



# A Multivariate Look at Migration from Vermont

*In this study examining data from 1850 to 1860, the most important variables explaining emigration and persistence in Peacham are wealth, church membership, and, to a lesser extent, occupation. For Albany, the most important variables are age, length of residence, presence in the agricultural census, and kinship. This tells us a lot about each of these communities, and perhaps suggests some of the effects of growing old.*

By JEREMY FLAHERTY

**T**he problem of migration has been a concern for American historians for over a century. Frederick Jackson Turner claimed in his 1893 frontier thesis that American development to that point could be explained by the continuous process of migration to the frontier. Turner was followed by James Malin and Frank Owsley, who published studies of nineteenth-century frontier migration in the 1930s and 1940s. One of Turner's students, Merle Curti, designed a study to test the frontier thesis, the final product of which was his 1959 book *The Making of an American Community*, an analysis of the population of Trempealeau County, Wisconsin, from 1860 to 1880. Starting in the 1960s, interest in migration moved from the frontier to eastern urban centers with studies by Stephen Thernstrom, Howard Chudacoff, Peter Knights, and others.<sup>1</sup>

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The importance of migration has not been lost on Vermont historians. Harold Fisher Wilson's winter thesis, which he presented in his 1936 book *The Hill Country of Northern New England*, was a "tale of woe," characterized by massive out-migration and a preponderance of deserted farms. Lewis Stilwell's study of Vermont emigrants was published a year after Wilson's book, and offered support for the winter thesis by stating that "emigration was leeching [Vermont's] best blood." Later work on Vermont migration, including that done by Holman Drew Jordan, H. Nicholas Muller III, and Hal Barron, made the winter thesis obsolete, describing the declining population as a consequence of decreased in-migration rather than a mass exodus. The result, they tell us, was an increased homogenization of the remaining population and a concurrent stabilization of the economy and society rather than a tale of woe.<sup>2</sup>

Previous scholarship on Vermont migration has told us a great deal, but the methods used have not been particularly sophisticated. Barron and Muller were both influenced by Thernstrom's work on the populations of Newburyport and Boston, Massachusetts, in which cross-tabulations were used to look at the differences between emigrants and persisters—those people who did not emigrate—with reference to age, occupation, wealth, and other characteristics derived from the federal census schedules, city directories, and other nominal records.<sup>3</sup> They used Thernstrom's methods and addressed similar questions in their work on the populations of Chelsea and Jericho, Vermont. Unfortunately, they only looked at one variable at a time, concluding that younger, poorer, and unmarried people, for example, had a higher probability of emigrating. It is likely, of course, that age, wealth, and marriage status are correlated; and it is possible that, once these correlations are accounted for, they do not all affect an individual's decision to emigrate to an important degree. More sophisticated multivariate statistical tools, which take into account the correlations between variables, were available to Barron and Muller, and many historians were calling for their use to answer the questions that were being asked about geographic mobility, but the methods were still quite difficult and expensive to use.<sup>4</sup> Today, these methods are much more approachable, and can be performed on a standard laptop computer. By using multivariate techniques, each variable's effect on the probability of emigrating can be disaggregated, allowing us to understand the relative importance of each variable. This essay will use a multivariate technique—logistic regression—to provide a better understanding of the determinants of emigration and persistence in Vermont between 1850 and 1860, analyzing the same variables used by Muller and Barron.

## BARRON AND MULLER

Stilwell does not address the differences between emigrants and persisters, and Wilson's work as it pertains to migration has been made obsolete by more recent work, so they are not particularly relevant to this research. Barron made Wilson's work on emigration obsolete. He and Muller are the most commonly cited authors in any discussion of migration in Vermont.<sup>5</sup> It is appropriate to give a brief review of their work as it relates to this essay.

Barron looked at persistence in Chelsea, Vermont, over twenty-year intervals—1860 to 1880 and 1880 to 1900. He found that age was “one of the most important factors” in determining who would emigrate, with younger people being more likely to leave town. Property ownership was a “distinguishing feature of those who remained,” and controlling for age had little effect on its importance. Farmers and merchants were the most persistent occupational classes, and craftsmen and laborers were the least persistent. Professionals were much more persistent than laborers and craftsmen from 1860 to 1880, but less persistent than merchants; and their persistence declined in the 1880 to 1900 period.<sup>6</sup>

Barron also found that those born in Vermont were less likely to emigrate than those from outside the state, the exception being the seven Irishmen who lived in Chelsea in 1860, four of whom stayed until 1880. Heads of household, and those related to them, were more likely to persist, and heads of extended families were more likely to persist than heads of nuclear families. Having more children also increased the likelihood of persistence.<sup>7</sup> In generalizing his findings, Barron said that the people who left had fewer economic or social ties to the community than those who stayed.<sup>8</sup>

Muller traced heads of household in Jericho, Vermont, from 1870 to 1880. He found that professionals made up the most persistent occupational group in Jericho, as all four professionals present in his sample of the 1870 population were found again in 1880. Farmers also “exhibited a tendency to stay.” Merchants and manufacturers made up the second least persistent group, right ahead of laborers and tradesmen. The foreign born were much less persistent than the native born, and Muller tells us that this is related to occupation, as many of the laborers and tradesmen were foreign born.<sup>9</sup> Unfortunately, Muller does not look at the age of his subjects, and does not include the many other variables concerning wealth and family ties that are found in Barron's work.

Clearly, based on Muller's and Barron's work, farmers were a persistent group, while laborers and craftsmen typically emigrated from both Jericho and Chelsea. What about professionals and merchants, though? Muller says professionals were the most persistent, and that merchants

were among the least persistent. In Chelsea, however, merchants were among the most persistent and professionals were among the least persistent. In their recent book *Freedom and Unity*, Sherman, Sessions, and Potash cite Muller's conclusion about professionals, which is based on four cases from a *sample* consisting of ninety-five heads of household, and apparently disregard Barron's, which is based on thirteen cases from a *population* of 316.<sup>10</sup> Their preference for Muller's results over Barron's is all the more perplexing when one considers the fact that Muller's sample happens to be nonrandom and too small—two problems that make inferences even about the town of Jericho, much less the rest of Vermont, impossible.<sup>11</sup> In other words, we do not know what the relationship is between occupation or nativity and the tendency to emigrate in Jericho.

Perhaps this inconsistency is unimportant, and the issue of Muller's sampling method is probably considered irrelevant by most historians these days, but there is clearly a need for further research in this area.

#### METHODS AND MATERIALS

The population used for this study consists of the male heads of household in two rural Vermont towns, Albany and Peacham, as listed in the population schedule of the 1850 federal census. These towns were selected because of the availability of death records for both towns. Furthermore, Albany's population was still increasing during the 1850s, while Peacham's began to shrink before 1850, which allows for a comparison between towns experiencing net growth and net loss in population.

The residents found in each town in 1850 were linked to the 1860 census to determine if they were persisters.<sup>12</sup> For those individuals not found in the 1860 census, an effort was made to distinguish between those who actually emigrated and those who died by linking their names to several sources of death records, including newspaper obituaries and cemetery directories.<sup>13</sup> Those people with no recorded death were classified as emigrants.<sup>14</sup>

The female heads of household present in Albany and Peacham are not included here because they are too few to be analyzed. It is assumed that they are different from males in their behavior, so to include them without being able to control for the effects of sex would weaken the analysis.

#### THE VARIABLES

The variables collected directly from the population schedule include age, occupation, real estate wealth, family size, and place of birth. More variables can be derived from the population schedule, including kinship ties and marital status.

Age is recorded directly on the population schedule of the census for each person and will be used as a continuous-level variable (as opposed to reducing age to several categories as is commonly done) in the analyses below. In other studies of emigration, age has almost always been shown to be inversely related to the probability of emigrating. The explanations for this relationship have taken two forms. One group of researchers explains the youthfulness of emigrants as a life-cycle effect. In other words, it is the correlation between youth and bachelorhood, childlessness, unemployment, and lack of wealth that explains emigration rather than just age alone. Another group, informed by rational choice theory, explains the relationship as a cost-benefit analysis. Given the possibility of improving one's lot by changing location, the young have more to gain by emigrating because they will have more years to reap the rewards of the move. Furthermore, the young will have more time to rectify their situation if their move turns out to be a mistake.<sup>15</sup> Since life-cycle factors, including marriage status, occupation, wealth, and number of children will be controlled for in this paper, the effects of age on the probability of emigrating can be interpreted as the result of a cost-benefit analysis.

The several occupations listed in the census have been collapsed into four categories: farmers, white collar, blue collar, and those with no listed occupation. The white-collar group includes professionals and merchants, and the blue-collar group includes craftsmen and laborers. The rarity of people in some of the occupations requires this classification. For example, there are only one merchant and two laborers in Albany.

Two measures of kinship ties have been included in this analysis: the number of family members in a household (Family Size) and the size of the extended kinship network (Kinship). Family size was recorded by adding up the number of related individuals in each household. The number of children a person had may have influenced his likelihood of emigrating. More children increases the financial cost of emigrating, but the free labor provided by children may be a help in getting started once a destination is reached. Furthermore, when faced with the impending break up of his family due to the lack of available farmland for his sons, a farmer may have opted to move the whole family together to an area where his children would be able to set up homesteads near their parents.<sup>16</sup> The size of a person's family and the number of children he had are very highly correlated in both towns, so only family size was used in the logistic regression models below.<sup>17</sup>

An extensive network of kinship can act as an anchor to a town, restricting the ease of emigrating. The extended family, made up of all the people in the town who are related to one another, is a source of social

capital. It gives a person access to labor and economic assistance, and the emotional ties to family cannot be overlooked.<sup>18</sup> The number of family ties throughout the community may affect the perceived costs of moving away. A person with numerous family members in town may not want to forgo the benefits of those social ties by leaving his hometown, while a person with few family members would find emigration less costly. To measure this effect, each individual was given a value representing the number of people in his town with his surname.<sup>19</sup>

The 1850 census manuscript did not list the relationships of each person in the household to the head. A person was assumed to have been married if listed below him in the census was a woman of a reasonable age to be married to him and no other information was found, either in the census schedules or in other records, that conflicted with this assumption.<sup>20</sup>

The agricultural schedule of the federal census was used to classify an 1850 resident as being recorded or not recorded in its pages. Presence on the agricultural schedule has been an important variable in other research, being negatively related to emigration. It helps distinguish between propertied farmers and those people who listed their occupation as “farmer” on the population schedule, but who were not farm owners, the latter being considered tenants, typically.<sup>21</sup> The wealth of information recorded on the agricultural census—acreage, livestock, crop production, etc.—is not usable in this analysis because there is no analogous record for non-farmers like craftsmen and professionals. Certainly blacksmiths accumulated capital, in the form of smithing tools and a workshop, for example, so the inclusion of a farmer’s capital without an equivalent record for other professions will give a false indication of the effect of capital accumulation on persistence.<sup>22</sup>

Length of residence has been tied to community attachment in recent sociological studies. People who have lived longer in a community tend to have greater numbers of friends, family, and acquaintances. Longer residence also increases the frequency of organizational membership. People who have more friends and family, and who participate more in local organizations, are likely to be more interested in their community and express more sorrow at the prospect of leaving their community. Furthermore, people with higher levels of attachment are less likely to leave their communities.<sup>23</sup> Though the relationship between length of residence and community attachment has only been measured in late-twentieth-century communities, it is quite reasonable to believe that mid-nineteenth-century communities experienced similar patterns of behavior. To measure the effect of length of residence on persistence in Albany and Peacham, the 1850 population was linked backward to the 1840 census. Since the 1840 census listed only the names of the heads of

household, every effort was made to determine if an 1850 head of household was the son of one of the heads of household listed in the 1840 census.

Previous research has found that church membership plays an important role in the decision to emigrate or persist. Membership in local churches helps build secular ties, increases dependence on local friendships, and increases one's level of attachment to the community. According to Hal Barron and fellow historians Jon Gjerde and Randolph Roth, members of churches also benefited by receiving favorable terms in economic transactions with fellow communicants.<sup>24</sup> These advantages can be seen as either making migration a more costly venture for church members, economically and socially, or simply as making persistence more attractive. Church membership also acted as a form of social capital, enforcing a standard of behavior that allowed fellow communicants to trust one another in economic matters since they were all accountable in the end to the church. It functioned in a way similar to kinship, but it was voluntary and required stricter observance of certain rules to retain membership than did a kinship group. To be a member of a church, one had to conform to these rules. Membership lists are available for Peacham's Congregational church and for Albany's Congregational and Baptist churches. Peacham also had a Methodist church in 1850, but its records are missing. Albany had a Methodist church and an active Catholic community, but their records are also not available. For Albany, four Methodists and one Catholic could be identified from other sources.<sup>25</sup>

#### METHOD OF ANALYSIS

Following previous studies, bivariate statistics will be presented and discussed to show the differences between persisters and emigrants for each variable. This will be done by estimating a univariate logistic regression model for each of the independent variables separately.<sup>26</sup> Next, a multivariate logistic regression model will be fitted to show the effects of each of these variables while controlling for all other variables. This will show that not all of the variables are important determinants of emigration, in spite of the fact that they seem to be based on the bivariate analyses. It will also show the relative importance of the variables in determining the decision to emigrate.<sup>27</sup>

Peacham and Albany will be treated separately. Barron's goal in looking at Chelsea was to understand a town that had "grown old," as characterized by population decline. Peacham is similar to Chelsea in that its population was declining by 1850 (see Table 1). Albany, however, was still growing. It was a younger town that did not reach its peak population until 1860. If there were differences between growing

TABLE 1 Population Change in Peacham and Albany, 1790–1900

	<i>Peacham</i>		<i>Albany</i>	
	<i>Population</i>	<i>% Change</i>	<i>Population</i>	<i>% Change</i>
1784	abt. 200	—	0	—
1790	365	+82.50	0	—
1800	873	+139.18	12	—
1810	1,301	+49.03	101	+741.67
1820	1,294	−0.54	253	+150.50
1830	1,351	+4.40	683	+169.96
1840	1,443	+6.81	920	+34.70
1850	1,377	−4.57	1,052	+14.35
1860	1,247	−9.44	1,224	+16.35
1870	1,141	−8.50	1,151	−5.96
1880	1,041	−8.76	1,138	−1.13
1890	892	−14.31	995	−12.57
1900	794	−10.99	1,028	+3.32

*Sources:* A. Boutelle, “Peacham,” in *The Vermont Historical Gazetteer*, ed. Abby Maria Hemenway (Burlington, Vt.: Miss A. M. Hemenway, 1867), 28; Vermont Center for Geographic Information, and Center for Rural Studies, *Vermont Indicators Online*. November 14, 2002. Available from <http://maps.vcgi.org/indicators/>.

towns and those towns that had grown old, it may be evident in a comparison of Peacham and Albany.

Two models are estimated for each town using different definitions of persistence. In Model 1, the traditional definition of persistence is used: being located in the same geographic region in two successive census enumerations. The second model will expand persistence to include those people who are found in an adjacent town in the second enumeration. There are two reasons for expanding the definition of persistence in the second model. First, it is quite possible that a move into an adjacent township would be of a shorter physical distance than a move within a township, so it seems unreasonable to exclude certain people because they crossed an arbitrary line. Second, Hal Barron tells us that kinship remained important across town lines for people who moved to an adjacent township.<sup>28</sup> Perhaps the persistence rates through 1870 further justify the second model. Seventy percent of the men from Albany who moved to an adjacent town by 1860 remained in or around Albany through 1870. Forty-five percent of the men from Peacham remained around Peacham through 1870.<sup>29</sup> These rates of persistence are relatively high compared to any previous work on emigration, and suggest that, in spite of their move across the town line, these men meant to stay near home (see Tables 2 and 3 for descriptions of the population based on models one and two).



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TABLE 2 Descriptive Statistics for the Population: Model 1

	<i>Albany</i>			<i>Peacham</i>		
	<i>Persisters (% or mean)</i>	<i>Emigrants (% or mean)</i>	<i>Total (n or mean)</i>	<i>Persisters (% or mean)</i>	<i>Emigrants (% or mean)</i>	<i>Total (n or mean)</i>
Total population	57.2	42.8	173	57.4	42.6	223
Age, mean (SD)	45.30 (11.79)	39.22 (11.079)	42.70 (11.85)	44.64 (12.809)	42.14 (13.674)	43.57 (13.212)
Wealth, mean (SD) <sup>a</sup>	\$1,182.83 (\$1,292.88)	\$734.46 (\$549.96)	\$991.04 (\$1,063.13)	\$1,724.22 (\$1,624.74)	\$971.58 (\$1,602.56)	\$1,403.59 (\$1,654.31)
Family size, mean (SD) <sup>a</sup>	5.18 (2.130)	4.86 (2.598)	5.05 (2.340)	5.13 (2.386)	4.33 (2.185)	4.79 (2.332)
Kinship, mean (SD) <sup>a</sup>	12.27 (11.393)	10.61 (11.090)	11.56 (11.262)	16.66 (12.921)	12.71 (11.434)	14.98 (12.439)
Nativity						
Vermont born	53.2	46.8	109	62.4	37.6	133
Other	64.1	35.9	64	50.0	50.0	90
Occupation						
Farmer	59.6	40.4	151	65.6	34.4	151
White collar	57.1	42.9	7	42.9	57.1	14
Professional	66.7	33.3	6	0.0	100.0	6
Merchants	0.0	100.0	1	75.0	25.0	8
Blue collar	33.3	66.7	15	42.9	57.1	49
Crafts	38.5	61.5	13	48.4	51.6	31
Laborer	0.0	100.0	2	33.3	66.7	18
No occupation	—	—	0	22.2	77.8	9
All nonfarmers	40.9	59.1	22	40.3	59.7	72
Marriage status						
Married	58.8	41.3	160	57.8	42.2	211
Not married	38.5	61.5	13	50.0	50.0	12
Agricultural census						
Listed	64.1	35.9	131	68.2	31.8	151
Not listed	35.7	64.3	42	34.7	65.3	72
Church member						
Member	60.0	40.0	30	72.9	27.1	59
Congregational	41.7	58.3	12	72.9	27.1	59
Baptist	61.5	38.5	13	—	—	—
Methodist	100.0	0.0	4	—	—	—
Catholic	100.0	0.0	1	—	—	—
Nonmember	56.6	43.4	143	51.8	48.2	164
1840 census						
Listed	73.0	27.0	74	65.7	34.3	105
Not listed	45.5	54.5	99	50.0	50.0	118

Note: SD, standard deviation.

<sup>a</sup> The data used in the regression analyses is the natural log of the value. The means and standard deviations of the log values are different from those of the values.

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TABLE 3 Descriptive Statistics for the Population: Model 2

	<i>Albany</i>			<i>Peacham</i>		
	<i>Persisters (% or mean)</i>	<i>Emigrants (% or mean)</i>	<i>Total (n or mean)</i>	<i>Persisters (% or mean)</i>	<i>Emigrants (% or mean)</i>	<i>Total (n or mean)</i>
Total population	70.5	29.5	173	62.8	37.2	223
Age, mean (SD)	44.59 (11.604)	38.18 (11.29)	42.70 (11.85)	44.63 (12.842)	41.80 (13.709)	43.57 (13.212)
Wealth, mean (SD) <sup>a</sup>	\$1,104.10 (\$1,194.97)	\$720.59 (\$571.51)	\$991.04 (\$1,063.13)	\$1,628.21 (\$1,596.38)	\$1,024.70 (\$1,690.52)	\$1,403.59 (\$1,654.31)
Family size, mean (SD) <sup>a</sup>	5.25 (2.280)	4.55 (2.427)	5.05 (2.340)	5.09 (2.379)	4.29 (2.173)	4.79 (2.332)
Kinship, mean (SD) <sup>a</sup>	12.27 (11.544)	9.86 (10.47)	11.56 (11.262)	16.59 (13.001)	12.25 (10.973)	14.98 (12.439)
Nativity						
Vermont born	67.9	32.1	109	67.7	32.3	133
Other	75.0	25.0	64	55.6	44.4	90
Occupation						
Farmer	72.2	27.8	151	69.5	30.5	151
White collar	71.4	28.6	7	50.0	50.0	14
Professional	83.3	16.7	6	16.7	83.3	6
Merchants	0.0	100.0	1	75.0	25.0	8
Blue collar	53.3	46.7	15	53.1	46.9	49
Crafts	61.5	38.5	13	61.3	38.7	31
Laborer	0.0	100.0	2	38.9	61.1	18
No occupation	—	—	0	22.2	77.8	9
All nonfarmers	59.1	40.9	22	48.6	51.4	72
Marriage status						
Married	72.5	27.5	160	63.5	36.5	211
Not married	46.2	53.8	13	50.0	50.0	12
Agricultural census						
Listed	76.3	23.7	131	72.8	27.2	151
Not listed	52.4	47.6	42	41.7	58.3	72
Church member						
Member	80.0	20.0	30	78.0	22.0	59
Congregational	66.7	33.3	12	78.0	22.0	59
Baptist	84.6	15.4	13	—	—	—
Methodist	100.0	0.0	4	—	—	—
Catholic	100.0	0.0	1	—	—	—
Nonmember	68.5	31.5	143	57.3	42.7	164
1840 census						
Listed	81.1	18.9	74	69.5	30.5	105
Not listed	62.6	37.4	99	56.8	43.2	118

Note: SD, standard deviation

<sup>a</sup>The data used in the regression analyses is the natural log of the value. The means and standard deviations of the log values are different from those of the values.

## ANALYSIS—MODEL 1

First we will look at Model 1, which defines persistence as remaining in the same town from 1850 to 1860. The first step in the analysis is to estimate the relationship between each independent variable and the probability of persistence without controlling for other independent variables. The univariate odds ratios in the tables below accomplish this. The multivariate odds ratios will then be used to show the relationships between each independent variable and the probability of persistence while simultaneously controlling for the effects of all other independent variables. The standardized odds ratios shown in the tables are equal to the multivariate odds ratios, but are based on the standardized values of the independent variables, allowing us to judge the relative importance of each independent variable for predicting the probability of persistence.<sup>30</sup> An odds ratio above 1.0 indicates an increase in the probability of persistence, while an odds ratio below 1.0 indicates a decrease in the probability of persistence. An odds ratio of 1.0 indicates that there is no relationship between the independent variable and the probability of persistence.<sup>31</sup>

In Peacham, according to the univariate odds ratios, being older, a church member, and married; having a larger family, a larger kinship group, higher real estate wealth, and longer length of residence; being present on the agricultural census, and born in Vermont all increased the odds of persistence (see Table 4). Also, farmers were more likely to persist than those who were blue-collar or white-collar workers, or who were without employment. Blue-collar and white-collar workers were equally likely to persist, while those with no occupation were the least likely to persist. Albany is about the same, the exception being that the Vermont-born there were less likely to persist than the non-Vermonters.

The bulk of this analysis will be spent dealing with the multivariate models, but a brief description of what the univariate models tell us will help the reader understand Table 4. The univariate odds ratio of 2.498 for church membership in Peacham tells us that the odds of persistence were nearly 2.5 times as large for church members as they were for non-members. This is the same as saying that the odds of persistence were increased by about 150 percent by being a member of a church. (The percent change in the odds can be calculated by subtracting 1.0 from the odds ratio and multiplying by 100—in this example,  $[2.498 - 1.0] \times 100 = 149.8\%$ .) In Albany, church membership increased the odds of persistence by 14.8 percent. Both blue-collar and white-collar workers in Peacham have an odds ratio of 0.394, indicating that their odds of persistence were only about 40 percent of what they were for

TABLE 4 Logistic Regression Predicting Persistence: Model 1

Variable	Odds Ratios for Peacham (n = 223)			Odds Ratios for Albany (n = 173)		
	Uni- variate	Stan- dard- ized	Multi- variate	Uni- variate	Stan- dard- ized	Multi- variate
Age	1.015	1.153	1.011	1.047*	1.483	1.034*
Real estate wealth	1.285*	1.672	1.223*	1.318*	1.291	1.194†
Present in agriculture census	4.034*	1.231	1.558	3.217*	1.438	2.326*
Kinship	1.683*	1.210	1.280	1.379	1.412	1.610*
Family size	2.721*	1.245	1.736	1.887	0.982	0.954
Length of residence	1.917*	0.870	0.757	3.240*	1.396	1.958*
Church member	2.498*	1.379	5.286*	1.148	0.878	0.710
Marriage status	1.371	1.001	1.002	2.279	1.194	1.953
Vermont born	1.660*	1.231	1.527	0.638	0.793	0.619
White collar	0.394*	0.841	0.489	0.904	1.037	1.200
Blue collar	0.394*	0.978	0.948	0.339*	0.838	0.534
No occupation	0.150*	0.748	0.229†	—	—	—
Wealth × Church Member	—	0.766	0.835	—	—	—
Constant	—	1.463	0.042*	—	1.400	0.013*
−2 log likelihood		253.515			202.489	
Nagelkerke $R^2$		0.273			0.238	
		$\chi^2(13) = 50.727$ $p < 0.001$			$\chi^2(11) = 33.715$ $p < 0.001$	

*Notes.* Dependent variable coded “1” if person persisted, “0” otherwise. Real estate wealth, kinship, and family size use the natural log of the actual value plus one to normalize the distributions. Present in agriculture census coded “1” if present, “0” otherwise; length of residence coded as “1” if listed in 1840 census, “0” otherwise; church member coded “1” if member, “0” otherwise; Vermont born coded “1” if Vermonter, “0” otherwise; marriage status coded “1” if married, “0” otherwise. Occupation category is dummy coded, with “farmer” omitted. This means that the odds of persistence for each occupation class in the table are being compared to the odds of persistence for farmers. For example, the odds ratio for the white collar-class is the odds of white-collar workers persisting divided by the odds of farmers persisting. This is equivalent to the odds ratio for farmers being set to 1.0.

The constant in the multivariate models has no real interpretation here. It is shown because it is necessary for anyone who wishes to calculate the probabilities of persistence.

The −2 log likelihood and  $\chi^2$  together indicate how well the model fits the data. When the  $p$ -value for  $\chi^2$  is  $\leq 0.05$ , it tells us that the estimated regression model does a statistically significantly better job of predicting persistence than chance alone would do. The Nagelkerke  $R^2$  indicates how much of the variance in the dependent variable is explained by the estimated regression model. The  $R^2$  value multiplied by 100 gives the percentage of the variance explained. These statistics apply only to the multivariate models.

\*  $p \leq 0.10$ , †  $p \leq 0.15$ . The significance scores for the standardized odds ratios are virtually identical to those for the odds ratios.

farmers; and the odds of persistence for household heads in Peacham with no occupation were only about 15 percent of what they were for farmers. In Albany, white-collar workers' odds of persistence were only about 9.6 percent less than they were for farmers, but blue-collar workers' odds were over 65 percent less than were farmers'.

The effect of wealth is a bit more complicated to describe because the odds ratio is based on the natural logarithm of the variable.<sup>32</sup> The result is that the effect of a change of one dollar decreases as the value increases. So in Peacham, a \$1,000 increase in wealth from \$1,000 to \$2,000 increased the odds of persistence by about 19 percent, but the same increase from \$2,000 to \$3,000 increased the odds by only about 10.7 percent. In Albany, the \$1,000 increase to \$2,000 increased the odds of persistence by about 21.5 percent, and an increase from \$2,000 to \$3,000 increased the odds by 12 percent.

The relationships just discussed should be no surprise to anyone, excepting the lower persistence rate of native Vermonters in Albany. Farmers, the wealthy, the married, those with larger families, those listed in the agricultural census, etc., *should* be more persistent. This much we have been told by Barron, Muller, and Jordan. We can see that some of the variables are of questionable practical significance in predicting persistence, as is the case with the white-collar occupational class and church membership in Albany, but the directions of the relationships match up with our expectations.

The primary goal of this paper is to see if these relationships remain important when they are statistically adjusted to account for the correlations between independent variables. The next step in this analysis will accomplish this objective by estimating a multivariate model. The multivariate odds ratios in Table 4 represent this model.

In Peacham, when we control for the effects of other variables, we find that length of residence is actually negatively related to the odds of persistence. Marriage status in the multivariate model has no effect on the odds of persistence. The effects of most of the other variables become considerably less important in the multivariate model. For example, in the univariate model, presence on the agricultural census increased the odds of persistence by just over 300 percent, but once we control for the effects of other variables, the increase is only 55.8 percent.

After controlling for other variables, the only variables that remain particularly important in Peacham are occupation, wealth, and church membership. For occupation, blue-collar workers and farmers were about equally persistent. The odds of persistence for a person with no job were about 77 percent less than the odds for a farmer, and the odds for a white-collar worker were about 50 percent less than a farmer's.

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Wealth and church membership have a complex relationship with the odds of persistence because of an interaction effect (indicated by the wealth  $\times$  church member term in Table 4). An interaction is when the effect of one variable on the dependent variable differs depending on the value of a third variable. In Peacham, the effect of real estate on the odds of persistence is much different for church members than for non-church members. For the unchurched, the odds ratio of 1.223 for wealth is only slightly smaller than in the univariate model—a \$1,000 increase in wealth from \$2,000 to \$3,000 increased the odds of persistence by 8.5 percent instead of 10.7 percent. For church members, however, the odds ratio for wealth is only 1.021, and an increase in wealth from \$2,000 to \$3,000 only increased the odds of persistence by a mere 0.85 percent. The odds ratio for church membership is 5.286. This is actually an increase in the effect size as compared to the univariate model. What is occurring in this interaction is quite clear when graphed. As Figure 1 shows, church members generally had a higher probability of persistence than the unchurched, but as the wealth of the unchurched increased, the difference between churchgoers and non-churchgoers became progressively smaller. Wealth was very important in determining whether one would persist or emigrate, but church members were immune to the effects of a lack of wealth.

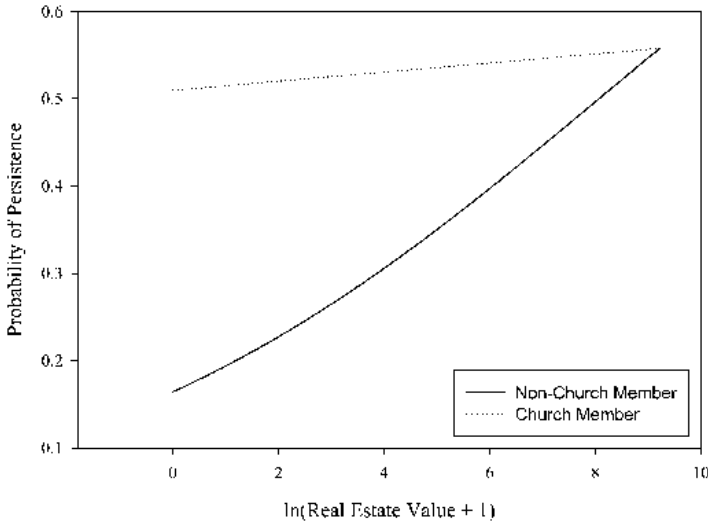


Figure 1 Interaction between wealth and church.

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The reason for the decreased importance of most of the variables can be shown by using presence on the agricultural census as an illustration. People on the agricultural census generally had more wealth than their fellow Peachamites. When we look only at those Peachamites with no wealth, the odds ratio for presence on the agricultural census is just 1.670 (see Table 5). Among those who had any wealth, the odds ratio is 1.811. These odds ratios are much smaller than the overall odds ratio for presence on the agricultural census of 4.034. Wealth, on the other hand, continues to be a powerful predictor of persistence regardless of whether one is on the agricultural census or not. This shows that most of the effect of presence on the agricultural census in the univariate model can be accounted for by differences in wealth, but wealth's effect cannot be accounted for by presence on the agricultural census. The same explanation applies for the other variables as well.

TABLE 5 Effect of Presence on Agricultural Census and Wealth on Persistence

<i>The Effect of Presence on the Agriculture Census, Controlling for Wealth</i>				
<i>Level of Wealth</i>	<i>Presence on Agriculture Census</i>	<i>Persisted to 1860?</i>		<i>Odds Ratio</i>
		<i>No (%)</i>	<i>Yes (%)</i>	
Wealth = \$0	Absent	74.5	25.5	1.670
	Present	63.6	36.4	
	Total	72.6	27.4	
Wealth > \$0	Absent	42.9	57.1	1.811
	Present	29.3	70.7	
	Total	31.1	68.9	

<i>The Effect of Wealth, Controlling for Presence on the Agriculture Census</i>				
<i>Presence on Agriculture Census</i>	<i>Level of Wealth</i>	<i>Persisted to 1860?</i>		<i>Odds Ratio</i>
		<i>No (%)</i>	<i>Yes (%)</i>	
Absent	Wealth = \$0	74.5	25.5	3.897
	Wealth > \$0	42.9	57.1	
	Total	65.3	34.7	
Present	Wealth = \$0	63.6	36.4	4.226
	Wealth > \$0	29.3	70.7	
	Total	31.8	68.2	

*Notes.* The overall odds ratio for presence on the agricultural census is 4.034. The overall odds ratio for wealth is 5.876. This odds ratio for wealth does not match the odds ratio in Table 4 because wealth has been dichotomized here.

In Albany, age, length of residence, presence in the agricultural census, kinship, and wealth were all relatively important predictors of persistence. The odds of a forty year old persisting were about 40 percent higher than the odds for a thirty year old, and the odds for a fifty year old were about 95 percent higher than for a thirty year old. Presence in the 1840 census increased the odds of persistence by about 96 percent, and presence on the agricultural census increased the odds by about 133 percent. The odds of persistence for a head of household with twelve people in his kinship network were about 58 percent higher than a person's with only four people. The odds increased by about 26 percent for a person with twenty kin as compared with a person with only twelve. And a \$1,000 increase in wealth to \$2,000 increased the odds of persistence by about 13 percent.

The other variables were not particularly important in predicting persistence in Albany, but it is interesting to note that the odds of persistence for white-collar workers, once other variables are controlled, were actually higher than for farmers. This is because white-collar workers who were not listed on the agricultural census were more likely to persist than farmers who were not on the agricultural census, while farmers and white-collar workers who were listed on the agricultural census were about equally likely to persist. This is a rather tenuous relationship, though, because there were only seven white-collar workers in Albany in 1850. Had just one of them behaved differently, it could radically change the odds ratio for that occupational group.

#### DISCUSSION—MODEL I

The most important variables explaining emigration and persistence in Peacham are wealth, church membership, and, to a lesser extent, occupation. For Albany, the most important variables are age, length of residence, presence in the agricultural census, and kinship. This tells us a lot about each of these communities, and perhaps suggests some of the effects on a town of growing old.

Emigration from Albany was determined most by age. Younger people were more likely to leave town during the 1850s. Having controlled for all of the other variables, we know that this was not simply because they were less wealthy, nor because they were unmarried. Merely being younger increased the probability of emigration. Migration is a safer investment for younger people. All things being equal, a thirty year old would have ten more years to benefit from a move to, say, Illinois, than would a forty year old. He would have longer to assimilate to a new community, longer to build wealth after emigration, and longer to return home or move on in case of failure in building a new home. It is



reasonable for younger people to be more mobile because they had the most to gain from the move. All communities experience emigration, and youthfulness among emigrants, rather than being a “leeching of the best blood” of the community, is a healthy pattern.

Presence on the agricultural census was the second most important determinant of emigration. Being listed on the agricultural census indicates an economic investment in the community, including the ownership of improved land and stock. Because of this investment, these people had much to give up if they moved, which made them less likely to leave Albany.

The number of kin a person had was the third most important indicator of emigration. People with fewer kin were more likely to emigrate. They had fewer family connections, which are both emotional and economic in nature. People with larger numbers of kin had more access to economic assistance and would have been more attached to their community because of the emotional ties to family members.

Length of residence was also an important determinant of emigration from Albany. Those residents who were not listed in the 1840 census were more likely to emigrate than those people who were listed. The shorter-term residents, generally speaking, would have had fewer social connections, including fewer acquaintances and fewer friends. Their families would not have had time to intermarry with other families, and they would have been less likely to have joined social organizations. In short, they would not have been as deeply integrated into the community. The result is that they would have a lower level of attachment to their community, economically and socially. Residents who were listed in the 1840 census would be giving up many economic and social ties by leaving Albany, and it would have been difficult emotionally to leave a community to which they had developed many attachments.

Of the variables that had any substantial effect on the probability of persistence in Albany, real estate wealth was the least important. The reasons wealth would be important are obvious. A person who owned land would have potential for economic success if he remained in town, and this potential increased his likelihood of remaining. But this analysis indicates that wealth was not very important in Albany.

Family size neither increased nor decreased the probability of emigration, and although church membership made people more likely to emigrate, its effect was fairly small. The large importance of length of residence and kinship indicate that people who had high levels of attachment to the community were likely to stay in Albany. In other words, the people who most wanted to stay did stay. The emigration of more youthful people could only be considered detrimental to the community

if all of the younger people left, and they did not. What we see in Albany is a natural and healthy population dynamic.

Peacham is a somewhat different situation, though. Those most able to successfully emigrate—the young—were not much more likely than the old to leave town. This means that many of the emigrants from Peacham were leaving despite the fact that emigration was a riskier investment due to their age. If we take into account the small number of Peacham's household heads who were white-collar workers or without employment, then the only truly important variables in explaining migration in Peacham are church membership and wealth. Even when these two variables are dropped from the model, kinship and length of residence—both strong predictors of community attachment—remain relatively weak predictors of persistence. Though church membership does suggest higher levels of community attachment, it functions differently from kinship and length of residence. The importance of church membership suggests a need for conformity if one wished to remain in Peacham. Failing to conform, a person was not unlikely to emigrate despite high levels of attachment to the community.

Based on Model 1, there is a definite difference between these two towns. In Albany, a person who wanted to remain in town, or who was too old to risk emigration, was able to remain in town. Those Peachamites who preferred to stay in Peacham because of their emotional attachment to the community found that they needed wealth *or* the social and economic connections found through church membership if they wanted to stay. Attachment to the community did not go as far in Peacham toward securing a home as it did in Albany, and many long-time residents found they had little choice but to move away from friends and family.

#### ANALYSIS—MODEL 2

This story turns out to be a bit more complicated, however. We will now turn to Model 2 to see if the situation in Peacham appears so bleak when we consider those people who moved only as far as an adjacent town as persisters.

The univariate odds ratios in Model 2 do not differ in direction from any of the univariate odds ratios in Model 1 (see Table 6). The strength of some of these relationships has changed, sometimes drastically, but as with Model 1, the only surprise is again the fact that native Vermonters are less likely to persist than non-Vermonters in Albany.

Looking at the multivariate odds ratios in Model 2 reveals some important changes, however. In Peacham, though wealth and church membership are still the most important predictors of persistence, the

TABLE 6 Logistic Regression Predicting Persistence: Model 2

Variable	Odds Ratio for Peacham (n = 223)			Odds Ratio for Albany (n = 173)		
	Uni- variate	Stan- dard- ized	Multi- variate	Uni- variate	Stan- dard- ized	Multi- variate
Age	1.247	1.335	1.022	1.051*	1.636	1.042*
Real estate wealth	2.116*	1.656	1.163*	1.238*	1.214	1.144
Present in agriculture census	1.859*	1.248	1.605	2.933*	1.464	2.426*
Kinship	1.540*	1.337	1.456*	1.535*	1.439	1.651*
Family size	1.491*	1.150	1.421	2.872*	1.160	1.476
Length of residence	1.318*	0.791	0.626	2.558*	1.073	1.152
Church member	1.535*	1.359	2.002 <sup>†</sup>	1.837	1.182	1.555
Marriage status	1.133	1.054	1.262	3.076*	1.324	2.893 <sup>†</sup>
Vermont born	1.288*	1.233	1.532	0.705	0.890	0.787
White collar	0.818	0.876	0.579	0.963	1.022	1.116
Blue collar	0.747*	1.087	1.223	0.440	0.921	0.746
No occupation	0.664*	0.671	0.132*	—	—	—
Constant	—	1.834	0.036*	—	2.812	0.007*
-2 log likelihood		247.202			180.191	
Nagelkerke R <sup>2</sup>		0.260			0.224	
		$\chi^2(12) = 47.209$			$\chi^2(11) = 29.621$	
		$p < 0.001$			$p = 0.002$	

Notes. See Table 4.

\* $p \leq 0.10$ , <sup>†</sup> $p \leq 0.15$ . The significance scores for the standardized odds ratios are virtually identical to those for the odds ratios.

effect of kinship becomes more substantial.<sup>33</sup> An increase in the number of kin from four to twenty increases the odds of persistence by about 43 percent in Model 1, but by 71 percent in Model 2. Apparently, even though people with larger kinship networks were moving out of Peacham, they often moved no further than the next town, where they could continue to benefit from family ties.

Length of residence is still negatively related to persistence in Peacham in Model 2, and the relationship becomes even stronger, though it remains relatively weak. Long-term residents were not less likely to leave Peacham and move beyond the adjacent townships than residents who had moved into town after 1840. Age also becomes stronger but remains weak. In Model 2, older Peachamites are still not much more likely to persist than their younger neighbors.

In Albany, age, presence on the agricultural census, and kinship remain the most important determinants of persistence in Model 2, but

three important differences show up. First, though it remains relatively unimportant, church membership has a positive effect on persistence. Second, length of residence is no longer important in predicting persistence. Unlike the situation in Peacham, long-term residents were more likely to persist, but they were only slightly more likely than shorter-term residents to remain in the area. Third, married heads of household are more likely to persist than the unmarried. It may seem that the new importance of marriage would suggest young couples setting up house on the nearest available farm, but this was not the case. The ages of the men from Albany who moved to an adjacent town varied greatly, and many of them had large families, so these were not generally young couples. All but one of these twenty-three men was married, though, which suggests that it was simply being married that anchored people to Albany. This may have had to do with their wives' ties to the local area.

#### DISCUSSION

It appears in Model 1 that a person's emotional and social attachments to the community, which is inferred from the size of his kinship network and how long he had lived in the community, were of little consequence in Peacham, while in Albany they were of the utmost importance. Model 2 gives the impression that the two towns were not quite so different. In Peacham, church membership remained a strong predictor of persistence and kinship became important. In Albany, kinship remained a very strong predictor of persistence, but length of residence became unimportant. Community attachment was important in both towns.

Still, there was a difference in how attachment to the community worked in each town, and this is clear in both Model 1 and Model 2. Church membership gave people access to like-minded friends and broadened one's network of social and economic support beyond the family. Membership could be used to one's advantage in gaining better rates on loans, and the trust that was available between church members allowed for easier business partnerships, but this type of institutionalized social capital could also have a dark side.

As sociologists Alejandro Portes and Patricia Landolt write, the same social capital that helps members of a group can also be used to exclude outsiders. Church members, to enjoy the benefits of membership, had to conform to the rules of the church. People who did not join the church and who did not conform to its rules would be prone to a great deal of chastisement in their town if the church had a great deal of power, as the Congregational church did in Peacham. Given the weakness of age as a predictor of persistence in Peacham—which tells us that many of the people who left Peacham were not as likely to ben-

efit from emigration—and the large importance of wealth in Model 2, it seems that those people who could not succeed financially without the support of the community, and who were not members of the church, were still much more likely to emigrate.<sup>34</sup> Compared to Albany, kinship ties still did relatively little to hold a person in Peacham, and long-term residents were actually slightly more likely than short-term residents to emigrate. People who would have had high levels of attachment to the community were emigrating just as often as anyone else, which supports the hypothesis that the non-church members were squeezed out of town because of their dissent.

In Albany, on the other hand, even though length of residence was not as important in Model 2, it was still positively related to persistence. The fact that length of residence was so important in Model 1 and not in Model 2 shows that having been a long-term resident made one very likely to stay in Albany and not even venture as far as an adjacent town. Between the strength of kinship ties and length of residence, and considering the fact that older people were much less likely to emigrate, it still appears that the people who wanted to stay in Albany did so.

#### CONCLUSION

Drawing generalizations from case studies is always risky, but a shortcoming of the data used in this paper makes it even more troublesome. Given the importance of church membership in this analysis, the fact that three sets of church records are missing is very detrimental to any attempt to interpret the data. Nonetheless, we do know a little about the churches.

Peacham's Congregational church was organized in 1794, and was a dominant force in the lives of the people from that time. The Peacham Congregational Church had a net loss of only two members from 1850 to 1860, dropping to no lower than 243 members, and growing no higher than 260 in that decade. This is impressive when one considers the fact that the town's population declined by 9.4 percent over the decade. Not until 1831, during a religious revival, was Peacham's Methodist church organized. After several years of ups and downs, the Methodist church in 1850 had 113 members. By 1856, that number had declined to seventy-seven, and continued to decline until 1860 when forty new members were baptized, bringing the number of members to seventy-one. The Methodist Sunday School was started in 1840 with fifty students, grew to 190 students by 1843, and then declined to 128 by 1850. The number of students at the school dropped to as low as sixty during the 1850s, but the growth in the Methodist congregation in 1860 was paralleled by growth in the Sunday school, which increased to 140

students.<sup>35</sup> During the period covered in this essay, it is apparent from church membership numbers and student enrollment that the Methodist church was losing people, the exception being in 1860, when many new members joined. It is also apparent that the Congregational church was much more stable, which is a result of the low emigration rates of the members of that church. Whether the 1850 Methodists were switching over to the Congregational church or were leaving town, the decline in their numbers supports the interpretation that membership in the Congregational church was very important to anyone wanting to stay in Peacham.

The Congregational church in Albany was not particularly healthy. Through the 1850s, its minister was supported by the Vermont Domestic Missionary Society, as the congregation apparently could not afford one. In 1861, because Albany proved to be “one of the less promising fields,” the missionary society voted to no longer support the minister there. The Congregational church’s membership declined from about sixty in 1850 to thirty-eight in 1860.<sup>36</sup> Albany’s Baptist church had forty-eight members in 1850, but only thirty-eight in 1851. By 1860, the number had increased to sixty-nine, which is partly explained by the seventeen new members baptized in 1859. Albany’s Methodist church had 113 members in 1850, declined to eighty-five by 1855, and in 1860 had ninety-five.<sup>37</sup>

We know from the extant records that the 1850 Baptists were quite persistent, and that the Congregationalists were less persistent than the rest of the population in Albany (see Tables 2 and 3). The Methodist church lost a quarter of its members in the first half of the decade and did not recover by 1860, which suggests that the church was not appealing to the many new residents who were flowing into the town during the 1850s. Part of the reason for this decline may be that two new churches had taken root in Albany during the 1850s—the Freewill Baptists and the Wesleyan Methodists, who split with the original Episcopal Methodist church.<sup>38</sup> The losses in the Methodist church may be due to members switching denominations rather than to emigration.

According to Norris Darling, a resident of Albany in 1850 and again in 1870, there was in Albany a group of Catholics, “so peculiar in their habits, [who] have a stronghold upon some of the best farms in the eastern and central parts of town.” Darling described them as a “thrifty and industrious class of people.” The Catholics of Albany apparently had access to good land that they managed well, and this would encourage their persistence even had they not been church members.<sup>39</sup>

The fact that the number of members of the Methodist church in Peacham was declining during the 1850s while the Congregational

church remained healthy makes it reasonable to believe that the description of Peacham is accurate. Membership in the Congregational church in Peacham was probably very helpful for anyone who wished to remain in town. In Albany, even though five members of the churches with the missing data were identified, the lack of data on the Methodist and Catholic churches poses a problem. It is possible that had all the church data been available for Albany, church membership would have been very important in determining who persisted in that town. Comments on the persistence of the Catholics in Albany by a contemporary resident suggest this interpretation. However, the presence of four churches in Albany may have prevented any one of them from wielding much power over the unchurched. The small proportion of Albany heads of household who were members of either the Baptist (7.5 percent) or the Congregationalist (6.9 percent) church relative to membership rates in Peacham (26.5 percent) also suggests that the Congregational church was much more important and powerful in Peacham than were the churches in Albany. The addition of two more congregations during the 1850s, and the constant influx of residents to Albany through 1860, would further dilute the power of any of the churches over the residents.

With the problem of the missing church data understood, there are two ways to interpret the differences between these two towns. If the missing data does affect the outcome of the analysis, it may be that church membership is equally important in both towns. If this is the case, then Peacham and Albany would have very limited differences, and it would seem clear, in comparing a young town and a declining town, that there were no detrimental social effects on a town of growing old.

Assuming the missing data does not affect the outcome of the models above, it appears there is a definite difference between the towns, which could be the result of a town growing old. Barron tells us that the only difference between growing and declining towns is the proportion of the people who are persisting rather than the determinants of that persistence.<sup>40</sup> The results here suggest otherwise. Peacham appears to be a more exclusive town than Albany. People who would have wanted to stay in Peacham because of their attachments to the community and because of the risks of emigrating found themselves pushed away from their homes if they did not join the Congregational church. Residents of Albany who were very attached to their town were quite able to stay, even if they were neither rich nor church members. The community in Peacham was growing more homogeneous and stable, but only by the exclusion of a large segment of the townspeople who had just as much claim on the community and just as much desire to remain in the town.

Perhaps this difference derives from the dominance of the Congrega-

tional church in Peacham. The difference between Albany and Peacham may have nothing to do with the ages of the towns, but instead with religious life. Peacham, along with her neighbors Barnet and Ryegate, was long dominated by a conservative church. Unlike Albany, which was founded late enough in the nineteenth century to allow for more equal religious competition, the more populist denominations were not able to get a foothold in Peacham. The people of Peacham who preferred to be free of the influence of the Congregational church had no choice but to leave, even when the costs included the loosening of family ties and the loss of a community that was a very deep part of who they were. In Albany, there was no such pressure, and religion was not a deciding factor in the decision to emigrate.

Hal Barron and H. Nicholas Muller are well-respected historians who have provided a great deal of enlightenment to those interested in the history of Vermont. Their works criticized here have much to offer besides what they say about migration, so there is certainly no intention of denigrating their research. The topic of this essay is migration, though, and more particularly the quantitative analysis of migration, and a review of the literature on Vermont shows it is sorely lacking in this area. Hopefully, this essay has helped shed some light on the topic. By using quantitative tools beyond simple cross-tabulations, a more complex picture has developed. Not every variable was important in determining who would emigrate and who would stay behind in nineteenth-century Vermont. Furthermore, it was not simply those “with the greatest stake in the town in terms of property and position” who remained, nor was it only those who had fewer economic or social ties to the community who emigrated.<sup>41</sup> In some towns, people with deep social ties to their communities did leave, even though they probably wished to remain, while in other towns, the lack of property and position were of little importance when one desired to stay.

## NOTES

<sup>1</sup> Frederick Jackson Turner, “The Significance of the Frontier in American History,” *Annual Report of the American Historical Association* (1893); James C. Malin, “The Turnover of Farm Population in Kansas,” *Kansas Historical Quarterly* 4 (1935); Frank L. Owsley, “The Pattern of Migration and Settlement on the Southern Frontier,” *Journal of Southern History* 11 (1945); Merle Eugene Curti et al., *The Making of an American Community: A Case Study of Democracy in a Frontier County* (Stanford, Calif.: Stanford University Press, 1959; reprint, 1969); Stephen Thernstrom, *The Other Bostonians: Poverty and Progress in the American Metropolis, 1880–1970* (Cambridge, Mass.: Harvard University Press, 1973); Stephen Thernstrom, *Poverty and Progress: Social Mobility in a Nineteenth-Century City* (Cambridge, Mass.: Harvard University Press, 1964); Howard P. Chudacoff, *Mobile Americans: Residential and Social Mobility in Omaha, 1880–1920* (New York: Oxford University Press, 1972); Peter R. Knights, *The Plain People of Boston, 1830–1860* (New York: Oxford University Press, 1971).



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<sup>2</sup> Harold Fisher Wilson, *The Hill Country of Northern New England: Its Social and Economic History in the Nineteenth and Twentieth Centuries* (New York: Columbia University Press, 1936; reprint, Montpelier: Vermont Historical Society, 1947); Lewis D. Stilwell, *Migration from Vermont* (Montpelier: Vermont Historical Society; Rutland, Vt.: Academy Books, 1948), quote from page 217; Holman Drew Jordan, Jr., "Ten Vermont Towns: Social and Economic Characteristics, 1850–1870" (Ph.D. Diss., University of Alabama, 1966); Hal S. Barron, *Those Who Stayed Behind: Rural Society in Nineteenth-Century New England* (New York: Cambridge University Press, 1984); H. Nicholas Muller III, *From Ferment to Fatigue? 1870–1900: A New Look at the Neglected Winter of Vermont* (Burlington: Center for Research on Vermont, 1984), Occasional Paper, 7. "Tale of woe" is the description of the winter thesis given by Hal Barron, "Staying Down on the Farm," in *The Countryside in the Age of Capitalist Transformation: Essays in the Social History of Rural America*, ed. Steven Hahn and Jonathan Prude (Chapel Hill: University of North Carolina Press, 1985), 329.

<sup>3</sup> Thernstrom, *Poverty and Progress*; Thernstrom, *The Other Bostonians*; Stephen Thernstrom and Peter R. Knights, "Men in Motion: Some Data and Speculations About Urban Population Mobility in Nineteenth-Century America," *Journal of Interdisciplinary History* 1 (1970). Jordan's work was influenced by Frank Owsley's, and uses somewhat different methods to distinguish between emigrants and persisters. Since most citations of work on Vermont migration include only Barron and Muller, this paper will concentrate on their work.

<sup>4</sup> In a 1974 article in *Reviews in American History*, Howard Chudacoff discussed the necessity of the use of multivariate statistics in studies of geographic and social mobility. In 1975, Stanley Engerman called for something beyond descriptive statistics and cross-tabulations. In 1982, Chudacoff again called for more sophisticated quantitative techniques. Another 1982 article in *Historical Methods* went so far as to show how the use of log-linear analysis would decrease the amount of space dedicated to tables in Thernstrom's *Other Bostonians* while at the same time explaining more about the relationships between the variables being analyzed, showing that they are not all important predictors of mobility. Howard P. Chudacoff, "Mobility Studies at a Crossroads," *Reviews in American History* 2 (1974): 183; Howard P. Chudacoff, "Success and Security: The Meaning of Social Mobility in America," *Reviews in American History* 10 (1982): 108–109; Stanley L. Engerman, "Up or Out: Social and Geographic Mobility in the United States," *Journal of Interdisciplinary History* 5 (1975); J. Morgan Kousser, Gary W. Cox, and David W. Galenson, "Log-Linear Analysis of Contingency Tables: An Introduction for Historians with an Application to Thernstrom on the 'Floating Proletariat,'" *Historical Methods* 15 (1982). There are several other examples of historians calling for the use of more advanced statistics in the professional journals during the 1970s and 1980s.

<sup>5</sup> For examples of citations of Muller and Barron, see Michael Sherman, Gene Sessions, and P. Jeffrey Potash, *Freedom and Unity: A History of Vermont* (Barre: Vermont Historical Society, 2004), 311–312; William J. Gilmore-Lehne, "Reflections on Three Classics of Vermont History," *Vermont History* 59 (1991): 239; Michael Sherman, "Brickyards and Frameworks: A Retrospectus and Prospectus on Vermont History Writing," *Vermont History* 71 (2003): 20; Paul Michael Searls, "Yankee's Kingdom: The Imagined Community of Vermonters and the American Struggle with Modernity, 1865–1915" (Ph.D. Diss., New York University, 2002), 149–150, 191 n33; and Paul M. Searls, *Two Vermons: Geography and Identity, 1865–1910* (Durham: University of New Hampshire Press, 2006) 24.

<sup>6</sup> Barron, *Those Who Stayed Behind*, 81.

<sup>7</sup> *Ibid.*, 87.

<sup>8</sup> Barron, "Staying Down on the Farm," 333–334.

<sup>9</sup> Muller, *From Ferment to Fatigue*, 4.

<sup>10</sup> Sherman, Sessions, and Potash, *Freedom and Unity*, 311–312. Searls, also, chose Muller's conclusions about professionals and merchants over Barron's in *Two Vermons* (24).

<sup>11</sup> Muller uses a systematic "sample of every fourth household in the manuscript of the census" and ends up with ninety-five cases. This suggests a population of about 380 heads of household. His sample would need to be about twice as large to make inferences about the whole town with any acceptable level of confidence. With a population of this size, particularly when dealing with sub-populations as small as that of the "professionals" in Jericho (who made up 4 percent of the sample), one should not sample, but should include the entire population. If one samples, though, he should at least draw a random sample. Since the census does not randomly list households, one must randomly, rather than systematically, select them when drawing a sample. Because of these problems, there is no reason to be confident that Muller's sample represents the entire population of Jericho. Muller seems to be aware of the weakness of his sampling procedure, given statements such as "If the sample . . . accurately reflects the entire population," and "The study of Jericho is not conclusive" (italics added). Unfortunately, those who cite Muller's work never seem to consider the fact that, as Muller said, the study of Jericho "does not permit generalizations for all Vermont towns." Muller, *From Ferment to Fatigue*, 2–5. Concerning procedures for drawing samples from the census manuscripts, see R. Christian Johnson, "A Procedure for Sampling the Manuscript Census Schedules," *Journal of Interdisciplinary History* 8 (1978).

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Albany and Peacham shed no light on the question of whether professionals were more or less persistent. In Peacham, all six of the professionals emigrated, while in Albany, only two of the six emigrated (see Table 2). These differences are neither statistically nor substantively significant because of the extremely small number of professionals in each town. The same can be said of both Barron's and Muller's data. With so few cases to work with, it is impossible to address the question of how stable professionals or merchants were. To answer this question, one would have to take a statewide sample of several hundred professionals and merchants. Because of the low numbers of all occupations other than farmers in Peacham and Albany, they have been collapsed into white-collar and blue-collar groups for this study.

<sup>12</sup> The population schedule of the census was accessed through Ancestry.com, which provides indices and scanned images of the manuscript. It is a much faster and easier way to work with the manuscript census as compared to microfilm. The agricultural schedule was also used, and for this, the microfilm copies were consulted.

<sup>13</sup> James K. Oliver, *Albany, Vermont Cemeteries: Directory of Burials* (Albany, Vt.: Albany Historical Society, 2001); Janice Boyko, *Northeast Kingdom Genealogy, Vermont* [Database On-line] (November 9, 2004, accessed 20 November 2004), available from <http://freepages.genealogy.rootsweb.com/~nekg3/nekg.htm>. Boyko's website is an extensive collection of transcribed census lists, church records, and vital records from newspapers.

Most work on historical migration does not take mortality into account. The result is that persisters are being compared not to emigrants alone, but to the dead, also. Since many of those who died may have been persisters had they survived, the difference seen in those comparisons is wrong to some extent.

<sup>14</sup> In a few cases, it seemed apparent that a man had died when his wife was listed with his children but without him in the succeeding censuses. The entire 1860 population schedule is indexed and computerized, so men who fit this description were searched for, and if not found, were considered deceased.

#### Summary of Linkage Procedures

	<i>Albany</i> n (%)	<i>Peacham</i> n (%)
Total heads of household	184	243
Died locally by 1860	11 (6.0)	20 (8.2)
Persisted through 1860	99 (53.8)	128 (52.7)
Emigrants found	48 (26.1)	49 (20.2)
Emigrants not found	26 (14.1)	46 (18.9)

<sup>15</sup> Concerning the life-cycle effect, see, for example, Mary Eschelbach Gregson, "Population Dynamics in Rural Missouri, 1860–1880," *Social Science History* 21 (1997): 93; Michael B. Katz, *The People of Hamilton, Canada West: Family and Class in a Mid-Nineteenth-Century City* (Cambridge, Mass.: Harvard University Press, 1975), 114, 123–125; Clyde Griffen, "Workers Divided: The Effect of Craft and Ethnic Differences in Poughkeepsie, New York, 1850–1880," in *Nineteenth-Century Cities: Essays in the New Urban History*, ed. Stephen Thernstrom and Richard Sennett (New Haven, Conn.: Yale University Press, 1969), 59–61; Curti et al., *Making of an American Community*, 68, 73. Examples of those using rational choice as an explanation are Theodore W. Schultz, "Investment in Human Capital," *The American Economic Review* 51 (1961): 4, 8–9; Alden Speare, Jr., "A Cost-Benefit Model of Rural to Urban Migration in Taiwan," *Population Studies* 25 (1971): 128; Kousser, Cox, and Galenson, "Log-Linear Analysis of Contingency Tables," 164.

<sup>16</sup> Concerning the option of moving to preserve the lineal family, see James A. Henretta, "Families and Farms: *Mentalité* in Preindustrial America," *William and Mary Quarterly* 35 (1978).

<sup>17</sup> The Pearson correlation coefficients for the relationship between family size and number of children are as follows: Peacham,  $r = 0.932$ ; Albany,  $r = 0.898$ . A correlation coefficient indicates the strength of the linear relationship between two variables, and may take on any value between  $-1.0$  and  $+1.0$ . The further the coefficient is from zero, the stronger the relationship. The correlations for Peacham and Albany are extremely strong.

<sup>18</sup> Barron, *Those Who Stayed Behind*, 99–101, 103–104; Barron, "Staying Down on the Farm," 334–335.

<sup>19</sup> The total number of same-surnamed people in a community as a measure of kinship ties was also used by R. J. Johnston on a twentieth-century English town and was found to be an important predictor of persistence. Robert Bieder found that kinship and migration were "dramatically related." R. J. Johnston, "Resistance to Migration and the Mover/Stayer Dichotomy: Aspects of Kinship and Population Stability in an English Rural Area," *Geografiska Annaler, Series B, Human Geography* 53 (1971): 17, 19, 25; Robert E. Bieder, "Kinship as a Factor in Migration," *Journal of Marriage and the Family* 35 (1973): 436. The value for the total number of people in town with the same surname is based on all residents, male and female, of all ages.

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<sup>20</sup> The instructions to the marshals who collected the data for the census make this a reasonable assumption. The instructions can be found at Steven Ruggles et al., *Integrated Public Use Microdata Series: Version 3.0 [IPUMS]* [Machine-readable database] (Minnesota Population Center, 2004, accessed 12 October 2004), available from <http://www.ipums.umn.edu/usa/voliii/inst1850.html>.

<sup>21</sup> A similar method was used by Allan Bogue, who was among the first to differentiate between farm operators and farm tenants. Others have followed his lead. Allan G. Bogue, *From Prairie to Corn Belt: Farming on the Illinois and Iowa Prairies in the Nineteenth Century* (Chicago: Quadrangle Paperbacks, 1968), 64; Seddie Cogswell, Jr., *Tenure, Nativity and Age as Factors in Iowa Agriculture, 1850–1880* (Ames: The Iowa State University Press, 1975), 6–10; Donald L. Winters, *Farmers without Farms: Agricultural Tenancy in Nineteenth-Century Iowa* (Westport, Conn.: Greenwood Press, 1978), 12–13.

<sup>22</sup> On the Peacham agricultural census manuscript, thirty-four individuals are listed with no farm value, only nine of whom have a recorded occupation on the population schedule of “farmer.” Albany’s manuscript has no one listed with no farm value. Those thirty-four Peacham residents are treated here as not being listed on the agricultural census.

<sup>23</sup> John D. Kasarda and Morris Janowitz, “Community Attachment in Mass Society,” *American Sociological Review* 39 (1974): 330–336; Willis J. Goudy, “Community Attachment in a Rural Region,” *Rural Sociology* 55 (1990): 181, 184–186; Robert J. Sampson, “Local Friendship Ties and Community Attachment in Mass Society: A Multilevel Systemic Model,” *American Sociological Review* 53 (1988): 774, 777–778; William F. Stinner et al., “Community Size, Individual Social Position, and Community Attachment,” *Rural Sociology* 55 (1990): 504–505; Peter Uhlenberg, “Non-economic Determinants of Nonmigration: Sociological Considerations for Migration Theory,” *Rural Sociology* 38 (1973): 304, 309; David L. Brown, “Migration and Community: Social Networks in a Multilevel World,” *Rural Sociology* 67 (2002): 1.

<sup>24</sup> Qiaoming Amy Liu et al., “The Influence of Local Church Participation on Rural Community Attachment,” *Rural Sociology* 63 (1998): 432–433; Scott M. Myers, “The Impact of Religious Involvement on Migration,” *Social Forces* 79 (2000): 775; Uhlenberg, “Noneconomic Determinants of Nonmigration,” 304, 309; Barron, *Those Who Stayed Behind*, 103; Jon Gjerde, “The Effect of Community on Migration: Three Minnesota Townships 1855–1905,” *Journal of Historical Geography* 5 (1979): 412–413; Randolph A. Roth, *The Democratic Dilemma: Religion, Reform, and the Social Order in the Connecticut River Valley of Vermont, 1791–1850* (Cambridge: Cambridge University Press, 1987), 83–87, 231–241, 281.

<sup>25</sup> Albany (Congregational) Church of Christ, “Church Record Books, 1818–1876,” Special Collections, Bailey/Howe Library, University of Vermont, Burlington; Albany (Congregational) Church of Christ, “Church Record Books, 1877–1894,” Special Collections, Bailey/Howe Library, UVM; Albany Baptist Church, “Church Records, 1832–1867,” Special Collections, Bailey/Howe Library, UVM; Albany Baptist Sabbath School, “Record Book, 1871–1877,” Special Collections, Bailey/Howe Library, UVM; Peacham Congregational Church, *Manual of the Congregational Church of Peacham, Vermont* (Jericho, Vt.: Roscoe Publishing House, 1890); Norris M. Darling, “Albany,” in *The Vermont Historical Gazetteer*, ed. Abby Maria Hemenway, III (Claremont, NH: The Claremont Manufacturing Company, 1877), 58; Paul Daniels, “Saint John of the Cross Catholic Church in East Albany,” in *History of Albany, Vermont, 1806–1991*, ed. Virginia Wharton, 266.

<sup>26</sup> The use of these statistics will eliminate the necessity of presenting numerous cross-tabulations and will give a better indication of the importance of the independent variables than will a glance at a contingency table. Contingency tables take up numerous pages in both Hal Barron’s book and Holman Jordan’s dissertation. The method used here gives more information than a contingency table and takes up much less space.

The actual real explanation of why people emigrated is an unknown parameter that has to be *estimated*. The number of independent variables used here is a small subset of the variables that actually determined why people emigrated (for example, it would be nice to know if a person liked his neighbors, or if he thought rural life was oppressively dull, or if he was just a bad farmer, but that information is not available). Also, the exact shape of the relationship between any given variable and the probability of emigrating is unknown. Perhaps the probability of emigrating increased linearly with age; or perhaps it increased at a decreasing rate; or perhaps it increased linearly with age amongst married men, but decreased with age amongst blue-collar workers. Since not all of the relevant variables are available, and the exact shapes of the relationships are unknown, we can only *estimate* a regression model. This is the case in all fields of study.

<sup>27</sup> Logistic regression is the appropriate technique when the dependent variable is dichotomous. In this analysis, the dependent variable equals either “emigrate” or “persist.” For a brief discussion of logistic regression, see Alfred DeMaris, “Odds Versus Probabilities in Logit Equations: A Reply to Roncek,” *Social Forces* 71 (1993); Alfred DeMaris, “A Tutorial in Logistic Regression,” *Journal of Marriage and the Family* 57 (1995); Alfred DeMaris, Jay D. Teachman, and S. Philip Morgan, “Interpreting Logistic Regression Results: A Critical Commentary,” *Journal of Marriage and the*

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Family 52 (1990); S. Philip Morgan and Jay D. Teachman, "Logistic Regression: Description, Examples, and Comparisons," *Journal of Marriage and the Family* 50 (1988). For an extended treatment of logistic regression, see David W. Hosmer and Stanley Lemeshow, *Applied Logistic Regression*, 2d ed. (New York: John Wiley & Sons, Inc., 2000).

Though significance scores ( $p$ -values) below 0.10 and 0.15 are indicated in the multivariate logistic regression, significance tests will not be used for interpretation in the analyses in this paper. In the context of logistic regression,  $p$ -values tell us the probability of getting an odds ratio at least as extreme (as far from 1.0, which indicates no effect) as the one we find in our sample if the actual odds ratio for the population is 1.0. Therefore, significance testing is only appropriate when the data being analyzed is based on a sample of a population. The data used here includes the entire populations of Peacham and Albany. Even if the populations of Peacham and Albany were being used as a sample of Vermont, significance testing would be inappropriate, because significance tests depend on random sampling. This is not to suggest that inferences cannot be drawn about Vermont from the results here, only that significance testing will offer no help in making those inferences.

The odds ratios of the variables that were judged most important remained stable when variables were added and removed from the models, suggesting that the models are sound.

<sup>28</sup> Barron, *Those Who Stayed Behind*, 103.

<sup>29</sup> These numbers exclude one person from Peacham and three from Albany who are known to have died between 1860 and 1870.

<sup>30</sup> Judging the relative importance of the effects of the variables is more complicated than simply looking at the size of the multivariate odds ratios. One must consider the range of values possible for each variable. For example, presence on the agricultural census is indicated only by a value of zero or one, whereas the values for wealth range from zero to more than nine. The standardized odds ratios are used here to determine the relative importance of each variable by showing the odds ratio for a one-standard-deviation change in the variable. The further each variable's standardized odds ratio is from 1.0, the more important it is in predicting persistence. The standardized odds ratios are used only to determine relative importance; all calculations of changes in the odds of persistence are based on either the univariate or multivariate odds ratios.

The use of standardized odds ratios to determine the relative importance of the independent variables is not uncontroversial, but it is also not uncommon. For a discussion of the problems associated with using standardized coefficients to determine relative importance, see Michael S. Lewis-Beck, "The Relative Importance of Socioeconomic and Political Variables for Public Policy," *The American Political Science Review* 71 (1977), particularly pp. 562–563, and Johan Bring, "How to Standardize Regression Coefficients," *The American Statistician* 48 (1994).

<sup>31</sup> Surprisingly, Peacham (57.4%) and Albany (57.2%) had nearly identical rates of persistence from 1850 to 1860. In Model 2, Albany's persistence rate (70.5%) is quite a bit higher than Peacham's (62.8%). According to Hal Barron, Albany's growing population and Peacham's declining population should lead to Albany having a lower persistence rate than Peacham. In Chelsea, Barron tells us, after a long period of selective out-migration coupled with decreased in-migration, the people least likely to emigrate made up a much larger percentage of the local population, making for a much higher persistence rate. Barron draws this conclusion from Chelsea's relatively high persistence rates compared with rates from frontier areas. The reasons for the overall rates of persistence found in Albany and Peacham are beyond the scope of this paper, but suggest a topic for further research. Barron, *Those Who Stayed Behind*, 80.

<sup>32</sup> The natural log transformation is used here to normalize variables that are otherwise positively skewed. The transformation allows a more accurate model to be estimated.

<sup>33</sup> The odds ratios for wealth and church membership in Peacham are considerably smaller in Model 2 than in Model 1, but the variables are just as important in Model 2. The change in the odds ratios is due to the fact that the interaction effect between wealth and church membership is no longer a factor in Model 2.

<sup>34</sup> Alejandro Portes and Patricia Landolt, "The Downside of Social Capital," *The American Prospect*, 26 (1996). Concerning churches and conformity, see Roth, *The Democratic Dilemma*, 94–95, 240–241. Roth describes the situation in Windsor, Vermont, in the 1830s and 1840s, where church members banded together in business ventures to protect their economic positions at the expense of nonmembers (*The Democratic Dilemma*, 231).

<sup>35</sup> *Minutes of the Vermont Annual Conference of the Methodist Episcopal Church* (Various publishers, 1845–1865); Ernest L. Bogart, *Peacham: The Story of a Vermont Hill Town* (Montpelier: Vermont Historical Society, 1948), 187–188; A. Boutelle, "Peacham," in *The Vermont Historical Gazetteer: A Magazine Embracing a History of Each Town, Civil, Ecclesiastical, Biographical and Military*, ed. Abby Maria Hemenway, I (Burlington, Vt.: Miss A. M. Hemenway, 1867), 360–361.

<sup>36</sup> *Annual Report of the Vermont Domestic Missionary Society with the Minutes of the Annual*

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*Meeting* (Windsor: The Vermont Chronicle Press, 1850–1861); *Minutes of the General Convention of Congregational Ministers and Churches in Vermont* (Windsor: The Vermont Chronicle Press, 1850–1865).

<sup>37</sup> *Minutes of the Vermont Baptist Convention* (1850–1860); *Minutes of the Vermont Annual Conference of the Methodist Episcopal Church*.

<sup>38</sup> Darling, “Albany,” 52–53.

<sup>39</sup> *Ibid.*, 53.

<sup>40</sup> Barron, “Staying Down on the Farm,” 333.

<sup>41</sup> Muller, *From Ferment to Fatigue*, 4; Barron, “Staying Down on the Farm,” 333–334.