A RIVER DIVIDES IT:
A Comparative Analysis of Retailing in the Connecticut River Valley of Vermont and New Hampshire

ART WOOLF

The AIMS Atlantica Papers #2

Brian Lee Crowley
Series Editor

January 2004

The Atlantic Institute for Market Studies (AIMS) is an independent, non-partisan, social and economic policy think tank based in Halifax. The Institute was founded by a group of Atlantic Canadians to broaden the debate about the realistic options available to build our economy.

AIMS was incorporated as a non-profit corporation under Part II of the *Canada Corporations Act* and was granted charitable registration by Revenue Canada as of October 3, 1994; it recently received U.S. charitable recognition under 501(c)(3) effective the same date.

The Institute's chief objectives include:

a) initiating and conducting research identifying current and emerging economic and public policy issues facing Atlantic Canadians and Canadians more generally, including research into the economic and social characteristics and potentials of Atlantic Canada and its four constituent provinces;

b) investigating and analyzing the full range of options for public and private sector responses to the issues identified and acting as a catalyst for informed debate on those options, with a particular focus on strategies for overcoming Atlantic Canada's economic challenges in terms of regional disparities;

c) communicating the conclusions of its research to a regional and national audience in a clear, non-partisan way; and

d) sponsoring or organizing conferences, meetings, seminars, lectures. training programs, and publications, using all media of communication (including, without restriction, the electronic media (for the purpose of achieving these objectives.

2000 Barrington Street, Suite 1006, Halifax, Nova Scotia B3J 3K1
Telephone: (902) 429-1143 Fax: (902) 425-1393
E-mail: aims@aims.ca Web site: www.aims.ca

A RIVER DIVIDES IT:
A Comparative Analysis of Retailing in the Connecticut River Valley of Vermont and New Hampshire

ART WOOLF

The AIMS Atlantica Papers #2

Brian Lee Crowley
Series Editor

Atlantic Institute for Market Studies
Halifax, Nova Scotia

January 2004

Published by Atlantic Institute for Market Studies
2000 Barrington Street, Suite 1006
Halifax, Nova Scotia B3J 3K1

Telephone: (902) 429-1143
Fax: (902) 425-1393
E-mail: aims@aims.ca
Web site: www.aims.ca

Acknowledgments

The author would like to acknowledge the able research assistance of Derek Rozycki, helpful comments from Richard Heaps, and the editorial assistance of Barry Norris.

Edited and prepared for publication by Barry A. Norris; design by Gwen North.

CONTENTS

ATLANTICA

For some time AIMS has been promoting discussion about a geographical concept dubbed "Atlantica". The region is broadly composed of the Atlantic provinces, eastern Quebec, the northern tier of New England states and up-state New York. These territories share a number of common characteristics — similar demographics, diversity and migration; a shared history, and interrelated transport issues. Perhaps most important, the residents of Atlantica have generally suffered from relative economic underdevelopment and growth compared to their respective national economies.

Atlantica may not merely be an accidental aggregation of like economies, or even a region reflecting a confluence of similar external forces. The regional characteristics may exist precisely because the border passes through it. Conceptually, at least, it is not too hard to understand why this may be so. Geographically, the axis of Atlantic Canada trade would seem to be naturally north-south — as historically it used to be until national policies imposed an east-west bias. The huge northward bulge of Maine represents a major obstacle between Atlantic Canada and the country's industrial heartland. Maine and the other upper New England states, on the other hand, are a peninsula encircled by the border. Whatever local opportunities for development that might exist are frequently stymied by that frontier and drawn off southward along the interstate transportation corridors — reinforcing the relative isolation and underdevelopment of the north.

The existence and placement of boundaries, whether national or international, do matter. Borders are not merely cartographic creations. They are the intersections of government policies. Where those policies are not carefully harmonized and the implications of differences clearly understood, economic consequences ensue.

AIMS is proud to present Art Woolf's paper detailing the economic consequences of the existence of the border between two US states with differing fiscal strategies as an illustration of why borders are so important. This is the second in a series of Atlantica Papers about the meaning of the border and the creation of a heightened cross-border consciousness of what the former mayor of Bangor, Maine, Tim Woodcock, calls "Our Shared Region".

About the Author

Arthur Woolf received his B.A. degree in history from Cornell University in 1973. He attended graduate school in economics at the University of Wisconsin–Madison and received his Ph.D. in 1980. He began teaching at the University of Vermont in 1980, where he is currently associate professor of economics. In 1987, he was visiting economist at the Center for Energy Policy Studies at the Massachusetts Institute of Technology, and in 1988 he was appointed Vermont State Economist by Governor Madeleine Kunin, a position he held until January 1991.

Professor Woolf's community work includes membership on the Westford School Board from 1985 to 1987. He was also a member of the Lake Champlain Basin Program's Technical Advisory Committee from 1991 to 1997. He is a member of the Advisory Board at Sopher Investment Management, Inc., on the Board of the Ethan Allen Institute, and is chair of the Vermont Student Opportunity Scholarship Fund board. In 1999, he founded The Vermont Council on Economic Education, an organization promoting economic and financial literacy through the teaching of economics in Vermont's elementary, middle, and high schools. He is the Council's president.

Professor Woolf has published articles in academic journals and contributed chapters to books on a variety of economic subjects. He is author of the chapter "Taxation in Vermont" in the recently published *Vermont State Government and Administration since 1965*. He has written and lectured widely within the state on Vermont economic and policy issues, including taxation and spending, education finance, housing, population and demographic trends, and economic development. During the 1990s, he was a contributing editor of *Vermont Magazine*, where he wrote a column on the Vermont economy. He is also the editor of *The Vermont Economy Newsletter* and is president of Northern Economic Consulting, Inc.

Art Woolf lives on a 140-acre farm in Westford with his wife, Celeste Gaspari, and their two children.

EXECUTIVE SUMMARY

This study examines the nature and extent of changes in retailing activity in the border counties of Vermont (Essex, Caledonia, Orange, Windsor, and Windham) and New Hampshire (Coos, Cheshire, Sullivan, and Grafton) over the past 40 years. The border counties have exhibited similar rates of population growth over that period of time, but the economic growth rates of the two regions have diverged significantly.

The study finds that there is strong evidence that the public policy choices Vermonters have made over the past decades have affected the pattern of retailing in Vermont's border counties. Vermont's policies have had the unanticipated result of driving retailing across the Connecticut River. Vermont consumers have an economic incentive to purchase goods in New Hampshire and local merchants have an incentive to locate on the New Hampshire side of the river. New Hampshire's border county stores are able to offer lower prices to consumers than their Vermont counterparts primarily because of Vermont's sales tax. The study also presents evidence that Vermont's bottle deposit law has affected the location of larger supermarkets in the border region.

The magnitude of these differences is large enough to lead to the conclusion that Vermont's public policy choices have been the cause of the shift in retailing. Overall per capita retail sales in Vermont's border counties were nearly identical to those in New Hampshire in the period before Vermont instituted its sales tax and bottle law in the late 1960s and early 1970s. There was little impact of these policies during most of the 1970s; per capita sales in New Hampshire border counties were about 5 percent above Vermont's.

By the late 1970s, however, there is clear evidence of a shift in retailing away from Vermont and into New Hampshire in the border counties of the two states. By the 1980s, the differential in per capita sales accelerated: per capita retail sales in New Hampshire border counties were nearly 30 percent above Vermont's by 1987. During the boom years of the middle and late 1980s and even through the recession of the early 1990s, New Hampshire continued to gain relative to Vermont. By 1992, per capita sales in New Hampshire's border counties were 40 percent greater than in Vermont's; by 1997, sales on the New Hampshire side of the river were 60 percent higher than in the counties on the Vermont side. This shift is even more dramatic given that the major north-south highway, I-91, is on the Vermont side of the river and interstate highways are usually a catalyst for retail activity.

The conclusion that taxes had a great deal to do with this shift is supported by a sectoral examination of sales within the retailing aggregate. In those sectors where taxes in the two states were identical (restaurants, food stores, and gas stations) or where tax differentials do not enter into the purchase decision (automobiles), per capita sales in the two regions were very similar from the late

1950s through the mid-1980s. After the late 1980s, per capita sales in New Hampshire exceeded sales in Vermont even in these sectors.

When we exclude those retail sectors that are not sensitive to tax differentials and examine only sectors in which taxes should matter (including department stores, general merchandise stores, clothing stores, and the like), the data show that Vermont's taxes had an even greater impact on retailing activity.

In the late 1950s and 1960s, per capita sales were almost identical in the two regions. By the late 1970s, New Hampshire's per capita sales in its counties bordering Vermont were 17 percent higher than in the Vermont counties bordering New Hampshire. By the late 1980s, per capita retail sales in tax-sensitive sectors of the retail economy were 43 percent higher in New Hampshire's border counties compared to Vermont's. In 1997, the most recent year for which we have data, per capita sales in New Hampshire's border counties were 60 percent greater than in their Vermont counterparts.

Moreover, in the late 1980s and 1990s, the migration of sales across the border spread to sectors that had previously not been affected by Vermont's tax structure. In particular, that period saw a large shift in retailing activity in food store sales and automobile sales from Vermont to New Hampshire. The most likely reason for that shift is that food stores and auto dealers decided to expand their operations into areas where people were doing their shopping — which was the border counties of New Hampshire.

The study concludes that Vermont's sales tax has had an effect on retail trade and that the effect took well over a decade to be felt. With the passage of time, the location decisions of retailers have taken the sales tax differential into account. The study finds that, if Vermont had not implemented its sales tax, Vermont's border counties would have 1900 more retail jobs and $322.7 million more in retail sales than existed in 1997.

INTRODUCTION

The Connecticut River forms the boundary between Vermont and New Hampshire for the entire shared border of the two states (see Figure 1). As a relatively minor geographical barrier, the Connecticut River should not, in and of itself, be a reason for significant economic differences between the two states. Yet, as this study will show, the river provides a dramatic contrast between the economies on its western and eastern shores. That contrast is a reflection of the long-term impact of the divergent policy choices made by people, through their elected officials, in New Hampshire and Vermont.

Figure 1: ***The Vermont and New Hampshire Connecticut River Border Counties***

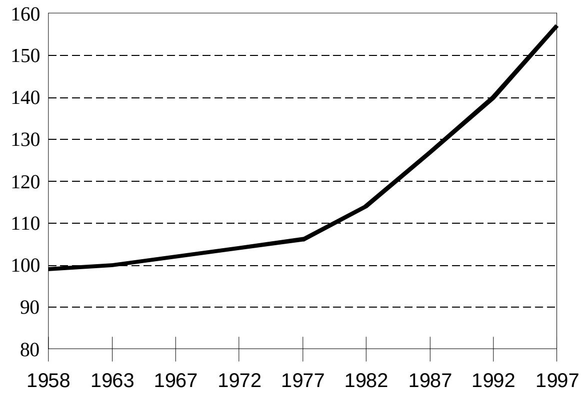
This study focuses on one part of the economy on both sides of the river: the retailing sector. It does this by using several different data sets and tracing out the historical divergence in retail sector growth. The study finds that, over the past 30 years, retailing activity has not grown as fast on the Vermont side of the river as it has on the New Hampshire side (see Figure 2). The single most likely explanation for this divergence is that Vermont levies a sales tax on retail activity while New Hampshire does not.

Just as important, the difference in retail activity is greater than one would expect given differences in relative incomes in the two states. Moreover, one would expect retailing to have grown faster on the Vermont side of the Connecticut River since the major north-south highway, I-91, is located on the Vermont side and commercial activity is generally located near interstate highways. This general rule is not the case along the Connecticut River.

WHY TAXES MATTER: BEHAVIOURAL RESPONSES

A sales tax raises the price of goods sold. When one political jurisdiction has a sales tax and an adjoining jurisdiction does not, the prices consumers pay are higher in the area with the tax than in the area without the sales tax. Economic theory predicts that, holding other things constant, consumers will purchase identical goods where they are cheaper. Other things are not always constant, of course. Other factors such as location, quality, ease of transportation access, and service quality all play a role. But a higher price, caused by higher sales taxes, will shift some amount of consumer activity to the lower-taxed jurisdiction. The easier it is for consumers to shop in the lower-tax area, the larger the impact will be.[1]

Figure 2: ***New Hampshire Border Counties' Retail Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: In 1958, per capita retail sales were equal in the two states' border counties.

As consumers shift their purchasing patterns, firms in the higher-taxed political jurisdiction (in this case, the Vermont side of the river) will lose sales and firms in the lower-taxed jurisdiction (New Hampshire) will gain sales. Over a period of time, firms will migrate away from the higher-taxed jurisdiction and move into the lower-taxed jurisdiction.[2] If they do not, they will lose sales to competitors in the lower-taxed jurisdiction.

In Vermont, a 3 percent sales tax took effect in 1969. It remained at that rate until a state revenue shortfall caused by the recessions of the early 1980s prompted a one-point hike in the rate, to 4 percent, in 1982. The rate was increased to 5 percent in 1991, after the bruising 1989–91 recession, the worst to hit Vermont since the Great Depression of the 1930s. Effective October 1, 2003, Vermont increased its sales tax once again, to 6 percent.

1 All empirical studies have supported this theoretical point. Relevant studies and analysis include Fox (1986); Walsh and Jones (1988); and Fisher (1988).

2 What this means in reality is that more growth will occur in the lower-taxed area and less in the higher-taxed area.

Throughout the entire period, by contrast, New Hampshire has had no broad based retail sales tax. Thus, the initial wedge of three percentage points between the two states' tax rates in 1969 rose to five percentage points by 1991.[3] Only five other states in the nation have no sales tax, so the sales tax gap between New Hampshire and neighbouring states is among the highest in the country.

A second factor that may have affected the location of retailing is Vermont's bottle deposit law, which focuses on one specific type of retailing activity. The law, which took effect in 1971, was an early measure designed to reduce solid waste, especially roadside littering of soda and beer cans and bottles. It is now also viewed as a recycling measure. But the bottle law is not without its economic consequences, one of which is to make soda and beer more expensive in Vermont than in New Hampshire. The bottle law imposes additional costs of time and money on consumers, retailers, and wholesalers, costs that must be absorbed by someone, either store owners in the form of lower profits, employees in the form of lower wages, or consumers in the form of higher prices. However, the bottle law, while raising the cost of beer and soft drinks in Vermont relative to New Hampshire, affects only a limited part of the retail sector as a whole.

A third factor that may influence retailing activity in the Vermont border counties is the state's development control law, Act 250, which has been criticized for adding to the cost of construction projects. If this is true, it would also be a factor leading to relatively more economic growth, in this case associated with retailing, in New Hampshire's border counties compared to those in Vermont. When retail firms are considering expansion or location decisions, higher construction costs resulting from Act 250 will tend to favour a New Hampshire location. As this study shows, New Hampshire has indeed become the preferred location for retailing in the Connecticut River Valley, despite the presence of I-91 on the Vermont side of the river.

The common thread linking all three of these public policies is that, if they increase the costs of doing business in Vermont, businesses can escape the tax by locating in neighbouring New Hampshire. Similarly, Vermont consumers can also avoid these higher costs and taxes by making their purchases in New Hampshire, where costs will be lower.[4] This study investigates the extent to which this has occurred over the past three decades.

---

3 The rate was reduced to 4 percent on July 1, 1993, but was raised back to 5 percent effective September 1, 1993.

4 Under Vermont state law, consumers are required to pay the sales and use tax on all goods purchased out of state and used in Vermont if those goods would have been subject to Vermont's sales tax had they been purchased in Vermont. In practice, Vermont residents do not do this.

BACKGROUND

Population

This study focuses on the economies of the border counties in Vermont and New Hampshire from the late 1950s through the late 1990s. The Vermont border counties are, from north to south, Essex, Caledonia, Orange, Windsor, and Windham. These counties all border the Connecticut River. Their counterparts in New Hampshire, from north to south, are the counties of Coos, Grafton, Sullivan, and Cheshire.

Table 1: ***Border Counties' Population, 1950–99***

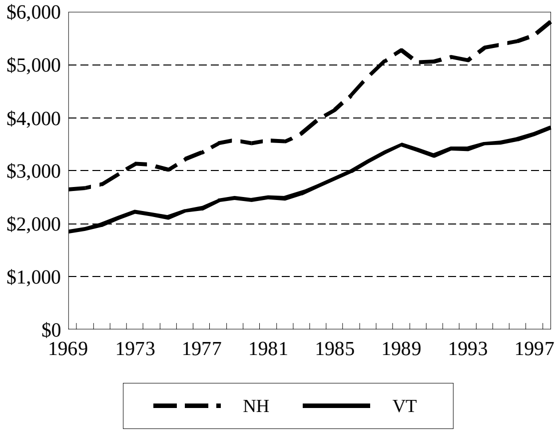
	Vermont	New Hampshire
	(thousands)	
1950	117.0	149.1
1960	117.1	157.4
1970	124.0	173.0
1980	143.1	199.5
1990	156.5	218.6
1999	161.4	224.0

Source: U.S. Census Bureau.

The New Hampshire counties have always had a larger population than their Vermont counterparts (see Table 1). In 1950, the New Hampshire border counties had a population of 149,100, 27 percent more than the 117,000 in the Vermont border counties. By 1960, the New Hampshire border counties had grown to 157,400 residents while the Vermont border counties still had a population of 117,100, a gap of 34 percent. By 1999, the New Hampshire counties' population had grown to an estimated 224,000 and the population on the Vermont side of the border was 161,400. Over the period between 1960 and 1999, the New Hampshire border counties' population grew slightly faster than did that of the Vermont border counties, with most of the difference occurring in the 1960–70 period.

Figure 3: ***Real Total Personal Income, New Hampshire and Vermont Border Counties, 1969–97***

(constant 1999 US$ millions)



Income

The population growth rates of the two regions have been very similar over the past three decades, but that is somewhat misleading from an economic standpoint. One important indicator of economic well-being is the

Figure 4: ***Real Per Capita Income, New Hampshire and Vermont Border Counties, 1969–97***

(constant 1999 US$)

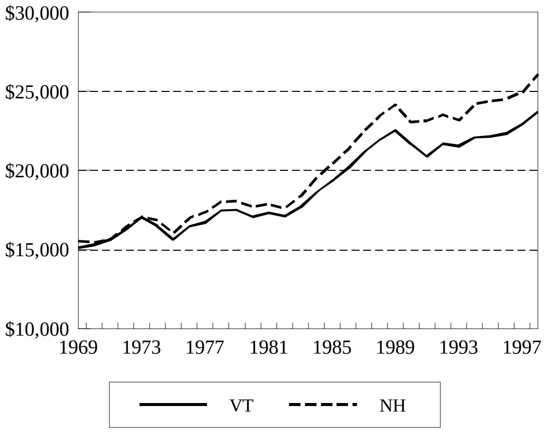
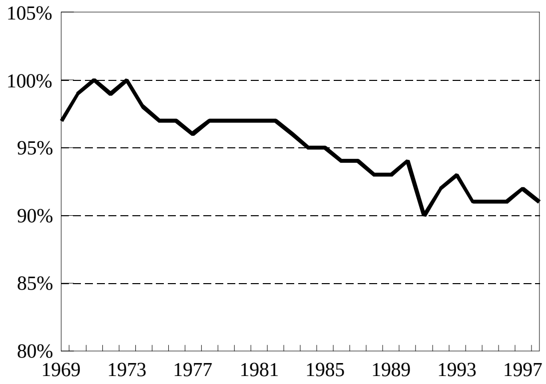


Figure 5: ***Vermont Border Counties' Real Per Capita Income, as a Proportion of New Hampshire's, 1969–97***



income earned by the population. An analysis of income earned by the residents of the border counties in the two states shows a very different pattern than that of population.[5]

Figure 3 shows that total income earned in the New Hampshire border counties was slightly more than 40 percent above the Vermont level of income in 1969, the first year for which we have data. This is not surprising, given that 40 percent more people lived in the New Hampshire border counties at that time. But the total income earned in New Hampshire border counties grew from 1970 to 1998 at a faster pace than income earned in Vermont. By 1998, total income earned in the New Hampshire border counties was 52 percent greater than that earned in Vermont, despite a similar rate of population growth in the two regions.

What this means is that per capita income must have grown faster on the New Hampshire side of the river than in the Vermont border counties. Figures 4 and 5 bear this out. From 1969 through 1973, per capita incomes on both sides of the river were identical and grew at the same rate. Beginning in the early 1970s, per capita income began to grow faster in the New Hampshire border counties than in Vermont's border counties. By the early 1980s, the border counties in Vermont had a per capita income 5 percent lower than in the New Hampshire border counties, and that differential widened through the late 1980s and into the 1990s. By 1998, Vermont border county per capita income was nine percentage points below the New Hampshire level. By national standards, a decline of this magnitude in relative per capita income is large.[6]

---

5 Census data allow us to compare county populations in 1950 and 1960; county income data were not calculated by the U.S. Commerce Department until 1969.

6 To put that change in perspective, in 1980, Vermont statewide per capita income was fourteen percentage points below the U.S. average, ranking the state thirty-fifth in the nation. By 1989, at the end of the 1980s' boom period,...

RETAILING

What this means is that more economic activity has been occurring in New Hampshire's border counties than in Vermont's. And this economic activity is not simply due to more population. Population growth over the past 30 years has been similar in the two border areas, but economic activity has not. While we would expect income growth and economic activity to be correlated with higher population growth, that is not the case for the border counties of Vermont and New Hampshire. Despite similar levels of population growth, the New Hampshire border counties as a whole have experienced more economic growth than have Vermont's border counties.

As we saw in the sections above, aggregate economic activity has advanced at a more rapid pace along the New Hampshire side of the Connecticut River than along the Vermont side. This section focuses on one component of that differential in economic activity: retailing. A higher level of retailing activity can be a cause and a consequence of greater economic growth. More retailing activity can be caused by a higher level of income, which promotes spending. Retailing can itself lead to more jobs and growth if retailing is a driver of economic growth.

The level of retailing in an area is sensitive not only to consumer income, but also to prices. Higher retail prices caused by higher sales tax rates will induce consumers to purchase goods in political jurisdictions with lower prices, assuming consumers can make that change at relative low cost in terms of time and convenience. As consumer behaviour changes in response to price signals, business location decisions will follow. This simple theory predicts that businesses (especially retail establishments) will, over time, migrate into lower-cost political jurisdictions if consumers increasingly purchase goods in the lower-cost area. Businesses that do not follow consumers will lose sales to competitors who locate in the lower-cost jurisdiction or they may eventually go out of business as their sales decline. Businesses that remain in the high-tax jurisdiction will have higher prices (caused by the higher sales tax) or they will have to offer some sort of additional service — such as convenience or proximity to their customers — that compensates consumers for the higher prices.

Whether or not that has occurred in any particular area is an empirical question that can be answered by available data. If the hypothesis that sales taxes and other public policy choices have caused firms

---

Note 6 - cont'd.

...Vermont per capita income had increased to just five percentage points below the U.S. average, for a ranking of twenty-second .Thus, in the nine years of the most dramatic economic expansion in Vermont's history, relative state per capita income increased by nine percentage points. During the expansion of the 1990s, Vermont's per capita income maintained its relative position at 91 percent of the U.S. average. Over the 1969–98 period, the Vermont border counties' per capita income lost seven percentage points relative to the New Hampshire border counties.

to move to the lowest-cost area for doing business is true, we should see relatively more retail activity in the region with lower costs (New Hampshire border counties) and less activity in the region with higher costs (Vermont border counties). That this does occur has been borne out by studies of other states and counties where there is a differential in sales taxes between two political jurisdictions.

The data used in this report come from two major sources. The first is the *Census of Retail Trade* (CRT), one of the economic censuses taken by the U.S. Census Bureau. The CRT provides detailed information on retail trade in each county, including the number of establishments by type of business, the number of employees, and annual sales data. The major limitation of the CRT is that it is taken only every five years. The most recent CRT was undertaken in 1997 and the results were released in summer 2000.

The second major data source is *County Business Patterns* (CBP), a publication produced annually by the U.S. Commerce Department. It contains information on businesses in all sectors of the economy, including construction, manufacturing, retailing, wholesale trade, transportation, services, banking, and agriculture. For these sectors, CBP gives information on the number of establishments, the number of employees, and the total annual payroll. CBP does not provide information on total sales, however, which is a major limitation of the series.

Total Retail Sales

If Vermont's sales tax has had an impact on the level of retail sales in the border counties of Vermont and New Hampshire, the data should show a shift sometime after 1969, the year in which Vermont instituted its sales tax. This section analyzes whether this shift did, in fact, occur.

Retail sales activity is best measured by the dollar value of retail sales. The U.S. Census Bureau reports information on retail sales by county in its CRT. The census data are the best single source of information on retail activity in the border counties of the two states.

Table 2 shows, for the border counties in the two states, total retail sales and the growth rate between each of the years in which the Census Bureau undertook the CRT. Over the entire 1958–97 period, inflation-adjusted retail sales in Vermont's border counties grew by 88 percent. In New Hampshire's border counties, total retail sales grew by 206 percent. To look at it another way, sales in Vermont nearly doubled, but in the New Hampshire border region they more than tripled.

The growth patterns in the two border regions were similar over the 1958–77 period, although New Hampshire's border county retail sales nearly always edged out those in Vermont's border region, with sales growth three or four percentage points higher. Beginning in about 1980, however, New Hampshire's retail sales began growing faster (or shrinking more slowly during recessionary years) than the pace in Vermont's border counties. During the slow growth and recession of the late 1970s and early 1980s, retail sales on the New Hampshire side of the river fell by more than 6 percent. On

Table 2: ***Total Retailing Activity in New Hampshire and Vermont Border Counties, 1958–97***

	Vermont		New Hampshire	
	Retail Sales	**Growth**	**Retail Sales**	**Growth**
	(constant 1999 US$ millions)	*(%)*	*(constant 1999 US$ millions*	*(%)*
1958	750		999	
1963	847	13.0	1,152	15.3
1967	948	11.9	1,332	15.7
1972	1,207	27.3	1,741	30.7
1977	1,258	4.3	1,869	7.4
1982	1,108	–12.0	1,752	–6.3
1987	1,510	36.3	2,687	53.3
1992	1,272	–15.7	2,471	–8.1
1997	1,409	10.7	3,053	23.6

Source: U.S. Census Bureau, Census of Retail Trade.

the Vermont side, sales fell by twice that amount. Moreover, during the economic boom of the 1980s, sales growth on the New Hampshire side of the river was nearly twenty percentage points faster than on the Vermont side.

The 1989–91 recession again had a differential impact on the two sides of the river over the 1987–92 period. On the Vermont side, sales fell nearly twice as fast as in New Hampshire. Recovery and growth during the 1990s led to a nearly 11 percent growth in inflation-adjusted retail sales in the Vermont border counties, but in the New Hampshire counties sales grew more at more than twice that rate.

In the years following Vermont's introduction of a sales tax in 1969, its border county retail sales (adjusted for inflation) grew by only 17 percent; in New Hampshire, retail sales growth was more than four times as fast, growing by 75 percent.

We would expect the overall level of retail activity in New Hampshire's border counties to be higher than in Vermont simply because there are more people in the New Hampshire border counties, although, as Table 1 shows, the growth rate in population between 1970 and 1999 in the two regions was nearly identical. Different population levels may explain different levels of aggregate retail sales but they do not explain different growth rates. In order to investigate this in more detail, and to control for the effects of population, we examine retail sales per capita, adjusted for inflation.

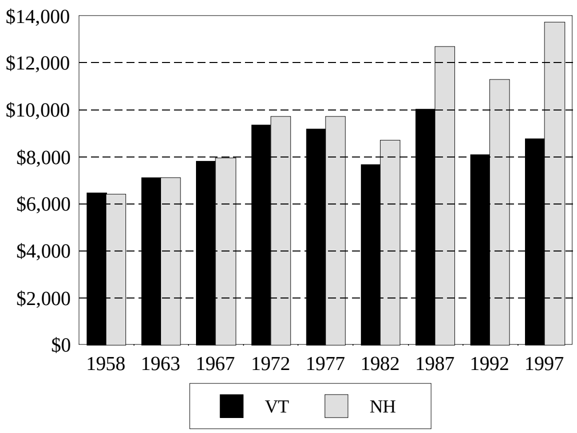
Figure 6 shows the trend in real per capita retail sales in the border counties of the two states since 1958. Real sales per person (expressed in 1999 dollars) in the New Hampshire border counties rose steadily from about $6,400 in 1958 to $9,700 in 1972. Per capita sales declined slightly from 1972 to 1977 due to the impact of the recession of the mid-1970s, and then fell sharply from $9,700 in 1977 to $8,700 in 1982 due to the two national recessions that occurred during that period. Retail sales per person in the New Hampshire border counties then rose dramatically during the boom years of the mid-1980s, increasing by 46 percent in five years and reaching $12,700 in 1987.

The end of the 1980s saw the end of the regional economic boom and the onset of the most severe economic downturn to hit New England since the Great Depression of the 1930s. Between 1987 and 1992, real per capita sales in the New Hampshire border counties declined by 11 percent, the steepest five-year decline in at least 35 years. During the subsequent recovery and expansion, real retail sales per capita in the New Hampshire border counties grew by 21 percent and by 1997 stood at $13,700.

The Vermont border counties' per capita retail sales ended the 1950s at a nearly identical level to that on the New Hampshire side of the Connecticut River. The near equality of per capita sales on the two sides of the river continued through the late 1960s. From then on, although the ups and downs in the level of spending were similar on both sides of the river, significant differences emerged. The most striking difference is that, starting from an initial level of near equality in per capita spending up through the 1960s, by the late 1990s, a wide gap in retailing activity in the two border regions had developed.

Figure 6: ***Total Retail Sales Per Capita, Vermont and New Hampshire Border Counties, 1958–97***

(constant 1999 US$)



Other differences are apparent when looking at the experience of both sides of the river during economic expansions and recessions. Per capita sales in Vermont's border counties declined from 1977 through 1982, just as sales did on the New Hampshire side of the river, but the decline was much sharper in Vermont's border counties over that five-year period than it was across the border. Vermont's real sales per person fell from $9,200 in 1972 to $7,700 in 1982, a decline of 16.5 percent. New Hampshire's decline over that same period was only 9.3 percent.

During the economic boom of the mid-1980s, the increase in retail sales per person in the Vermont border counties was far less than the increase in New Hampshire. Vermont's per capita sales rose by 31 percent from 1982 to 1987, reaching $10,000 in 1987. New Hampshire's per capita sales, as noted above, rose by 46 percent and stood at $12,700 in 1987, nearly 30 percent above the Vermont level.

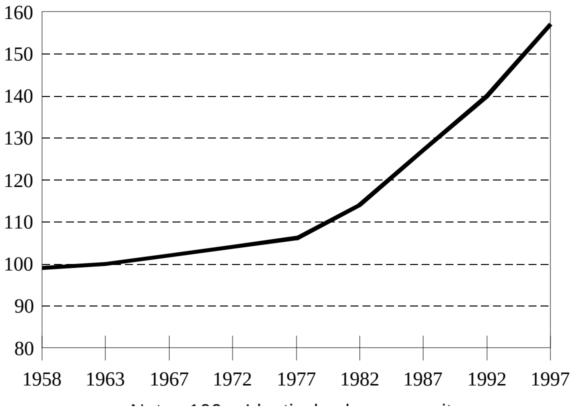
Another major difference is that, during the recession of the late 1980s and early 1990s, the Vermont border counties' retail sector was hit harder than that of the New Hampshire border counties. Real per capita sales on the Vermont side of the border fell by almost 20 percent, nearly double the rate of decline experienced in New Hampshire border counties.

The final difference is the more recent experience in the two regions. During the 1992–97 period, sales on the Vermont side of the river rose, but only by 8 percent. In the New Hampshire border counties, sales rose by more than 20 percent. The result is that, in 1997, retail sales per capita on the New Hampshire side of the river were more than $13,700 but only $8,800 on the Vermont side. Figure 7, which shows the same data as portrayed in Figure 6 but in terms of the extent to which New Hampshire border county per capita sales are different than Vermont's,[7] reveals differences in the level of per capita sales over time as well as the trends in the two regions. From 1958 through

7 If per capita sales in the two regions were equal, the line would be horizontal at 100.

1967, per capita sales were nearly identical in the two regions. Even in 1972, three years after Vermont implemented its sales tax, per capita sales were only 4 percent higher in New Hampshire border counties than in Vermont. This modest differential was maintained through the 1977 census.

Figure 7: ***New Hampshire Border Counties' Retail Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: In 1958, real per capita retail sales were identical in the two states' border counties.

Thus, in the first eight years after the sales tax was implemented in Vermont, there was very little impact on overall per capita retail sales. But this period encompasses a trying period in New England's economic history, with high energy prices causing severe dislocation and stagnation in overall economic activity. Per capita sales in both border regions were essentially unchanged from 1972 through 1977, a highly unusual state of affairs.

From 1977 to 1982, per capita sales in both regions declined, as the second oil price shock caused two back-to-back national recessions, one in mid-1980 and one that began in 1981 and lasted through 1982. Per capita sales in both border regions fell from 1977 to 1982, but the decline was much greater in Vermont than in New Hampshire. The result was that, by 1982, per capita sales were 14 percent higher in New Hampshire's border counties than in Vermont's. As Figure 7 shows, there was a distinct break in the historical pattern of relative sales in the two regions sometime between 1977 and 1982, with per capita retail sales in New Hampshire's border counties always growing faster and shrinking more slowly than sales in Vermont's border counties.

This difference in relative growth rates was magnified tremendously during the 1980s' boom. While the differential in per capita sales was a significant 14 percent in 1982, by 1987 New Hampshire's border county sales per capita were 27 percent higher than sales in Vermont's border counties. The difference occurred during a period of rapid economic growth, and the reason is straightforward: As sales expanded due to the booming economy, firms had to choose where to expand, and entrepreneurs had to choose where to locate new retailing operations. The decision was not due to differences in population growth — as noted above, population growth in both regions has been nearly identical for the past 30 years. Rather, costs in New Hampshire were lower, at least in part due to the absence of a sales tax, so more retailing activity occurred on the New Hampshire side of the border than in Vermont.

Moreover, New Hampshire's relative gain, compared to Vermont's border counties, continued through the downturn of the late 1980s and early 1990s. Despite some indicators that show that the downturn was more severe in New Hampshire than in Vermont, the census data on retail sales activity along the border show that this was not the case for retailing in the Connecticut River Valley. Although sales declined during the downturn in both border regions, the differential between the two regions continued to widen, and by 1992 border county sales per capita in New Hampshire were 40 percent greater than in Vermont.

As the economy recovered from the 1989–91 recession and expanded during the 1990s, the differential widened even more. By 1997, per capita retail sales were 57 percent higher in the New Hampshire border counties than in Vermont — a significant change from as recently as two decades earlier, when sales were nearly identical in the two border regions.

Sales by Retail Subsector

The pattern of overall sales discussed above is for the entire retailing sector. Within that sector, as defined by the U.S. Commerce Department, there were very different trends. This section examines the trends in subsectors within the retail aggregate in order to determine the dynamics of growth within the retail sectors in the border counties.

We find that the impact of the sales tax was felt initially in those sectors directly affected by the tax. In those sectors that sell goods that are not subject to Vermont's sales tax, or where New Hampshire's tax was close to Vermont's, per capita sales were very similar in the two regions for 15 years. Since the mid-1980s, however, a large and growing gap between the two border areas has appeared even in those sectors where the Vermont sales tax does not apply.

For each of the retail subsectors discussed below, two figures are shown. The first shows the inflation-adjusted per capita sales in both border county areas from 1958 to 1997. The second shows the level of per capita sales in New Hampshire's border counties relative to Vermont's border counties. Where per capita sales in the two regions are equal, the relative sales are equal to 100. If New Hampshire's border counties had per capita sales 20 percent greater than Vermont's border counties, then the relative level of sales would be equal to 120. If New Hampshire's border counties had per capita sales 25 percent less than Vermont's border counties, the relative level of sales would be equal to 75.

Building Materials

Building materials retailers include lumber yards, hardware stores, and lawn and garden supply stores. The pattern of per capita sales over the 1958–92 period is similar to that of retailing in general, with the important difference that, until 1982, Vermont's per capita border county sales exceeded those in New Hampshire. As Figure 8 shows, real per capita sales in both border regions grew from 1958 through 1972, then declined from 1972 to 1982. Sales then exploded between 1982 and 1987, most likely because of the tremendous real estate and housing boom of that period. The economic bust of the late 1980s and early 1990s was felt very strongly in the construction and building sectors of the economy, and sales exhibited a sharper decline in both regions than was true for retailing as a whole. By 1992, per capita sales in both regions had fallen back to the level of the early 1970s.

During the 1990s, per capita sales grew in both border regions, but faster on the New Hampshire side of the river; in 1997, per capita sales were higher in New Hampshire than in Vermont for only the second time since 1958.

Figure 8: ***Building Materials Sales Per Capita, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)

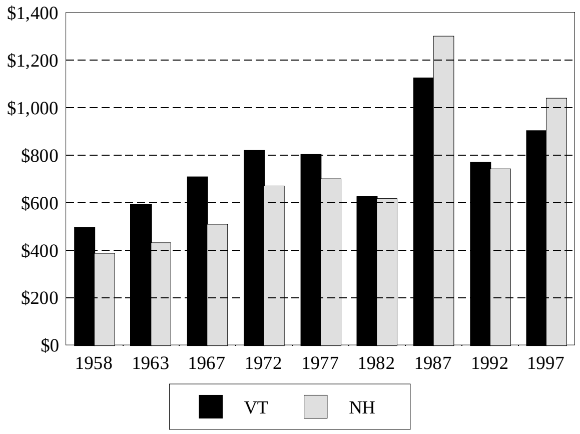
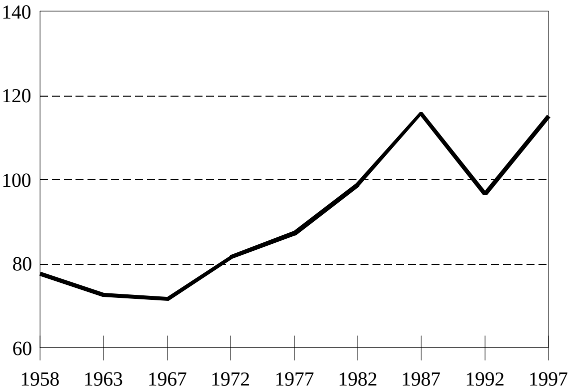


Figure 9: ***New Hampshire Border Counties' Building Materials Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties were identical at 100.

Figure 9 also shows that the relationship between New Hampshire and Vermont border county sales per capita is different in this sector than for total retailing. Whereas per capita sales were equal for the retailing aggregate in the late 1950s, per capita building material sales in Vermont were about 25 percent higher than in New Hampshire's border counties from 1958 through 1967. By 1977, however, the gap between the two regions had narrowed so that building materials sales per capita in New Hampshire's border counties were only 14 percent below the level of sales in Vermont's border counties.

By 1982, New Hampshire's more rapid growth had erased the gap with Vermont, and per capita sales were nearly identical in the two regions. Then, during the boom of the 1980s, New Hampshire's building sector continued to expand faster than Vermont's. In 1987, New Hampshire's border county per capita sales were 15 percent higher than Vermont's. New Hampshire's rapid boom, however, gave way to an equally dramatic bust, as border county sales of building materials fell faster than sales in Vermont's border counties. But in the recovery of the 1990s, New Hampshire's growth again exceeded Vermont's, and by 1997 border county per capita sales in New Hampshire were 20 percent greater than in Vermont.

Vermont initially held a distinct advantage over New Hampshire, which continued after the sales tax was introduced. However, its advantage slowly eroded over time as sales on the New Hampshire side grew faster than in Vermont except for a brief remission in 1992. The reversal in the trend between 1987 and 1992 was most likely caused by the significant overbuilding that occurred in New Hampshire's construction industry during the boom years. As Figure 9 shows, however, that was a one-time event, and today per capita sales on the New Hampshire side of the Connecticut River are greater than on the Vermont side.

Figure 10: ***General Merchandise Sales Per Capita, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)

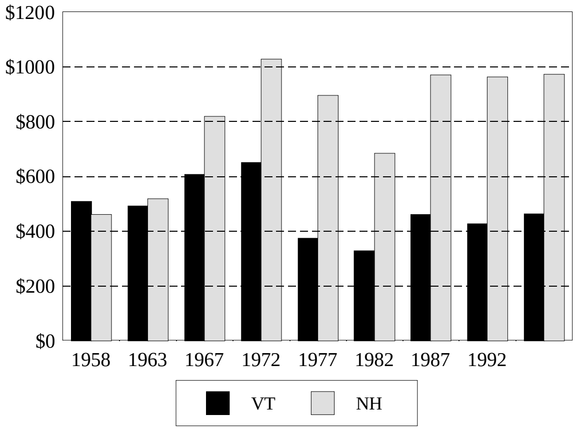
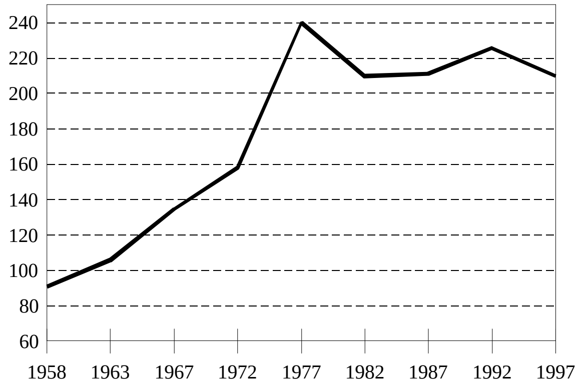


Figure 11: ***New Hampshire Border Counties' General Merchandise Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties were identical at 100.

General Merchandise

General merchandise stores include department and variety stores and mass-market retailers, which are some of the largest retail establishments as measured by total sales. Figures 10 and 11 show that per capita sales were similar in the two border county regions in the 1958 and 1963 census years. In 1967, inflation-adjusted per capita sales in both regions rose, but sales in New Hampshire grew faster than in Vermont, and were 35 percent greater than in Vermont — a sizeable difference. Whatever the cause of this trend, it was not the sales tax, which was not implemented until after the 1967 census.

The gap between the New Hampshire and Vermont border counties, already large in 1967, widened considerably in the 1970s and 1980s. Per capita sales fell in both regions from 1972 through 1982, but the decline in Vermont was much steeper. The result was that per capita sales in the New Hampshire border counties were 58 percent greater than in Vermont in 1972 and consistently more than double from 1977 through 1997. The downturn at the end of the 1980s saw a sharper decline in New Hampshire than in Vermont, but general merchandise sales per capita in New Hampshire border counties were still more than twice the sales in Vermont's border counties in 1992. That differential continued through the 1990s' expansion and, for the past 20 years, per capita sales in New Hampshire have been at least double the level on the Vermont side of the river.

The gap between the two regions was already large and growing before Vermont instituted its sales tax, but it widened considerably after the tax was implemented. Although we cannot attribute the already-large differential between the two regions before 1970 to the sales tax, the differential did widen after the sales tax was implemented and the large gap continues to the present day. General

Figure 12: ***Apparel Sales Per Capita, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)

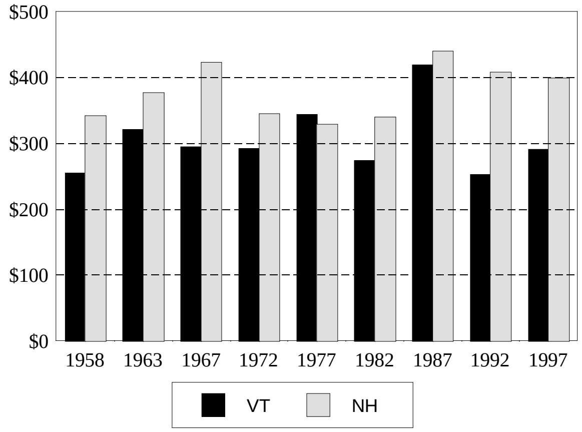
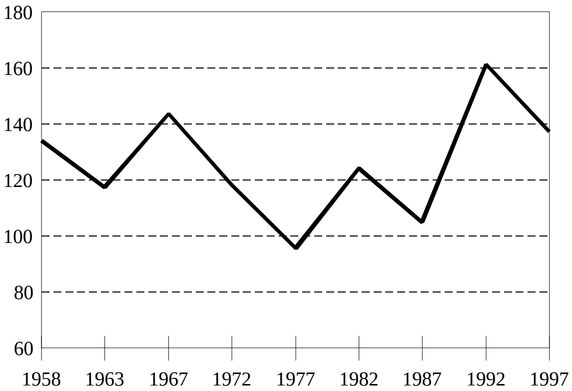


Figure 13: ***New Hampshire Border Counties' Apparel Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties were identical at 100.

merchandise is one of the largest retailing subsectors, and the per capita gap between Vermont and New Hampshire border counties is the largest of any sector within the retailing aggregate. This differential, therefore, translates into a large and significant difference between the two regions.

Apparel

Apparel stores include clothing stores, shoe stores, and other similar types of establishments. Per capita sales at apparel stores in New Hampshire's border counties have been greater than in Vermont's border counties in every year except 1977. Per capita sales in 1982 were about 20 percent greater in New Hampshire than in Vermont, a differential similar to that which prevailed through much of the period before 1977.

Surprisingly, the 1980s' boom narrowed the gap in per capita apparel sales between the two regions, unlike the experience of nearly any other retail sector. By 1987, New Hampshire's per capita sales were only 5 percent higher than Vermont's. But the recession of the late 1980s and early 1990s hurt Vermont much more than New Hampshire, with sales falling by 39 percent in Vermont during the 1987–92 period but by only 7 percent in New Hampshire. As a result, per capita sales in 1992 were 61 percent higher in New Hampshire than in Vermont and were still 37 percent higher in 1997.

In this sector, sales fluctuated throughout the entire period with no apparent trend or correlation between Vermont's tax laws and per capita sales. Apparel sales per capita on the New Hampshire side of the river have nearly always been 20 to 40 percent higher than on the Vermont side, rising to as much as 60 percent higher in the 1992 census year.

Vermont eliminated the sales tax on clothing in 1999, well after the most recently available *Census of Retail Trade* data (1997). It is unlikely, however, that the elimination of the sales tax on clothing will have any significant impact on the differential in retail sales in this sector in the two border regions. As this study shows in later sections, in other retail subsectors where the two states' sales tax rates are the same, a gap still exists in per capita sales in the two border regions. It seems likely, therefore, that the 2002 CRT will show a gap in the apparel sector similar in magnitude to the one that existed in the 1990s.

Home Furnishings

The home furnishing sector includes stores selling furniture, floor coverings and draperies, radios and televisions, music, and computers. Border county sales in this sector exhibited a slightly different trend than in other sectors because real per capita sales in both regions fell slightly from 1958 to 1963, while in most other retail sectors they grew during that five-year period. Although sales did grow between 1963 and 1972, sales exhibited a ten-year decline along both sides of the river between 1972 and 1982.

That decline was reversed between 1982 and 1987, when per capita sales in both regions expanded very rapidly. Indeed, Vermont's border county per capita growth outpaced New Hampshire's over that period. The rapid growth on both sides of the river was propelled by the building boom that spurred both states' economies. However, the crash in the real estate market in the late 1980s caused sales in this sector to fall dramatically between 1987 and 1992. In New Hampshire's border counties, per capita sales declined by 35 percent over the five-year period; in Vermont's border counties, real per capita sales fell by an even greater 43 percent. The 1990s saw a continued decline on the Vermont side of the river, as per capita sales fell by 11 percent. On the New Hampshire side, just the opposite pattern prevailed, with per capita sales rising by nearly 50 percent.

The differential in per capita sales in the two regions widened continuously from 1958 through 1982, as Figure 15 shows. Home furnishing sales per capita were nearly identical in the two regions in 1958 and 1963. By 1967, New Hampshire's border county sales were nearly 25 percent greater than Vermont's. This gap continued to escalate through the 1970s and 1980s: in 1977, New Hampshire's sales were 50 percent greater than Vermont's, and in 1982, they were 80 percent greater. Unlike in most other sectors, the gap narrowed dramatically between 1982 and 1987. This narrowing proved, however, to be a short-lived phenomenon. In 1992, the gap was again more than 50 percent and by 1997 it was over 100 percent.

The gap in per capita home furnishing sales between Vermont and New Hampshire border counties widened almost continually in the years after Vermont instituted its sales tax. Because the items sold in these stores tend to be those that are bought infrequently and are relatively costly, sales tax dif-

Figure 14: ***Home Furnishings Sales Per Capita, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)

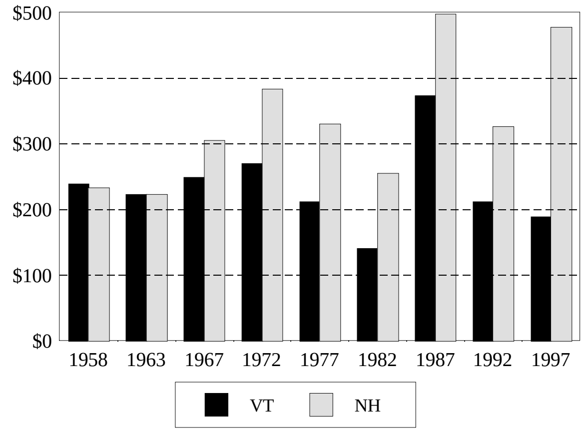
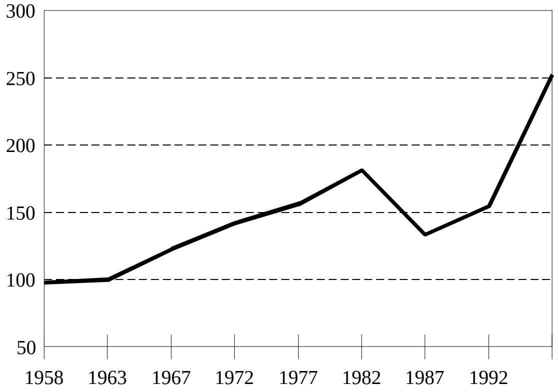


Figure 15: ***New Hampshire Border Counties' Home Furnishings Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties were identical at 100.

ferentials are likely to play a relatively more important role in purchase decisions than is the case for other goods.[8]

Drug and Proprietary Stores

The drug and proprietary stores sector is relatively small, accounting for less than 3 percent of per capita retail sales in the Vermont and New Hampshire border counties. Per capita sales followed a trend similar to that of total retailing, rising through 1972, declining from 1972 to 1982, and then rising sharply in the 1980s and 1990s, as Figures 16 and 17 show.

Per capita sales rose through the recession of 1989–91, counter to the trend in overall retailing, which showed a decline between 1987 and 1992. One reason for this continued increase in spending might be the overall growth in health care spending that continued unabated throughout the recession. Another might be that, for most people with health insurance plans, pharmaceutical costs are reimbursed by those plans. This makes spending on pharmaceuticals less sensitive to economic conditions than is spending on other goods.

The relationship between Vermont and New Hampshire border county sales per person in this sector was erratic through the entire period. In 1958, sales per person in New Hampshire border counties were 22 percent higher than in Vermont. In 1963, per capita sales in New Hampshire dropped

8 The issue of consumer purchases of expensive, infrequently purchased goods (shopping goods) compared to frequently purchased goods (convenience goods) is discussed in Greer (1980, 82–83).

Figure 16: ***Drug Store Sales Per Capita, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)

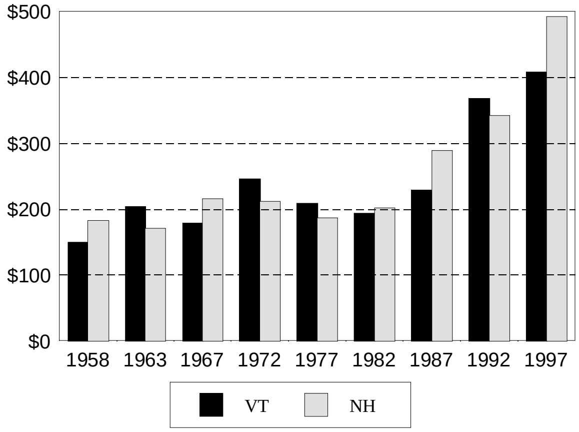
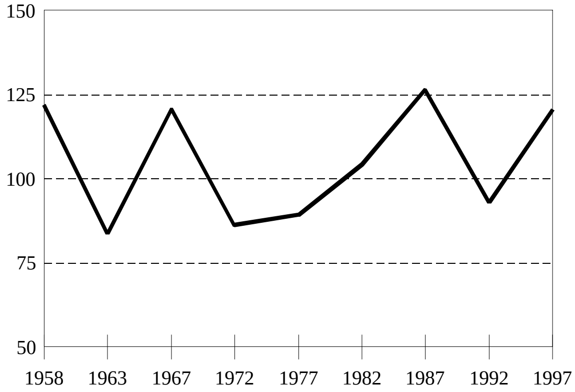


Figure 17: ***New Hampshire Border Counties' Drug Store Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties were identical at 100.

to 16 percent below that of Vermont's border counties. In 1967, New Hampshire border county per capita sales were about where they were in 1958, 21 percent higher than in Vermont.

The relative level of sales in the two border regions was very similar between 1972 and 1982, with only a slight upward trend in New Hampshire's sales compared to Vermont's. That trend accelerated during the 1980s, and by 1987 New Hampshire's per capita sales in the border counties were 26 percent higher than Vermont's. That pattern was reversed between 1987 and 1992, and by 1992 sales in New Hampshire were 7 percent below those in Vermont. Another reversal ensued in the 1990s, and in 1997 New Hampshire's sales were again 20 percent higher than Vermont's.

There was no clear trend in sales per capita over the entire 1958–97 period. One simple explanation of the lack of a trend is that drug stores sell many products that are not subject to the Vermont sales tax and hence we would not expect to see the sales tax have much of an impact on purchase decisions. Moreover, since drug costs are often covered by insurance, convenience may play a more important role than price in determining shopping patterns. However, we cannot determine from the available data what percentage of total drug store sales is of products that are exempt from the sales tax.

Food Stores

Food stores exhibit a different trend than most other sectors and also a different trend than retailing in general. Per capita sales on both sides of the border exhibited a very slight upward trend from 1958 through 1967. Between 1972 and 1977, sales stagnated and then declined from 1977 to 1982. Per capita sales picked up on both sides of the border between 1982 and 1987 and continued to grow in New Hampshire through 1997, but declined in Vermont over the entire 1987–97 period.

Figure 18: ***Food Store Sales Per Capita, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)

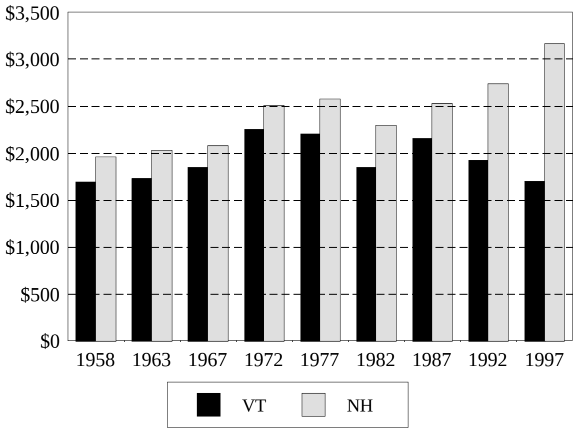
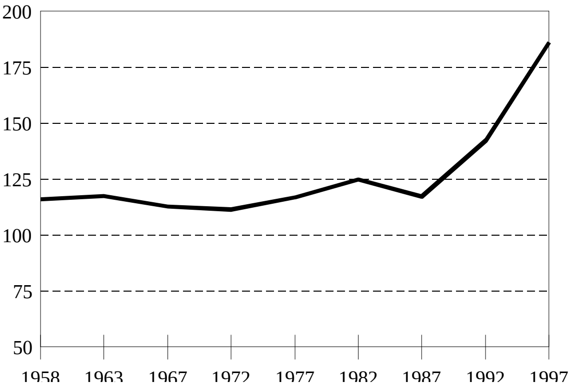


Figure 19: ***New Hampshire Border Counties' Food Store Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties would be identical at 100.

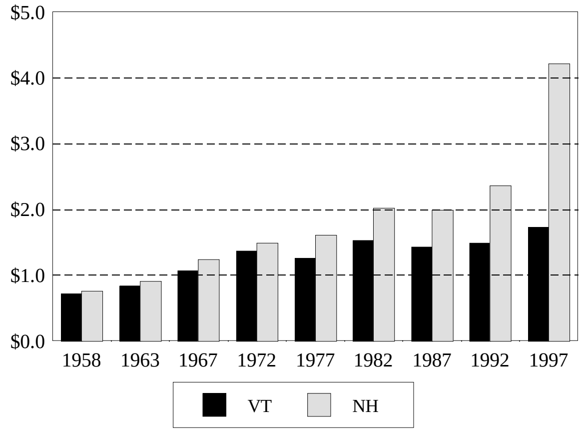
Relative sales in the two border regions were remarkably stable from 1958 until 1987, with per capita sales in New Hampshire's border counties consistently about 15 percent higher than in Vermont's. That relationship changed markedly in 1992, and the divergence continued through 1997. By the most recent census count, per capita sales on the New Hampshire side of the river were 86 percent higher than on the Vermont side.

Sales taxes are not levied on food, which may explain the lack of a gap between the two regions through 1987. But why was there such a large differential, beginning in 1992, between the two regions? One explanation might be that, as other retailing migrated from Vermont across the border into New Hampshire as a result of the sales tax differential, businesses not affected by the sales tax followed other retailers. That is, when people wanted to avoid the Vermont sales tax, they shopped in neighbouring New Hampshire. Owners of food stores wanted to locate where retail activity was most intense and where people were shopping. As a result, these stores moved away from Vermont and into New Hampshire's border counties.

Another factor that might have contributed to the increased sales on the New Hampshire side of the river is Vermont's bottle deposit law. The bottle law raises costs to consumers and retailers in Vermont and provides an additional incentive for Vermonters to shop across the river and for food stores to locate on the New Hampshire side.To the extent that this is the case, stores that offer convenience will continue to locate near their customers, but larger supermarkets that promote value and offer a wider array of products will tend to gravitate toward locations that offer lower costs. We can test this by examining the average size of stores in the food retailing sector.

Food sales per establishment can be used as a proxy for the average size of a food store in each state's border region. These data, which are available from the *Census of Retail Trade*, show that average

Figure 20: ***Food Store Sales Per Establishment, New Hampshire and Vermont Border Counties, 1958–97***
(constant 1999 US$ millions)



retail sales per store were only slightly higher in New Hampshire than in Vermont during the period before Vermont instituted its bottle deposit law and sales tax, as Figure 20 shows. New Hampshire's food stores, on average, were somewhat larger than Vermont's stores through 1972, when size is measured by sales per establishment.

By 1977, eight years after the Vermont sales tax was inaugurated, average sales per store in the New Hampshire border counties began to outstrip those in Vermont. In that year, sales per store in New Hampshire's border counties were 28 percent higher than in Vermont's. The trend of relatively larger stores in New Hampshire continued throughout the 1980s, and by 1992 the average food store in the New Hampshire border counties had sales that were 58 percent higher than average sales in the Vermont border counties. By 1997, sales per store on the New Hampshire side of the river were more than double that on the Vermont side.

What this means is that, although retail food sales per capita in the two border regions were within 20 percent of each other at least through 1987, the average store in New Hampshire is now far larger (measured by sales volume) than its Vermont counterpart. And this divergence accelerated in the mid-1990s.

This shift from the status quo situation before the bottle deposit law and sales tax were implemented might be due to the lower prices that large-volume New Hampshire supermarkets were able to offer on certain items compared to their Vermont competitors. The Vermont stores that were viable competitors tended to be smaller and more oriented to convenience grocery shopping.

Suppose Vermont residents tend to shop at smaller stores near their homes for purchases of food products they need in a hurry but go across the Connecticut River to shop at large supermarkets for major grocery shopping trips. We would find that higher per capita sales in New Hampshire than in Vermont and larger average food stores in New Hampshire, and this is precisely what the data show. Moreover, if Act 250 inhibits larger firms from locating in Vermont or increases the costs of new construction or expansion, this would also result in an increase in the average size of store in New Hampshire, which is also what the data show. We cannot sort out the impact of higher sales taxes on those goods that are taxable and sold in grocery stores from the impact of the bottle deposit law or regulatory costs such as Act 250, but their impact is consistent with the trends that we find in the border county region. They provide an incentive for consumers to shop where prices are lower and an incentive for firms to expand and locate where lower costs enable them to offer consumers lower prices.

Figure 21: ***Auto Dealers' Sales Per Capita, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)

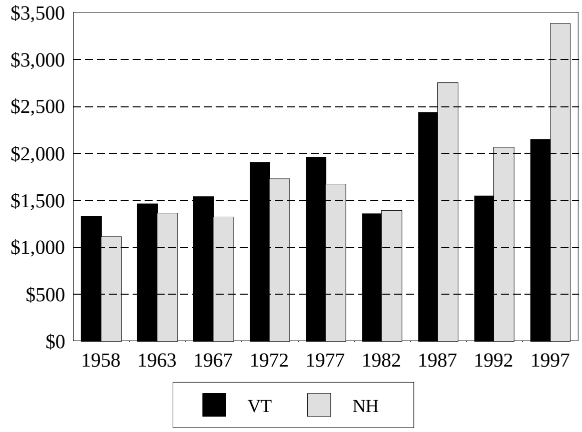
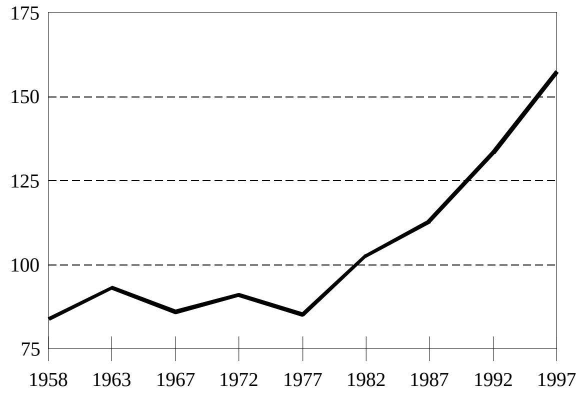


Figure 22: ***New Hampshire Border Counties' Auto Dealers' Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties were identical at 100.

Automotive Dealers

Automotive dealers include new and used car dealers, auto supply stores, and boat, motorcycle, and recreational vehicle dealers. As might be expected from a sector that sells such expensive items, per capita sales in the two border county areas are the highest of any retail sector, and represent about 25 percent of all per capita sales in the region.

Sales in both regions grew between 1958 and 1972, were essentially stagnant between 1972 and 1977, then fell from 1977 to 1982. Per capita sales shot up dramatically during the boom years between 1982 and 1987, nearly doubling in both regions in the five-year period. Then, over the five-year period ending in 1992, sales in both regions plummeted. In Vermont's border counties, real per capita sales dropped by 37 percent; in New Hampshire's border counties, they fell by 25 percent. The cycle of boom and bust is consistent with auto sales nationally: car sales are very sensitive to economic conditions, and when incomes fall during recessions, car sales plummet; conversely, during economic expansions, auto sales are very strong. That pattern is also evident in the 1992–97 period, when the dollar value of car sales per person rose by 39 percent in Vermont and by 65 percent in New Hampshire.

Sales in the New Hampshire border counties grew faster than in Vermont over the entire period, although all the differential occurred after 1977. Between 1958 and 1977, New Hampshire's sales were about 10 to 15 percent below Vermont's. But by 1982, sales were slightly higher in New Hampshire than in Vermont. In 1987, sales in New Hampshire had increased to 13 percent above the level in Vermont, and rose to 33 percent more than in Vermont by 1992. The gap continued to widen in the 1990s, rising to 57 percent higher by the end of the period for which data are available.

Vermont tax laws require Vermont residents who buy a car in New Hampshire (or any other state) to pay the motor vehicle purchase and use tax on automobile purchases.[9] So there is no tax-based incentive for an auto dealer to locate in New Hampshire in order to gain a competitive advantage over Vermont competitors, nor for Vermont residents to buy a car in New Hampshire. Neither is the differential in sales due to different population growth rates — border county population growth rates were identical during this period.

What, then, accounts for the relative increase in sales in New Hampshire versus Vermont? The reason might be the same phenomenon that occurred in the food store sector. Many non-automotive retailers migrated to New Hampshire because of lower costs to consumers, especially lower sales taxes. Over time, this increase in retailing activity in New Hampshire might have led businesses in sectors not directly affected by the sales tax — in this case, automobile dealers — to migrate to New Hampshire to be nearer major sources of retailing activity. That is, auto dealers have moved from Vermont to New Hampshire because people increasingly shop in New Hampshire, and car dealers want to be located in areas where people shop.

Gas Stations

Gasoline sales per capita grew on both sides of the river from 1958 to 1977. After 1977, the two areas exhibited different trends. In the Vermont border counties, sales continued to grow from 1977 to 1982, while in New Hampshire, sales fell during that same period. Between 1982 and 1987, the pattern reversed as Vermont's per capita sales declined while New Hampshire's rose. In both states, per capita sales were less in 1987 and 1992 than in 1977, no doubt due to the significant decline in gasoline prices in the United States during the early and mid-1980s and the recession of 1989–91, which decreased the demand for gasoline. In both regions, sales shot up in the 1990s, rising by 25 percent in Vermont and 48 percent in New Hampshire.

When we compare the level of sales in the two regions, we find that per capita sales in New Hampshire border counties were 15 percent above those in Vermont in 1958, but in every year except 1967 (when per capita sales were identical), per capita sales in New Hampshire were lower than in Vermont. Gasoline is the only retail sector where per capita sales have been consistently higher on the Vermont side of the river.

Because the sales and use tax is not levied on gasoline, we would not expect it to have an impact on gasoline sales — and, indeed, we do not find one. Moreover, gasoline taxes in the two states have been within two cents per gallon of each other for the past four decades.

9 The Vermont sales tax is actually a sales and use tax. Vermont residents who buy taxable products in New Hampshire or other states are legally required to report those purchases and pay the Vermont state sales tax if they have not paid a sales tax in the state where the purchase was made. This law is difficult to enforce and most Vermonters who buy products in New Hampshire or through catalogues do not pay the sales tax on those purchases. This is not the case for automobiles, since Vermonters must pay the Vermont tax in order to register their cars in Vermont.

Figure 23: ***Gas Station Sales Per Capita, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)

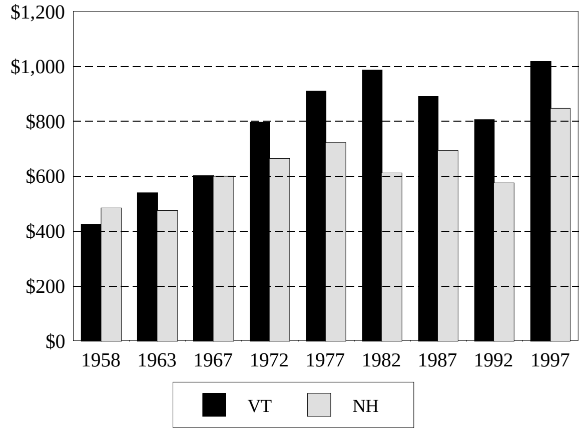
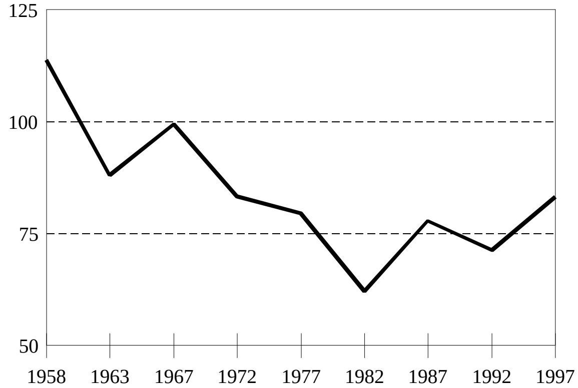


Figure 24: ***New Hampshire Border Counties' Gas Station Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties were identical at 100.

Eating and Drinking Establishments

Per capita sales in eating and drinking establishments — essentially, restaurants and bars — grew steadily from 1958 to 1977 in both regions, then declined between 1977 and 1982. Sales recovered, then rose dramatically during the boom years between 1982 and 1987. During the recession of the late 1980s, sales fell in Vermont but rose in New Hampshire. In both regions, sales grew during the 1990s.

Per capita sales in New Hampshire's border counties were 11 percent above those in Vermont's border counties in 1958, but in each census year up through 1987 (except for 1977), sales in Vermont were slightly above those in New Hampshire. That gap was completely erased and reversed during the 1990s. Sales in the New Hampshire border counties were 16 percent above sales in Vermont in both census counts of the 1990s.

There are two major influences on the differential in per capita sales at restaurants and bars in the two states' border counties. The first is the tourism industry. Tourists spend a significant amount of money in these establishments, and although we do not have data on tourism activity in the two regions, a casual look suggests that Vermont, with its large number of ski resorts in its border counties, has more tourism activity than New Hampshire's border counties.

The second, and more important, issue is that the sales tax does not apply to eating and drinking establishments. Instead, meals and drinks are taxed under the meals and rooms tax. Both Vermont and New Hampshire levy a meals and rooms tax, and their rates have been very similar since their inception in 1968 in Vermont and in 1969 in New Hampshire.

Figure 25: ***Eating and Drinking Places Sales Per Capita, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)

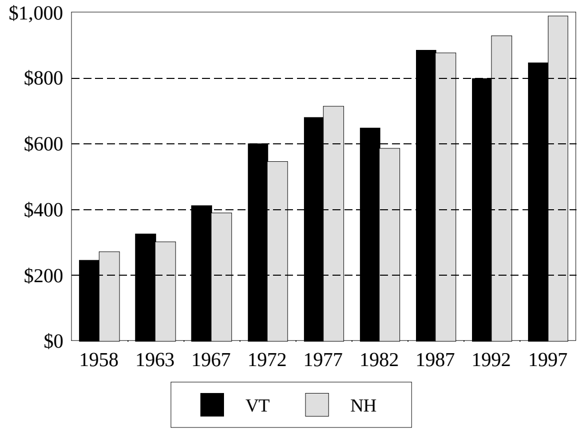
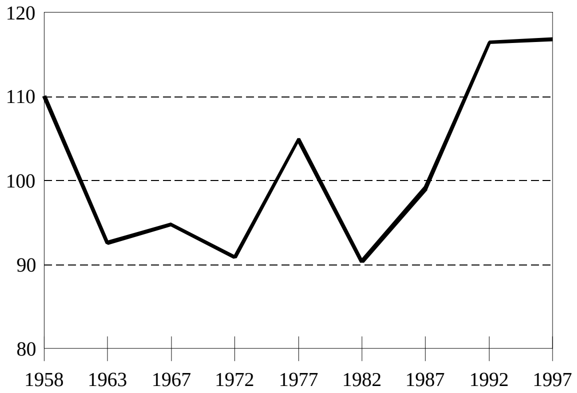


Figure 26: ***New Hampshire Border Counties' Eating and Drinking Places Sales Per Capita, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties were identical at 100.

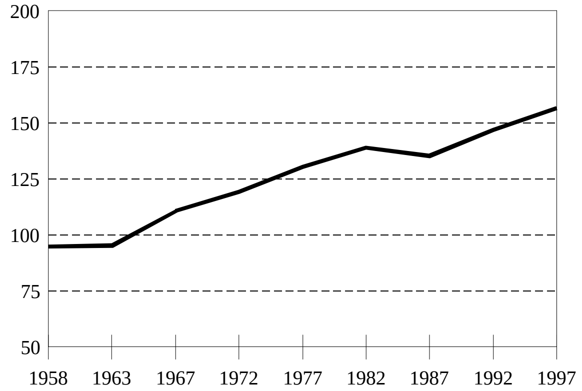
If two political jurisdictions have nearly identical taxes, there is no reason to believe that there should be any significant response in terms of the location of economic activity. Figures 24 and 25 bear this out, at least for the 1963–87 period. There was little significant difference in per capita sales in eating and drinking establishments, and no evidence of any differences in the time trend of sales as there was in most other sectors, where the differential in per capita sales widened in the years after Vermont's sales tax was implemented. Only in the 1990s did a significant gap develop between the two border regions in this part of the retail economy.

Sales Taxes and Sectoral Growth

Tax-Sensitive Sectors

The discussion above about sectoral shifts in retail sales per capita in Vermont and New Hampshire border counties revealed several important differences between the two states' border areas that are obscured by looking at aggregate retailing activity. Specifically, in most of the retail sectors where Vermont sales are subject to the state sales and use tax, there has been a shift in the pattern of retailing. This shift is demonstrated by rising sales per capita in New Hampshire's border counties relative to their Vermont counterparts in the 30 years since Vermont instituted its sales tax.

Figure 27: ***New Hampshire Border Counties' Retail Sales Per Capita in Tax-Sensitive Sectors, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties were identical at 100.

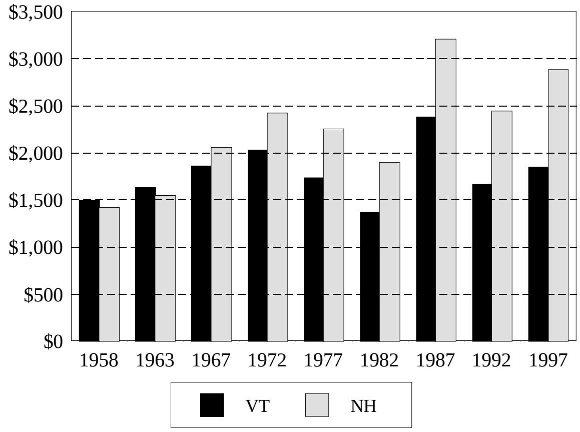
We would not expect such a shift to result immediately from the sales tax in sectors whose products are not subject to the sales tax or in sectors where tax rates in the two states are similar. This is particularly important in four retail sectors: automotive sales, gasoline station sales, food stores, and eating and drinking establishments. These sectors accounted for 65 percent of per capita retail sales in 1987 in Vermont's border counties and 61 percent in New Hampshire's border counties.

When we subtract these sectors from the retailing aggregate, the results support even more strongly the view that the Vermont sales tax has, over time, led to a shift in retailing activity away from Vermont border counties and into New Hampshire border counties. Figure 27 shows total retail sales in the border counties when we net out the four retail subsectors that are not tax sensitive.

Figure 28 shows that, in the late 1950s and early 1960s, per capita sales of those goods that we would be expect to be influenced by a sales tax were just about identical in the two regions. In 1967, relative per capita sales in New Hampshire's border counties had risen by a modest amount from the levels of the previous decade and were slightly above the level in Vermont's border counties.

Figure 28: ***Retail Sales Per Capita in Sectors Affected by Sales Tax, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)



That gap continued to widen at an increasing rate in the years after Vermont instituted its sales tax. By 1977, New Hampshire's border county per capita sales in these tax-sensitive sectors were 30 percent higher than in Vermont's border counties. By 1982, the gap had widened to 39 percent, by 1992 to 47 percent, and by 1997 the gap in per capita sales in those sectors most sensitive to sales tax differentials was more than 50 percent.

Sectors Where Tax Rates Are Similar

An equally revealing, but more subtle, pattern emerges when we examine the four sectors that are not affected by the imposition of a sales tax — restaurants and bars, automobile dealers, food stores, and gas stations. Figures 29 and 30 show that per capita sales in New Hampshire and Vermont border counties grew almost in lockstep with one another and were nearly identical between 1958 and 1977. In 1982, per capita sales fell in both border county regions but still remained identical.

Figure 29: ***Retail Sales Per Capita in Sectors Not Sensitive to Tax Differentials, New Hampshire and Vermont Border Counties, 1958–97***

(constant 1999 US$)

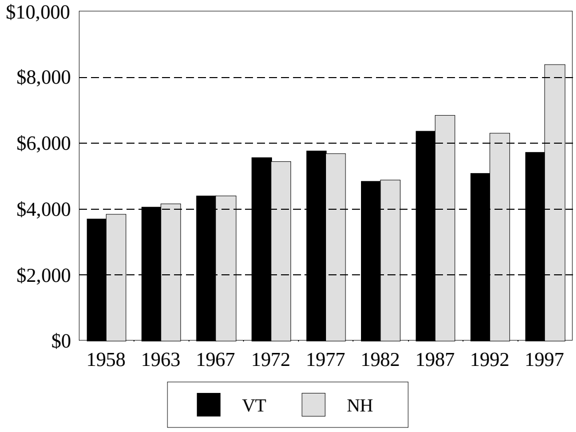
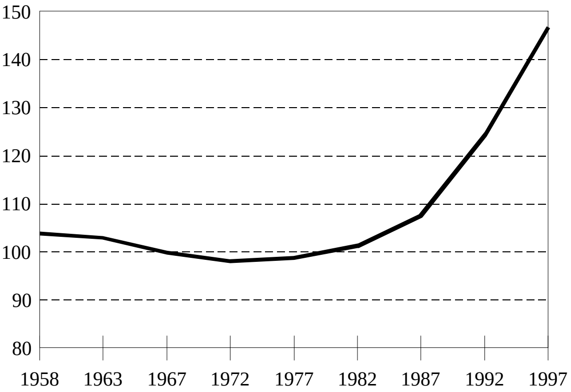


Figure 30: ***New Hampshire Border Counties' Retail Sales Per Capita in Sectors Not Sensitive to Tax Differentials, as a Proportion of Vermont's, 1958–97***



Note: Per capita sales in the two states' border counties were identical at 100.

By 1987, both regions had experienced five years of economic growth and recovery from the 1981 recession, but retail sales growth on the New Hampshire side of the river exceeded that on the Vermont side, and per capita sales were about 7 percent higher in New Hampshire. By 1997, New Hampshire's sales in these parts of the retail economy were 47 percent higher than on the Vermont side of the river, despite the lack of a sales tax differential between the two states in these sectors.

Summary

The data presented above strongly suggest that Vermont's sales tax has, over time, led to a shift in retailing activity. Initially, the impact was felt in those parts of the retail economy where taxes mattered. Vermonters responded to the higher prices in Vermont (caused by the higher sales tax) and bought goods in New Hampshire. By the 1990s, more than two decades after Vermont implemented its sales tax, retailers of all types had moved across the border. Even in those parts of the retail economy where taxes were similar (or nonexistent) in the two states, the impact of the sales tax was felt throughout the retail economy.

New Hampshire's border counties have more retail activity per capita than do Vermont's border counties and the gap is accelerating. The differential is even more than one would expect from the 12 percent difference in per capita income between the two regions. Such a gap in per capita incomes would lead one to expect somewhat more retail sales in New Hampshire's border counties, but the actual difference — 50 percent — is far greater than that.

The data also support the conclusion that business owners and Vermont residents have changed their behaviour over the past two decades. Those changes have taken time, but they have had a pronounced effect on the retail sector. The difference in per capita sales between the two regions began to widen during the first decade after the Vermont sales tax was implemented. The sales gap widened at a more rapid pace during the second decade after the sales tax was implemented and was probably exacerbated by the increase in Vermont's sales tax rate from 3 percent to 4 percent in 1982.

The gap in per capita sales in the two border regions continued to grow throughout the boom period of the mid- to late 1980s. During the 1989–91 economic downturn, New Hampshire's economy as a whole lost a larger share of jobs than did Vermont's, but the retail situation in the border region did not exhibit this same trend. In the border region, the gap between Vermont and New Hampshire continued to widen during the expansion of the 1990s.

RETAIL EMPLOYMENT

The data and trends discussed above strongly suggest that the Vermont sales tax has caused a shift in retailing over the 1958–97 period. Those results are based on data from the *Census of Retail Trade*, but another data source, *County Business Patterns* (CBP) also allows us to analyze retail trade trends on an annual basis.

CBP is an annual report released by the Census Bureau that covers all business activity in each state. The report is therefore much broader and comprehensive than the limited scope of the *Census of Retail Trade*. The data contained in CBP are, however, limited in that the survey reports the number of establishments, total employment, and total payroll.[10] Unfortunately, CBP withholds a great deal of county-level data at the specific sectoral level within retailing due to confidentiality reasons. We therefore cannot use this data source disaggregate down from the overall retail trade sector into its component parts.

Since CBP does not provide data on the dollar value of total retail sales, we are forced to use some other measure of retail activity as a proxy for retail sales in the border counties of the two states. CBP reports the number of establishments in each sector of the economy. However, this metric counts all establishments as equal, from a small mom and pop store to the largest department store. It therefore does not give a good indication of overall retail activity.

Accordingly, we use employment data as the best proxy for retail sales, since employment should vary with the extent of retailing. If there are economies of scale in retailing — that is, if larger stores can handle more sales per employee than smaller stores — then this measure of retail activity will tend to understate retail activity in areas with larger stores and overstate it in areas with smaller stores. In the case of the Vermont and New Hampshire border counties, if sales taxes have tended to push retail sales out of Vermont and into New Hampshire, we would expect larger stores in New Hampshire and smaller stores in Vermont. Given scale economies to size of store, this means that the employment data will tend to bias our estimate of New Hampshire's retailing activity downward and that of Vermont upward.

In order to analyze retail activity through the employment data, we adjust for differences in population. The data are shown in Figure 31. Retail employment per 1000 population in the New Hampshire border counties was above that in Vermont throughout the 1970s and 1980s and into the early 1990s. Even in 1970, shortly after Vermont had instituted its sales tax and per capita sales were nearly iden-

10 The employment number is the total number of employees working during the week including March 12, not an average number of employees during the year.

Figure 31: ***Retail Employees Per Thousand Population, New Hampshire and Vermont Border Counties, 1970–97***

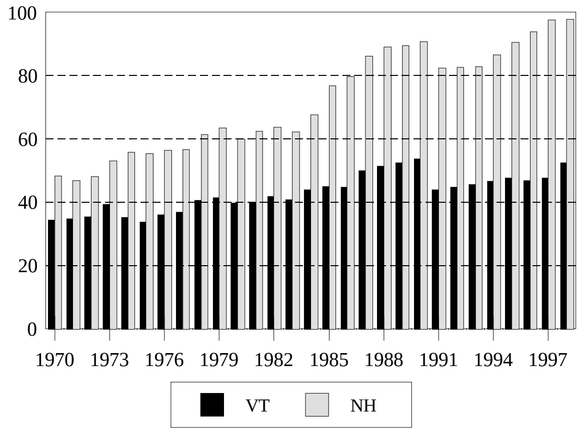
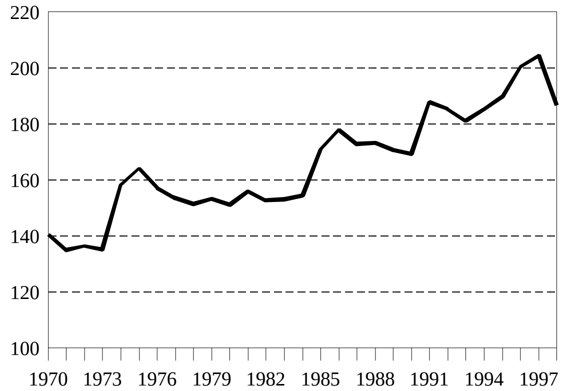


Figure 32: ***New Hampshire Border Counties' Retail Employees Per Thousand Population, as a Proportion of Vermont's, 1970–97***



Note: The relative number of retail employees in the two states' border counties would be identical at 100.

tical in the two regions, New Hampshire's border counties had higher relative levels of retail employment (48.3 per 1000 population) than did Vermont's border counties (32.0 per 1000 population).

Whatever the cause of this initial divergence of the relative number of retail employees, the trend since then has been for New Hampshire's border counties to have larger numbers of retail employees than Vermont's border counties. As Figure 32 shows, retail employment, adjusted for population differences, was 50 percent larger in New Hampshire's border counties than in Vermont's border counties. By 1990, retail employment on the New Hampshire side of the Connecticut River was 70 percent greater than on the Vermont side, and by the mid-1990s, New Hampshire had twice as much retail employment as Vermont after adjusting for population differences.

The trend from 1970 to 1998, shown in Figures 31 and 32 is clearly for higher levels of retail employment, even accounting for population growth. But most of the relative growth in employment has occurred on the New Hampshire side of the river. Between 1970 and 1998, retail trade employment rose from 48 to 97 per 1000 population on the New Hampshire side, but only from 34 to 52 per 1000 population on the Vermont side.

The CBP data, therefore, confirm the results obtained using the *Census of Retail Trade* sales data - namely that, over the past 30 years, retail activity has increased at a significantly more rapid pace on the New Hampshire side of the Connecticut River.

SUMMARY

The data and analysis presented in this paper strongly support the view that Vermont's public policy choices have influenced the location and extent of retail activity along the Connecticut River Valley. Public policies are often thought to have long lag times until they have an effect on the economy, and this study confirms that view.

For the first few years after they were implemented, neither Vermont's sales tax nor its bottle deposit law had a dramatic impact on retail activity. However, after the first decade of their existence, retail trade activity began to shift away from Vermont and into New Hampshire. During the second decade of their existence, the shift accelerated. By the 1990s, after both measures had been in effect for nearly three decades, their incentive effects had had sufficient time to alter the retail landscape of the two border areas.

The magnitude of this shift can be quantified in a slightly different way than that discussed above. We do this by asking what retail sales would have been if retail sales in Vermont's border counties had not been reduced by the sales tax and then by estimating the number of employees who would have been working in the retail sector in the Vermont border counties.

Retail sales per capita are 60 percent higher on the New Hampshire side of the river than on the Vermont side. In the absence of a sales tax or any other policy measure that would have caused retailing to locate on the New Hampshire side, if we assume that per capita retail sales on the New Hampshire side were10 percent higher than in Vermont only because of the higher per capita income in New Hampshire, then in 1997 retail sales on the Vermont side would have been $322.7 million higher than the actual level of $1.4 billion in 1997. That additional retailing would have added 1933 more retail jobs to the Vermont border counties, enhancing and diversifying the economies of Essex, Caledonia, Orange, Windsor, and Windham Counties.

CONCLUSION

The evidence provided in this study strongly supports empirical economic studies using data from other states, which have found that a differential in sales taxes in two political jurisdictions causes retail activity to shift into the lower-tax jurisdiction and away from the higher-tax jurisdiction. In the case of Vermont and New Hampshire, in the nearly 30 years in which Vermont has had higher retail taxes than New Hampshire, retail activity has shifted away from Vermont and into New Hampshire.

A number of findings support this view. First, overall retailing activity per person was nearly identical in the two border county areas in the decade before Vermont levied its sales tax. Over time, that equality has changed. During the first ten years of the sales tax, there was a small shift in retail activity from Vermont's border counties into New Hampshire's border counties. During the second decade of the sales tax's existence, that trend accelerated, reinforced by the passage of time and by the increase in the Vermont sales tax that occurred during that period.

Second, when we look within the retailing aggregate, we find that those retail sectors that are sensitive to tax differentials showed a marked shift in activity away from Vermont and into New Hampshire. In those retail sectors where tax differentials were nonexistent (restaurants) or do not matter (automobile sales), retail sales in both border regions were nearly identical. But during the past ten years, retail activity in these sectors has increasing tended also to move from Vermont into New Hampshire's border counties. Indeed, by 1997 the amount by which per capita sales in New Hampshire's border counties exceeded Vermont's was as great in the sectors where there are no tax rate differences as they are in the retail sectors where tax rates are different.

These findings are supported by economic theory, which states that consumers will purchase more of a product if the price is lower and that, if there is a good substitute available for an identical product at a lower price, consumers will purchase the lower-priced product. In this case, products in New Hampshire cost less than products sold in Vermont that are subject to Vermont's higher sales tax. The data show that the additional time spent driving into New Hampshire from Vermont's border areas has not stopped a significant number of Vermont shoppers from purchasing goods in New Hampshire. The study estimates that the loss to the Vermont border counties due to the sales tax differential was $322.7 million in retail sales and more than 1900 retail jobs in 1997.

The report also shows that residents along the New Hampshire side of the Vermont-New Hampshire border have enjoyed more rapid income growth than that experienced by residents in the Vermont border counties. Twenty-five years ago, income per person was equal in the two border regions. Today, per capita income is 10 percent higher in New Hampshire's border counties than in Vermont's. Analyzing the cause of that differential is beyond the scope of this paper, but the differential is real and should be considered in any analysis or public policy discussion. This paper cannot state whether the income differential has been caused by existing public policies, such as differences in taxes, Act 250, or other regulatory policies.

Beginning in the early 1970s, the Vermont state government adopted a number of new policies designed to raise revenue and regulate the pace and scope of development. Over time, those policies have had an effect on economic growth and development in the state by raising the price of goods sold in Vermont and the cost of selling those goods. Where Vermonters have had the opportunity to respond to the new environment those policies put in place, they have done so just as economic theory predicts. Vermonters have purchased goods where they are less expensive. Retailers have responded to the purchasing decisions Vermonters have made and, over time, have located their establishments on the New Hampshire side of the Connecticut River.

This study has quantified the extent to which these changes have occurred over the past three decades. The lower prices available in New Hampshire due to Vermont's sales tax have enticed Vermonters to shop across the border to save 3, 4, and now 5 percent. They are willing to do that despite the extra time it takes to cross the river to shop. Retailers' location decisions are based on these consumer preferences. It is worth noting that the major north-south transportation artery along the Connecticut River, I-91, is located on the Vermont side of the river. One would expect retailers to want to locate near interstate highway interchanges. But even the powerful lure of an interstate highway has not been sufficient to entice retailers to locate in Vermont. Whether that is due to the sales tax difference or the difficulty of constructing new retailing centres because of Act 250 cannot be determined. But it is clear that what may be perceived as only a small price differential is sufficient to overcome other powerful incentives. The result has been the hollowing out of the retail part of the Vermont border county economy.

REFERENCES

Fisher, Ronald. 1988. *State and Local Public Finance*. Glenwood, IL: Scott, Foresman.

Fox, William F. 1986. "Tax Structure and the Location of Economic Activity along State Borders". *National Tax Journal* 39 (4): 387–401.

Greer, Douglas. 1980. *Industrial Organization and Public Policy*. New York: Macmillan.

Walsh, Michael, and Jonathan Jones. 1988. "More Evidence on the 'Border Tax' Effect: The Case of West Virginia, 1979–84". *National Tax Journal* 41 (2): 261–65.

Selected Publications from the AIMS Library

Books

Retreat from Growth: Atlantic Canada and the Negative-Sum Economy, by Fred McMahon

Road to Growth: How Lagging Economies Become Prosperous, by Fred McMahon

Looking the Gift Horse in the Mouth: The Impact of Federal Transfers on Atlantic Canada, by Fred McMahon (photocopies only)

Commentary Series

Following the Money Trail: Figuring Out Just How Large Subsidies to Business Are in Atlantic Canada, by David Murrell

First, Do No Harm: What Role for ACOA in Atlantic Canada? by Brian Lee Crowley

Research Reports

The Atlantica Power Market: A Plea for Joint Action, by Gordon L. Weil

Power Trip: Stumbling toward a Policy for NB Power, by Thomas L. Tucker

Fencing the Last Frontier: The Case for Property Rights in Canadian Aquaculture, by Robin Neill

Grading Our Future: Atlantic Canada's High Schools' Accountability and Performance in Context, by Rick Audas and Charles Cirtwill

Definitely Not the Romanow Report, by Brian Lee Crowley, Brian Ferguson, David Zitner, and Brett J. Skinner

Rags to Riches: How "The Regions" Can and Should Be Leading Canada's Productivity Push, by Brian Lee Crowley

Taxing Incentives: How Equalization Distorts Tax Policy in Recipient Provinces, by Kenneth J. Boessenkool

Fiscal Equalization Revisited, by Professor James M. Buchanan, Nobel Laureate

Having Our Gas and Selling It Too: Natural Gas Distribution in Atlantic Canada, by Thomas L. Tucker

Public Health, State Secret, by Dr. David Zitner and Brian Lee Crowley

Testing & Accountability: The Keys to Educational Excellence in Atlantic Canada, by Charles Cirtwill, Rod Clifton, and John D'Orsay

Atlantic Petroleum Royalties: Fair Deal or Raw Deal? by G.C. Watkins

Port-Ability: A Private Sector Strategy for the Port of Halifax, by Charles Cirtwill, Brian Lee Crowley, and James Frost

Equalization: Milestone or Millstone?, by Roland T. Martin

Taking Off the Shackles: Equalization and the Development of Nonrenewable Resources in Atlantic Canada, by Kenneth J. Boessenkool

Beyond a Hard Place: The Effects of Employment Insurance Reform on Atlantic Canada's Economic Dependency, by Rick Audas and David Murrell

Operating in the Dark: The Gathering Crisis in Canada's Public Health Care System, by Brian Lee Crowley, Dr. David Zitner, and Nancy Faraday-Smith (photocopies only)

Energizing New Brunswick Power, by Thomas Adams

New Brunswick's Power Failure: Choosing a Competitive Alternative, by Thomas Adams

Conferences

Plugging in the International Northeast: A Canada-US Dialogue on Solving This Region's Electricity Challenges, November 12, 2003, Moncton, New Brunswick

Maine-Maritimes Business Summit, September 11, 2003, Halifax, Nova Scotia

Atlantic Canada and the Canada-American Border of the Future, November 22, 2002, Halifax, Nova Scotia

These publications are available at AIMS, 2000 Barrington St., Suite 1006, Halifax NS B3J 3K1
Telephone: (902) 429-1143 Facsimile: (902) 425-1393 E-mail: aims@aims.ca
They can also be found on our Web site at: www.aims.ca

Atlantic Institute for Market Studies

2000 Barrington St., Suite 1006
Halifax NS B3J 3K1

Telephone: (902) 429-1143
Facsimile: (902) 425-1393
E-mail: aims@aims.ca
Web site at: www.aims.ca