England shows that economic forces are the key to explaining the pace of housing price escalation in an economy.

Mortgage Rates

The cost of owner-occupied housing is not only the price of the house itself. Houses are paid for over a long period through mortgages. Mortgage interest rates have a great impact on the cost of housing services. Examining the course of Vermont mortgage interest rates from 1975 to 1990 shows that between 1975 and 1980, rates drifted upward, rising from 8.5 percent in 1975 to 12.0 percent in 1980.²⁹ When a new Federal Reserve policy of tightening the money supply to fight inflation was implemented in October 1979, interest rates shot up by 81 percent between 1978 and 1982, rising to an unprecedented level of over 17 percent in the early 1980s. As inflation receded, the Federal Reserve lowered rates somewhat, but in 1990 they were still very high by historical standards and 20 percent higher than they were in the mid-1970s.

Median Family Income

Housing affordability usually relates to a family's income. It is therefore important to examine not only the costs of obtaining a home, but the ability of families to meet those costs. A consistent series on family income was obtained from data supplied by the Vermont Department of Taxes. I used the median adjusted gross income of married taxpayers — about 50 percent of all Vermont income tax filers — to find that Vermont median incomes rose steadily over the period of the study, although the increases were small in the recession of the early 1980s.³⁰

The rapid income growth from 1984 to 1989 is particularly noteworthy. After sluggish growth in the early part of the decade, median income grew by 40 percent over those five years. Inflation was relatively low, so the real (inflation-adjusted) growth was quite high. This growth is due in large part to the growth of the state's economy, although the 1987 data partially reflect the immediate impact of the 1986 tax reform law. Over the fifteen-year time span of this study, reported median family income tripled, from \$12,000 in 1975 to \$35,400 in 1990.³¹

Down Payment Impedes Home Ownership

There is no doubt that housing prices in Vermont are higher than they have been in the past, but so are incomes. Because home prices rose faster than incomes, especially from 1984 to 1989, coming up with enough funds for a down payment and closing costs became a serious impediment to purchasing a home for first-time buyers. Those who already owned homes usually did not have this problem, as they could use the equity in their property toward a down payment. Closing costs as a percentage of income have fluctuated dramatically over the period of this study and are less than they have been in several of the years examined. However, a 20 percent down payment on a house (as a percentage of income) increased steadily during the boom years before showing a slight decline in 1990. Relative down payment costs in

1990 were about 15 percent higher than the level of 1985 and 10 percent higher than the median level of the past fifteen years. This has occurred because, especially from 1985 to 1989, average housing prices rose faster than median income.

Affordability

The ability of Vermonters to bear the cost of buying a house is a function of the price of the house, the mortgage interest rate, and the income available to service the monthly payments. The monthly payment needed to finance an average house with a conventional mortgage³² has increased, rising from about \$300 per month in 1975 to \$1,000 in 1989 and 1990. However, this series is only part of the story, as it ignores the Vermont income gains that have allowed people to afford more expensive houses.

The key indicator of the affordability of an average home to an average Vermont family is the monthly payment as a percentage of income, and especially how that compares to its historical trend. Examining the percentage of income needed to service the monthly principal, interest, and property taxes in any one year does not answer the question of whether housing is relatively more expensive, and if it is, how much more expensive than it has been in the past. It is therefore more revealing to focus on the historical trend of the payment/income series — the average payment as a percentage of median income.

Examining the historical trend also avoids the questions of whether the data are totally accurate — whether the assumption of a 20 percent down payment for first-time home buyers is legitimate, whether the average housing price series is accurate, or whether the median income or mortgage rate data are totally accurate. For example, using a 10 percent down payment instead of a 20 percent down payment would not materially alter the trend of the housing cost series. As long as these three indicators follow the trend outlined in the earlier figures in this study, the trend itself will be accurate.

The series shows that housing costs for average Vermonters were fairly stable from 1975 to 1980. In the early 1980s, costs shot up dramatically, due primarily to the high mortgage rates of the period.³³ Although interest rates were still high by historical standards in 1985, the housing cost series since then has not exhibited the sharp peaks of the early 1980s. Indeed, the percentage of median income needed to service the mortgage on an average house has been remarkably stable from 1985 to 1990, fluctuating only slightly within a narrow band and showing a slight drop since 1988. In 1990 the series was still about 10 to 15 percent greater than the burden that prevailed in the late 1970s. As the economy continued to slow, it was highly likely that 1991 would show a further decline in average housing costs as a percentage of median income.³⁴

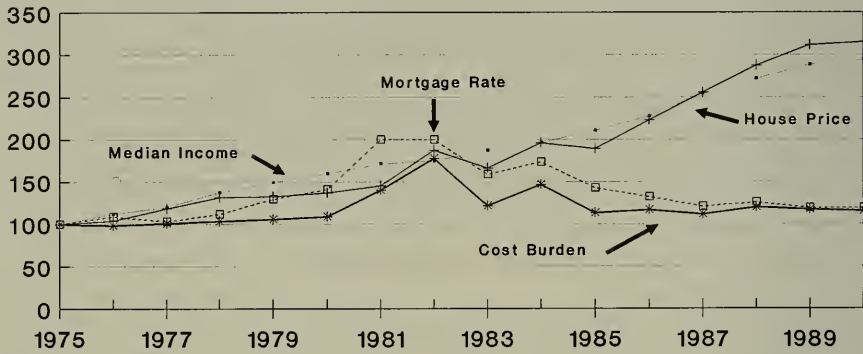
The Burden of Home Ownership Costs

Figure 1 portrays graphically much of the foregoing information. To show comparisons, all data series are indexed to a base level of 1975 = 100. Using an index value for each of the series has the same advantages as the historical trend analysis noted above. As long as any biases present in any of the data are consistent over time, the biases will not materially influence the comparisons to be made. Especially

given the upward bias in the average house price series (see Appendix A for an analysis of this bias), the index-number approach is a better way to analyze the trend of housing costs than examining housing costs as a percentage of income.

Figure 1

**Index of Home Ownership Costs in Vermont
1975–1990**



Source: See Appendix Table B1. All series indexed to 1975 = 100.

For most of the period, housing prices and family incomes grew at roughly comparable rates. Beginning in 1985, housing prices began to grow at a faster pace than income, a trend that ended in 1990. Mortgage rates show the greatest fluctuation, climbing steadily in the late 1970s and early 1980s, then showing a marked decline. When all three of these are combined to yield the monthly housing costs as a percentage of income (referred to as housing cost burden), it is readily apparent that, in general, mortgage interest rates are a key factor driving housing costs. Thus, the sharp rise in mortgage rates from 1980 to 1982 drove the cost burden up in those years. And the decline in mortgage rates that began in 1983 helped reduce the cost burden. However, while mortgage rates continued to decline through the mid and late 1980s, the escalating price of housing resulted in a housing-cost burden that has not shown a significant drop in the most recent period.

The cost of owner-occupied housing was lower in 1990 than in the early 1980s and higher than it was in the late 1970s. The reasons are twofold: while housing prices have increased substantially over the past several years, prices are only one component of total cost. The historically high interest rates of the 1980s had a far more significant impact on housing costs than did the increase in purchase prices. The rising price of houses — driven by escalating land prices — has been balanced, at least in part, by rising incomes.

The extent to which mortgage interest rates are crucial to an understanding of the cost of home ownership, as opposed to the price of a home, can be seen by analyzing

what would have happened in 1990 if interest rates had been higher or lower than they actually were. The 1990 rate, shown in the middle of Table 4, was 10.1 percent.

Table 4

**Impact of Higher and Lower Interest Rates on Vermont
Housing Costs in 1990**

Mortgage Rate	Monthly Payment	Payment as Percentage of Income	Income (1975 = 100)
8.125%	\$873	29.6%	99.5
9.125%	\$943	32.0%	107.4
10.125%	\$1,014	34.4%	115.6
11.125%	\$1,087	36.9%	123.9
12.125%	\$1,162	39.4%	132.4

Note: This analysis assumes 1990 levels of median income and housing prices.

If interest rates had been one percentage point lower in that year, monthly payments would have been \$70 per month less than they actually were. The housing-cost index would have been at a level lower than in any other year since 1979. If rates had been two percentage points lower, payments on an average house would have been \$140 lower and the housing-cost index would have been lower than any year since 1977.

If interest rates had been higher, monthly payments would have been correspondingly higher, as Table 4 also shows, and the housing-cost index would have approached or even exceeded the high levels of the early 1980s. Interest rates peaked in the spring of 1989 and have declined since then, gradually in 1989 and 1990 and more sharply since then. The data in Table 4 show that any increase in mortgage rates would pose a significant additional burden on the costs of buying a home.

Although the high interest rates of the 1980s explain a large part of the higher burden of Vermont housing costs on income during this decade, it is important to note that the divergence between incomes and house prices increased significantly in the middle and late 1980s. Figure 1 shows that since 1985, the average price of housing grew faster than median family incomes. This, as noted, was largely associated with the strength of the state's economy. Rapidly growing incomes, in conjunction with changing demographics, put large upward pressures on the state's housing market. The decline in mortgage rates during the 1980s mitigated some of the impact on the home-ownership cost burden, as Figure 1 shows. The sharp slowdown in the Vermont economy in 1990 and 1991 will give way to sluggish economic growth in the early years of the 1990s, bringing with it stagnation in housing prices. Although this bodes well for housing price pressures, the lowering of income growth will mitigate the trend of a lower housing-cost burden.

Policy Implications

The major finding of this study is that the housing-cost burden for owner-occupied housing in Vermont is about 10 to 15 percent higher than it was in the late 1970s. This number may seem low, given general perception about the escalating price of

housing. Further, the question of whether 10 percent or 15 percent is a high or low number should be analyzed carefully. This figure gives the monthly housing cost as a percentage of monthly income. Increasing housing-cost burdens by 10 to 15 percent translates into a significant additional financial burden for a median-income household. For example, a 1990 median-income family had a monthly income of about \$3,000. If the 1990 housing-cost burden had been identical to that of the late 1970s, the average monthly housing cost burden would have been about \$100 to \$150 lower than it actually was. Because that burden was not at those levels, there was a sizable additional expenditure for an average family.

That housing costs are 10 to 15 percent, and not 50 or 100 percent higher than they were fifteen years ago has important implications for state policies designed to deal with housing issues. The first is that the magnitude of the problem is not insurmountable. A 10 or 15 percent increase is easier to deal with than one of 50 or 100 percent. The second is that the housing problem has differential effects on the housing market. While the median-income family faces 10 to 15 percent higher housing costs, relative to income, than it did in the late 1970s, federal cutbacks have imposed far higher cost increases on lower-income individuals who had, during the 1960s and 1970s, relied on the federal government for direct housing assistance far more heavily than did middle-income individuals and families.

Policies designed to deal with housing must confront both these issues, and Vermont has in place housing programs that do both. The Vermont Housing Finance Agency helps middle- and lower-middle-income families by reducing down payment and interest rate charges on homes. It also helps to finance low-cost rental units, thereby picking up some of the supply that the federal government financed before the 1980s. The Vermont Housing and Conservation Trust Fund also focuses on a broad stratum of housing assistance. By targeting its spending at rental as well as owner-occupied housing, the fund provides assistance to areas of the housing market that have been hardest hit by federal cutbacks and to those who have been most affected by the rapid rise in Vermont housing prices.

Cautionary Notes

Owner-occupied housing appears to be a goal that is just out of reach of many average-income potential home buyers — although their income increases, other costs increase faster. Many feel that they are merely treading water rather than getting closer to the goal of home ownership. Moreover, it is the down payment and closing costs necessary to purchase a house, not the overall cost of meeting the monthly payments, that have risen most sharply in the past four years.

It should be noted that financial markets have addressed some of these issues. This study has assumed a standard fixed-rate mortgage with an 80 percent loan-to-value ratio. In the recent past, this has been changed. Banks and other financial institutions have created many types of mortgages to address some of the problems of first-time (and other) home buyers. Variable-rate mortgages with lower interest rates reduce monthly payments. And financial institutions are offering different types of mortgages with lower down payments than the 20 percent assumed here. Government programs to lower interest rates, such as those undertaken by the Vermont Housing Finance Agency, address the problem of relatively high interest rates as

well as the need to reduce down payments. They also offer more flexible underwriting guidelines. All of these have served to alleviate some of the problems discussed above.

Although there is no doubt that the costs of home ownership are higher than their historical average, when higher incomes are factored into the equation, these increases do not appear to approach crisis proportions for median-income Vermonters, but do pose a significantly higher burden for them. The cost rises have certainly increased frustrations over the inability to purchase a home of the size and quality that a family might want and have also made the goal of home ownership an increasingly impossible dream for lower-income Vermonters.

A number of competing trends make the future course of housing prices uncertain. Continued federal tax law granting of numerous tax preferences to home owners will serve to continue to enhance the attractiveness of home ownership relative to other investments. Repeal or significant limitation of the tax deductions will reduce the upward pressure on housing prices.³⁵

Changing demographics also have an uncertain impact on the future course of housing prices. The baby-boom generation will rapidly give way to the "baby-bust" generation — those born from the mid-1960s into the 1970s — reducing pressure on housing prices.³⁶ However, with the baby-boom generation remaining in their homes as they reach retirement age (beginning in about 2010), housing prices will tend to move in the opposite direction. The retirement of many older Vermonters to warmer climates will tend to moderate this effect — as long as they do not hold on to their Vermont homes as temporary summer residences.

The economic growth of Vermont is even more difficult to forecast than these demographic factors. However, Vermont's per capita income is still about 7 percent below the national average and further below the New England average. It may therefore grow closer to the national average, but it is unlikely that the state or region will resume the frenetic pace of economic growth they experienced in the middle and late 1980s. Any growth that returns in the middle 1990s is likely to be much more modest.

Vermont's housing boom paralleled that of other New England and northeastern states. In nearly all of them, the rapid escalation in housing prices of the mid to late 1980s has slowed or even stopped. Prices, including those in New Hampshire, Massachusetts, Connecticut, New York, and New Jersey, have all fallen from their peaks in 1988 and 1989. Vermont's housing prices have also declined since 1990.

Finally, interest rates play a crucial role in analyzing the cost of housing. Forecasting the future direction of interest rates is far beyond the scope of this study. Interest rates, both real and nominal, are very still by historical norms, in large part owing to the uncertainties created by the large federal budget deficit. The success or failure of national macroeconomic policy will therefore greatly affect the ability of many Vermonters to purchase and finance their own homes. ❧

This article, written while I was Vermont state economist in the Governor's Office of Policy Research and Coordination, in no way reflects the views or opinions of that office or the state of Vermont.

Appendix A

What *Is* the Price of an Average Vermont House?

The price of a house is an important component of the total cost of housing; highly visible, it is used by many as the main indicator of housing's cost and affordability. Despite the importance of this piece of data, many different data sources can be used to obtain an estimate of the "average" selling price of owner-occupied housing in Vermont. This section analyzes the different measures of the average price of housing and points out the strengths and weaknesses of each measure.

The most widely used source of data on average price, the series compiled by the Federal Home Loan Bank (FHLB), yields one of the highest average price measures. Compared to the measure that should be the most accurate (Vermont property transfer tax data), the FHLB estimated price is at least 15 percent higher than the true median price. Caution should be used with the FHLB data as it may significantly overstate the true price of a Vermont house.

Good Measures of Housing Price

The issue of housing affordability is largely determined by measuring the price of an owner-occupied house. This measure can be useful in tracing the pattern of prices across regions of the state and through time. A good measure of housing prices should have a number of features: the data set should be accurate; a sample should be large enough to guarantee the statistical accuracy of the measure; a small sample should be checked for accuracy and consistency with other measures.

The data source should allow comparisons to be made across counties and through time, allowing analysis of regional differences; to the extent that housing prices vary across regions, housing may place more of a burden on income in some areas than others. The comparison through time would allow a similar analysis to be done in a temporal framework.

The measure of central tendency should be expressed as a median (the figure at which an equal number of house prices are above and below) as opposed to an arithmetic mean (the sum of house prices divided by the number of houses). The median is much less sensitive to extreme values at either end of the distribution. In this case, very expensive houses tend to push up the mean. The median is a much more accurate representation of the price of a typical house for a typical Vermont home buyer.

The housing price measure should include only primary, owner-occupied homes. If possible, it should break out condominiums and mobile homes in order to get a better picture of these different types of houses.

Table A1 shows alternative measures of average and median prices of Vermont houses.

Vermont Housing Price Sources

Federal Home Loan Bank

The most commonly used measure of the price of housing is the series provided by the Federal Home Loan Bank, which the Vermont legislature used in its study of the Vermont housing market.³⁷ The FHLB measures average housing prices by taking, on the first to the fifth of each month, a sample of home sales of houses of all types financed by four Vermont lending institutions that report to it. The series has the advantage of being fairly comprehensive and, more important, it gives the longest historical series on housing prices in the state, with a consistent data set beginning in 1975. One limitation is that the Vermont sample is small and may be less reflective of all housing sales than those of other states.

Table A1

Alternative Measures of the Average Price of Vermont Owner-Occupied Housing

(1)	(2)	(3)	(4)	(5)	(6)	(7)		(8)	
Year	FHLB Average Price	FHLB Median Price	21 Median Century 21 Median Price	Property Valuation Average Price	Chittenden County Average Price (single family detached)	Property Transfer Tax Average Price Res	Res & Vac	Property Transfer Tax Median Price Res	Res & & Vac
1975	\$38,700	—	—	—	—	—	—	—	—
1976	\$40,200	—	—	—	—	—	—	—	—
1977	\$45,900	—	—	—	—	—	—	—	—
1978	\$51,000	—	—	—	—	—	—	—	—
1979	\$51,300	—	—	—	—	—	—	—	—
1980	\$53,100	—	—	—	\$59,300	—	—	—	—
1981	\$56,300	—	—	—	\$64,500	—	—	—	—
1982	\$72,600	—	—	—	\$64,700	—	—	—	—
1983	\$64,300	—	—	\$49,400	\$63,900	—	—	—	—
1984	\$75,800	\$66,300	—	—	\$69,300	—	—	—	—
1985	\$73,300	\$67,000	—	\$56,800	\$75,400	—	—	—	—
1986	\$86,200	\$78,000	—	—	\$93,300	—	—	—	—
1987	\$98,900	\$85,700	\$83,600	\$65,100	\$107,300	\$84,900	\$91,600	\$75,000	\$76,000
1988	\$111,200	\$95,500	\$96,500	—	\$120,900	\$99,000	\$103,600	\$85,000	\$86,500
1989	\$120,550	\$112,200	\$101,300	—	\$138,900	\$108,700	\$113,100	\$93,000	\$95,000
1990	\$121,900	\$105,000	—	—	\$136,200	\$108,200	\$110,300	\$92,000	\$92,000

Note: FHLB is the Federal Home Loan Bank. Property Transfer Tax data: Res = primary homes and mobile homes with land. Res & Vac = all residential plus vacation homes.

The FHLB also calculates a median value; that series, which began only in 1984, is shown in column 3. Comparison of the median and the average values are revealing. The average price series is 10 to 15 percent greater than the median selling price. This is consistent with the finding that extremely expensive houses skew the average (or mean); the median is a much better measure of typical prices. We can conclude from this alone that the FHLB average-price series is an overestimate, owing to statistical biases derived from use of the average instead of the median.

Chittenden County Regional Planning Commission

The Chittenden County Regional Planning Commission (CCRPC) has compiled a series on average (mean) housing prices in that county. This series is based on all sales made there through the Multiple Listing Service (MLS). The series, which begins in 1980, includes only single-family homes; the data after 1986 exclude condominiums. One major drawback of this series is that it is for only the one county. The CCRPC compiled the data by going through MLS books and calculating an average price for each year.³⁸

Column 6 shows the average price paid for a house in Chittenden County, as calculated by the CCRPC. This series does not go back as far as the FHLB series, but it shows a similar trend. Chittenden County prices rose by 130 percent from 1980 to 1990. The FHLB series shows an identical increase over the same period. Other than for 1982, the average FHLB price ranges from between 80 percent and 100 percent of the county average. That the two series are fairly consistent gives further support to the use of the FHLB series as the best available data source on Vermont housing prices, subject to the stated limitations.

Property Valuation and Review

The Division of Property Valuation and Review of the state of Vermont's Tax Department lists the fair market value of all property in the state, broken down by type of property. The property valuation data have the desirable feature of availability at the town level of disaggregation. This is the only series that gives the actual value of all properties, as opposed to the value of only those properties sold. This series, which is available for 1983, 1985, and 1987, includes all R1, R2, and mobile home properties.³⁹ Although this series attempts to measure the fair market value of all properties, not just properties sold, it does not seem to be an accurate measure of the true price of purchasing a house in the state.

Century 21

Century 21 Real Estate, a national chain, has data on median sales prices by state for 1987 through 1989.⁴⁰ Its data are limited by the use of only those properties sold through the chain, about 1,400 in Vermont in 1988. This source does, however, give a median, as opposed to a mean, sales price. The limited number of years for which this source is available makes it difficult to use for an analysis of Vermont housing price trends over an extended period. Nonetheless, the Century 21 median is roughly equal to that of the FHLB, giving support to the accuracy of the FHLB sample.

Property Transfer Tax

The state of Vermont levies a tax on the transfer of all real estate. Although this tax has been in effect for some time, only since 1987 have the data become available in a way that allows statistical inferences to be made. The data are quite extensive and, like the property valuation data, can be obtained for each town in the state. The data are also broken down into various types, including R1, R2, mobile homes with and without land, two types of vacation homes (under and over six acres), and other types of property. The property types used are identical to those used by Property Valuation. A major problem with the data as reported in Table A1 is that they relate to property transfers that were processed in each calendar year, not those which actually occurred during the year. Major delays in reporting to the Tax Department can cause significant problems in the raw data.

Two different measures of the average transaction price are given. The first series, in column 7, shows the average price of residential transactions, including R1, R2, and mobile homes with land. While this is the best measure of the true price of owner-occupied housing, it is not consistent with the FHLB series. The latter measures the price of all units, including vacation units. The second shows the property transfer tax data, including vacation properties, and is therefore comparable to the FHLB average-price data. Because the property transfer tax data are of better quality than the FHLB data, which are based on a sample, they can be used to measure FHLB's biases. The transfer tax data show that the FHLB average series overstates the true average price of housing by about ten percentage points. Although we can perform this analysis only for 1987 and 1988, there is no reason to assume that the sample bias is not consistent throughout the entire period.

The Vermont Department of Housing and Community Affairs performed a special analysis to determine median prices from property tax data. Its data, based on the same group of property used in the FHLB sample, and the most accurate available, revealed that the FHLB series overstated the median price of residential and vacation property by 30 percent. The analysis clearly supports the argument that the FHLB series overestimates the true median house price that confronts a typical Vermont home buyer.

At present, the FHLB series provides the only data with which to compare housing prices over a long period of time. Limitations of that data should be noted whenever the

series is used. Future studies of the housing market in Vermont and in regions within the state will be able to use the much more accurate property transfer tax data base that is published annually by the Vermont Tax Department. Unfortunately, that data series is not comparable to the FHLB series.

Appendix B
Data Series
Data Series Used in Text Figures

Table B1

(1) Year	(2) U.S. CPI	(3) Median Income Vt. Married Taxpayers	(4) Index of Vt. Income	(5) Vt. Federal Mortgage Rates	(6) Index of Rates	(7) Average House Price	(8) Index House Price	(9) Payment P&I With 20% Down	(10) Monthly Payment+ Property Taxes	(11) Total Payment as % of Income	(12) Payment/Income Index	(13) Down Payment Plus Points	(14) Down Payment Plus Closing Costs/Income	(15) Down Payment Index
1975	100.0	\$12,036	100.0	8.5	100.0	\$38,700	100.0	\$238	\$298	29.2%	100.0	\$7,790	64.7%	100.0
1976	105.8	\$13,440	111.7	9.3	108.8	\$40,200	103.9	\$265	\$328	29.2%	98.3	\$8,115	60.4%	93.3
1977	112.6	\$14,466	120.2	8.8	102.9	\$45,900	118.6	\$289	\$361	30.0%	100.7	\$9,255	64.0%	98.8
1978	121.2	\$16,533	137.4	9.5	111.8	\$51,000	131.8	\$343	\$424	30.8%	103.4	\$12,825	77.6%	119.9
1979	134.9	\$17,967	149.3	11.0	129.4	\$51,300	132.6	\$391	\$470	31.4%	105.6	\$15,480	86.2%	133.1
1980	153.1	\$19,193	159.5	12.0	141.2	\$53,100	137.2	\$437	\$517	32.4%	108.8	\$11,151	58.1%	89.8
1981	169.0	\$20,622	171.3	17.0	200.0	\$56,300	145.5	\$642	\$717	41.7%	140.3	\$12,386	60.1%	92.8
1982	179.3	\$21,019	174.6	17.0	200.0	\$72,600	187.6	\$828	\$927	52.9%	177.8	\$16,698	79.4%	122.7
1983	185.1	\$22,510	187.0	13.5	158.8	\$64,300	166.1	\$589	\$679	36.2%	121.6	\$14,146	62.8%	97.1
1984	193.0	\$23,609	196.2	14.8	173.5	\$75,800	195.9	\$755	\$860	43.7%	147.0	\$16,676	70.6%	109.1
1985	199.9	\$25,343	210.6	12.1	142.6	\$73,300	189.4	\$609	\$711	33.7%	113.1	\$16,126	63.6%	98.3
1986	203.7	\$27,347	227.2	11.3	132.4	\$86,200	222.7	\$670	\$790	34.7%	116.6	\$18,964	69.3%	107.1
1987	211.0	\$30,618	254.4	10.3	120.6	\$98,900	255.6	\$709	\$845	33.2%	111.3	\$21,758	71.1%	109.8
1988	219.9	\$32,750	272.1	10.7	125.5	\$111,200	287.3	\$825	\$972	35.6%	119.8	\$24,464	74.7%	115.4
1989	230.4	\$34,680	288.1	10.1	119.1	\$120,600	311.5	\$855	\$1,008	34.9%	117.2	\$26,521	76.5%	118.2
1990	242.9	\$35,399	294.1	10.1	119.1	\$121,900	315.0	\$865	\$1,014	34.4%	115.6	\$26,818	75.8%	117.1

Sources: For raw data. All indexed values are 1975 = 100.

Column

- (2) U.S. CPI is Consumer Price Index from 1989 Statistical Abstract of the United States (Washington, 1989).
- (3) I constructed Median Income Vermont Married Taxpayers from data listed in Vermont Tax Statistics (annual).
- (5) Vermont Federal Bank Mortgage Rates are in effect on July 1 of each year for conventional, fixed-rate, thirty-year mortgages with 80 percent loan-to-value ratio. For some years in the late 1970s, twenty-five year terms were used.
- (7) Federal Home Loan Bank Average House Price is based on unpublished data furnished by the Federal Home Loan Bank of Boston.
- (13) Down Payment is based on 20 percent down payment; points are those required by Vermont Federal Bank.

Notes

1. Vermont Department of Health, *Public Health Statistics Bulletin: Vermont Population and Housing Estimates 1988* (November 1989).
2. Table 1 is not strictly a measure of home ownership, defined as the percentage of the population living in houses that they own. The data in the table refer to the percentage of housing units that are owner occupied, which is a slightly different concept. A federal study found that Vermont was one of only ten states that recorded an increase in home ownership from 1984 to 1989. Robert Callis, *Homeownership Trends in the 1980's* (Washington, D.C.: U.S. Bureau of the Census, December 1990).
3. The price of a house is simply the purchase price. Home-ownership costs, as used here, include the purchase price, financing costs, and property tax payments.
4. *Burlington Free Press*, February 22, 1989, 1.
5. Data from the Federal Home Loan Bank. See Appendix A for a detailed discussion of this source.
6. Joint Housing Study Committee of the Vermont Legislature, *Report of the Housing Study Committee* (January 1989).
7. National housing price series exhibit neither this downward trend in 1983 or 1985 nor the large jump in 1982. There is no apparent reason for Vermont to show such different trends from the national average, which leads to a small sample size explanation for the pattern.
8. The consumer price series used here is the U.S. Consumer Price Index. There is no Vermont-specific consumer price index.
9. This analysis applies to new houses. Existing house prices are largely driven by the price of new houses, but they have the additional component of capital gains, which accrue to the seller of the house.
10. The housing price source is the FHLB series; construction material costs are from the U.S. Bureau of Labor Statistics Producer Price Index series, "Materials and Components for Construction"; average wages for contract construction workers come from Vermont Department of Employment and Training, *Vermont Employment and Wages* (annual). Land price as used here includes all improvements to the land, development costs, and other nonwage and non-materials costs.
11. This conclusion is based on the following equation:

$$P_h = \alpha P_l + \beta P_t + \delta P_m$$

where

P_h is the growth rate of the price of housing

P_l is the growth rate of the price of construction labor

P_t is the growth rate of the price of land

P_m is the growth rate of the price of construction materials

α is the share of labor costs in the price of housing (28%)

β is the share of land costs in the price of housing (30%)

δ is the share of materials costs in the price of housing (42%)

and

$$\alpha + \beta + \delta = 1$$

Substituting the weights given above and the compound growth rates given in the text into the equation, all the parameters in the equation, except for P_t are known. Solving for P_t yields a compound annual growth rate in land values of 14.5 percent.

12. An overall average state and federal income tax rate of 25 percent was used for this analysis. Using a marginal tax rate would likely reduce this rate of return. However, without knowledge of the income of landowners and stockholders, we cannot estimate marginal tax brackets.
13. Any comparison of return on investments must include an analysis of risk, because high rates of return are associated with higher levels of risk. This can clearly be seen in the context of the real estate market in Vermont and all of New England in the first years of the 1990s.
14. The number of nonvacation homes is from the Vermont Department of Health's annual *Population and Housing Estimates*. Total property sales are from unpublished data on property transfers from the Vermont Department of Taxes.
15. "Report of the Act 200 Study Committee," November 15, 1988, Report 4, 1.
16. See *Reducing the Development Costs of Housing: Actions for State and Local Governments* (Washington, D.C.: U.S. Department of Housing and Urban Development, August 1979, 42-46).
17. U.S. Department of Commerce, Bureau of the Census, *1980 Census of Housing*, reports 15,231 mobile homes in Vermont. Vermont Division of Property Valuation and Review (unpublished data) reports 20,213 mobile homes in 1988.
18. Vermont Department of Public Health, unpublished statistics.
19. For a concise discussion of these demographic effects at the national level, see Glenn H. Miller, Jr., "Demographic Influences on Household Growth and Housing Activity," in Federal Reserve Bank of Kansas City, *Economic Review*, September/October 1988, 34-48.
20. Ken Jones, *Vermont Population Projections 1990-2005*, State of Vermont, Office of Policy Research and Coordination, December 1989.
21. Vermont Department of Health, *Public Health Statistics Bulletin, Vermont Population and Housing Estimates, 1988*, November 1989.
22. It should be noted that these data do not account for the conversion of vacation units into year-round units. These units, while not used as primary residences by Vermonters, are not counted as vacation units. This measurement problem may explain the apparent stability in the ratio of vacation homes to the total number of housing units.
23. The tax advantages of home equity loans gives an additional tax benefit to home ownership, as the deductibility of other personal interest expenditures is being phased out.
24. It should be noted that these two tax advantages alone account for \$48 billion in federal tax revenue forgone and dwarf the \$8 billion in federal expenditures on subsidized housing programs in 1990 (*Budget of the United States Government, Fiscal Year 1992*).
25. Several European countries tax all or part of this imputed income.
26. In addition, the tax reform law did not end the tax deductibility of mortgage interest payments on vacation homes, as many reformers had urged. This has led to an increased demand for vacation homes for the same reasons as those discussed above.
27. Note, however, that because the 1986 Tax Reform Act reduced marginal income tax rates, it reduced the tax advantages of home ownership. Therefore, first-time owners now benefit less than they did in the past, when marginal rates were higher.
28. See Karl Case and Robert Shiller, "The Behavior of Home Buyers in Boom and Post-Boom Markets," *New England Economic Review*, Federal Reserve Bank of Boston, November/December 1988, 29-45, for an excellent analysis of this phenomenon.
29. The rate used is Vermont Federal Bank's thirty-year, fixed-term mortgage after a 20 percent down payment, as of July 1 of each year.
30. Appendix A discusses the use of median and average as a measure of the central tendency of a series. Other sources of data on median or average incomes do not extend as far back as the series used here. The U.S. Department of Housing and Urban Development county median income series goes back only to 1980, and there are some years in the 1980s for which we do not have data at the statewide level. The U.S. Commerce Department series on

per capita personal income is an average figure and would have to be adjusted for changing average size of families.

The Vermont Tax Department data set is a median figure, which has more desirable features than an average measure, but it does have several drawbacks: it is sensitive to changing definitions of adjusted gross income and it excludes families who do not file Vermont income tax forms and single-parent families. The latter demographic group, which has been growing over the past decade, has lower-than-average family income. The Tax Department series does have the advantage of excluding students and other households that should not be included in a median family income series. It is also based on actual reported income, as opposed to the income estimates that HUD and the Commerce Department use. The median family income figure used here tracks the per capita income estimate well.

31. The increase in this series over 1975-1989 is 188 percent. This is less than the 256 percent increase in Vermont per capita personal income over the same period, which implies that the series is a reasonable and conservative estimate of income growth.
32. This is the monthly payment, including property taxes, on a conventional thirty-year, fixed-rate mortgage with a 20 percent down payment.
33. The earlier discussion of house price data noted that the 1982 and 1983 average housing prices are suspect; the estimate for 1982 is probably too high and for 1983 too low. Given those data problems, it is probably safe to conclude that the housing cost burden in 1990 was about 20 percent below the level of the early 1980s.
34. Because the FHLB series on housing prices was discontinued in 1990, I cannot extend my analysis beyond that year.
35. These tax-related issues are being examined as measures to reduce the federal budget deficit. There is, needless to say, a great deal of opposition from real estate interest and other groups, just as there was during the early discussions over what eventually became the 1986 Tax Reform Law.
36. A 1989 study concludes that changing demographics in the United States will result in a decline of about 4 percent in real (after inflation is taken into account) housing prices over the next twenty years, sending real housing prices to their lowest level in forty years. N. Gregory Mankiw and David Weil, "The Baby Boom, the Baby Bust, and the Housing Market," *Regional Science and Urban Economics* 19, no. 2 (May 1989): 235-258.
37. See *Report of the Housing Study Committee*, Joint Housing Study Committee of the Vermont Legislature, January 1989.
38. This exercise could be replicated for each MLS in the state; with some coordination, the data could be computerized and median values for each county, as well as for the state, could be calculated.
39. R1 properties are primary homes on fewer than six acres; R2 are primary homes on six or more acres of land. Both exclude vacation properties.
40. This series includes vacation homes as well as residential sales.