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AUTHOR Haupt, Roy C.; Schmidt, Frederick E.
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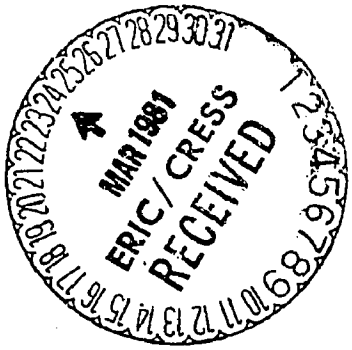
ABSTRACT

Vermont, the most rural state in the northeastern United States, can represent that area for consideration of the problems of rural vocational education. Nearly 21% of Vermont's work-aged population has vocational training. More than half of all high school juniors and seniors now enroll in vocational education programs, and new adult education programs appear regularly. Manpower training, designed to strengthen state and local economies, has been a prerogative of the state government. However, the Federal Comprehensive Employment and Training Act (CETA) now contributes to several important programs in labor force development and training, and provides employment opportunities for the unemployed. Presently, vocational education completions in agriculture and office occupations outnumber openings in the state labor market; however, programs are not meeting labor force demands in forestry, machinery manufacturing, recreation, personal services, and health, education, and professional services. Because the Northeast has more high quality industries in non-metropolitan areas than do other areas of the United States, vocational education efforts must be linked to both job quality and economic development objectives. Difficulties in transportation and accessibility, inequitable financial allocations, program arrangements designed for urban rather than rural areas, and excessive Federal regulations and paperwork create administrative problems in Vermont's rural vocational education and training programs, although some benefits have resulted from Federal involvement. (CM)

# RURAL VOCATIONAL EDUCATION:

# CONDITIONS AND PROBLEMS IN VERMONT AND THE RURAL NORTHEAST

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Dr. Roy C. Haupt
Vermont Community Data Bank

Dr. Frederick E. Schmidt
Rural Studies Center
University of Vermont

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## I. Introduction

In this report we propose to consider the problem of rural vocational education in the Northeastern U.S. by looking specifically at the state of Vermont. There are over 10 million people living in rural areas of the Northeast. Ten state governments, countless local governments, and a diversity of service jurisdictions present such a variety of administrative mechanisms that it would take a substantial research effort just to delineate the range and type of vocational education programs. So, with the limited resources available, we intend to consider relevant programs in Vermont in some depth. Moreover, we will relate these programs to conditions which prevail in the Northeast rather than attempt a more superficial examination of all such rural programs in the entire region.

Vermont itself provides a good case for studying rural vocational education. It is the most rural state in the Northeast, and if we can assume that a general relationship exists between "rurality" and associated peculiarities of vocational education, then a study of this state should reveal these relationships. Also, because Vermont has no metropolitan area (at least according to the "Standard Metropolitan Statistical Area" definition) it can be considered an entirely rural state. This allows us to utilize a state-wide examination of Vermont's vocational education programs as providing an excellent case for attempts to address rural conditions and problems.

Vermont has an estimated population of about half a million, roughly 5% of the Northeast's rural population. Thirty-five percent of Vermont's population is less than 18 years old, compared to a figure of 33% for the rural Northeast and roughly 30% for the nation at large (see Table 1). Above average proportions in this group for both Vermont and the rural Northeast indicate higher birth rates of rural areas, a fact which has implications for educational

Table 1

Demographic and Vocational Education Indicators for the Non-Metro Northeast and Vermont, 1970

| Indicator | Non-Metro Northeast | Vermont |
|---|---|---|
| Population | 10,014,992 | 444,330 |
| Population less than 18 years old | 3,355,298 (33.5%) | 157,563 (35.5%) |
| Population 65 years and older | 1,043,808 (10.4%) | 47,440 (10.7%) |
| Males with vocational training[1] | 671,500 (26.9%) | 25,600 (24.0%) |
| Females with vocational training[1] | 507,800 (18.9%) | 19,900 (17.5%) |
| Population with vocational training[1] | 1,179,400 (22.7%) | 45,500 (20.6%) |

Source: U.S. Census Bureau, 1970 Census of Population

Note: [1] Figures are approximations reconstructed from percentages, which is the only data available in published sources. The population from which these figures are drawn includes people from 16 to 64 years old, who have had less than 15 years of school.

expenditures. Vermont's economy is characterized by a mix of rural industries, including agriculture, tourism, forestry and mining-related activities. In addition, the state enjoys a healthy proportion of its economic activity in the manufacturing sector. Thus, Vermont is more comparable to the relatively densely populated rural Northeast than to other rural areas in the nation. This too has important implications for the design of vocational education programs.

The extent of vocational education training among the inhabitants of Vermont and the rest of the rural Northeast is indicated by data from the 1970 Census of Population. According to this data, nearly 21% of the Vermont work-aged population has vocational education training. This proportion, when compared with 23% for the rural Northeast, shows that Vermont closely parallels regional trends (see Table 1). Vermont's percentage has probably increased in recent years due to increased vocational education enrollments which have begun to have an effect on these population statistics. Vocational education training is slightly less common among women than among males in both Vermont and the rural Northeast, indicating a pattern of low female enrollments in vocational education courses in past years that continues to influence current population statistics. In recent years Vermont's vocational education enrollments have included approximately equal numbers of males and females. However, there continues to be major differences in the types of courses taken by each group. Males continue to dominate enrollments in courses stressing employment skills while females make up the bulk of enrollments in homemaking and other such courses.

The observations in preceding paragraphs help to set the stage by providing an understanding of the general trends. Before moving to a detailed examination of the Vermont case, a description of the framework to be used

in addressing the topic of rural vocational education is in order.

Initially we must consider what is vocational education? Here, the broader definition of the term is used; one that includes not only secondary school programs and related adult programs but all manpower training programs designed to improve employable skills. Despite the administrative distinctions between these activities in government programs, the fact remains that all are generally comparable in purpose. So any examination of vocational education must consider the roles of manpower training operations and recent Comprehensive Employment and Training Offices, as well as the more traditional educational programs.

Secondly, although vocational education has been designed to address the need for career-oriented training among future workers, in actuality the distinction between vocational and non-vocational education is not so meaningful. Certainly, training in basic reading, communication, and mathematics skills are more essential in the long run to a person's participation in the work world than a course in an area of vaguely anticipated or only "potential" employment. While vocational education also makes important contributions to students' personal development and provides them with useful personal skills, in general educational terms it must be considered less important than training in basic non-vocational skills.

One last analytic point involves the definition of the term "rural". For the purposes of examining vocational education, the non-metropolitan definition of this concept is appropriate. Such a definition specifically includes all areas not in Standard Metropolitan Statistical Areas. Other definitions of rural that refer only to sparsely populated areas and the smallest communities would exclude many rural areas in the Northeast, where settlement patterns are denser than in other areas of the country. Furthermore,

when discussing regional rather than local systems, as in the case of vocational education, regional, county-based definitions are preferable. Many of the small communities officially classified as rural are within daily commuting distance of cities and towns not so classified. To include these in a consideration of rural areas would be counterproductive in any analytic attempt to identify characteristic features of truly rural areas.

Within the scope of this analytic framework, we will go on to consider the structure of the Vermont economy, particularly as it relates to vocational education programs, both within traditional education and within the manpower training system. After comparing Vermont's rural economy and labor force with the products of these vocational education programs, we will discuss the programs in reference to their rural context.

## II. The Economy and the Labor Force

Vermont's economic welfare relies more on types of rural industry than most other states in the non-metropolitan Northeast. This observation is indicated in Table 2. Considering just the basic or primary sector industries, and holding aside consideration of secondary industries in the sales and service areas, Vermont employs proportionally more people in agriculture (6%), recreation and personal services (7%), and mining and construction (8%) than the non-metropolitan Northeast generally. In other primary industries, such as manufacturing, Vermont's occupational structure is roughly comparable, although even in this area it tends toward rural types of operations like textile or wood products manufacturing.

It should also be noted (again from Table 2) that the non-metropolitan Northeast actually employs proportionately less people in some typically rural industries than the U.S. in general. This difference is most notable

Table 2

Industrial Employment for the Non-Metro Northeast and Vermont

| Industry | U.S. (in thousands) | Non-Metro Northeast | Vermont |
|---|---|---|---|
| Agriculture, Forestry and Fisheries | 3,566 (4.5%) | 130,977 (3.2%) | 10,158 (6.1%) |
| Mining and Construction | 5,329 (6.8%) | 277,207 (6.9%) | 13,972 (8.3%) |
| Manufacturing | 20,737 (26.4%) | 1,188,124 (29.4%) | 40,093 (23.9%) |
| Transportation, Communication and Utilities | 5,317 (6.8%) | 216,101 (5.3%) | 8,988 (5.4%) |
| Wholesale and Retail Trade | 14,996 (19.1%) | 665,531 (16.5%) | 30,361 (18.1%) |
| Business, Financial and Repair Services | 6,325 (8.0%) | 212,755 (5.3%) | 9,857 (5.9%) |
| Recreation and Personal Services | 4,989 (6.3%) | 167,026 (4.1%) | 11,062 (6.6%) |
| Health, Education and Professional Services | 12,894 (16.4%) | 1,007,688 (25.0%) | 35,221 (21.0%) |
| Government | 4,473 (5.7%) | 170,622 (4.2%) | 7,857 (4.7%) |
| Total | 78,627 (100.0%) | 4,036,031 (100.0%) | 167,569 (100.0%) |

Source: U.S, Census Bureau, 1970 Census of Population

in the agriculture and recreation and personal services categories. Thus, while Vermont may be significantly more rural than the non-metropolitan Northeast in terms of employment patterns, its differences from U.S. totals are less dramatic.

Trend data constructed from U.S. Census Bureau sources show no significant change for most of Vermont's rural-type industries during the 1970-1976 period.[2] (See Table 3 where we note that the available change figures are changes in total percentages rather than percent-change figures.) On the other hand, while Vermont has seen a decline in general manufacturing since 1970, it has also benefited from an expansion of the machinery manufacturing industry which has grown to include an additional 2.4% of the state's total employment. In correspondence with national trends, Vermont's service sector employment continues to rise and is responsible for an overall proportionate decline in other sectors.

While data on industrial employment levels is useful for the consideration of the success of vocational education targeting, qualitative data must also be utilized to fully characterize the labor force. Specifically, indicators of employment quality, which vary for different industries, have a critical bearing on programmatic attempts to improve the labor force. Data shows that Vermont's industries vary substantially on the most important measures of employment quality, as indicated in Table 4.[3]

For example, Vermont's machinery manufacturing industry pays an average wage of $5.91 an hour, compared to the state's lowest wage levels of $3.22 in the recreation and personal services category, and $2.69 in agriculture and related services.[4] Other rural-type industries such as forestry and wood products, and textiles manufacturing also pay lower than average wages. Similar variations in employment quality are also evident in the seasonal

Table 3

Employment in Vermont -- Specific Industrial Categories
1970 - 1976

| Industry | 1970 Employment | 1976 Employment[1] | 1970-76 Change (as change in % of total) |
|---|---|---|---|
| Agriculture, Related Services, Food Products | 11,588 (6.9%) | (6.7%) | - .2% |
| Mining and Construction | 13,972 (8.3%) | (8.5%) | + .2% |
| Forestry, Wood and Paper Products | 7,233 (4.3%) | (4.2%) | - .1% |
| Machinery Manufacturing | 6,580 (3.9%) | (6.3%) | + 2.4% |
| Textiles, Apparel and Leather | 2,873 (1.7%) | (1.5%) | - .1% |
| Miscellaneous Manufacturing[2] | 12,977 (13.1%) | (8.2%) | - 4.9% |
| Transportation, Communication and Utilities | 8,988 (5.4%) | (5.5%) | + .1% |
| Wholesale and Retail Trade | 30,361 (18.1%) | (17.2%) | - .9% |
| Business, Financial and Repair Services | 9,857 (5.9%) | (7.2%) | + 1.3% |
| Recreation and Personal Services | 11,062 (6.6%) | (6.9%) | + .3% |
| Health, Education and Professional Services | 35,221 (21.0%) | (22.7%) | + 1.7% |
| Government | 7,857 (4.7%) | (5.0%) | + .3% |
| Total | 167,569 (100.0%) | | |

Source: U.S. Census Bureau, 1970 Census of Population; 1976 Survey of Income and Education (sample of 3,211 employed persons in Vermont)

Notes:
1. Only percentages, not actual employment numbers, are available from the 1976 Survey of Income and Education data.
2. "Miscellaneous manufacturing" includes all manufacturing employment not included under the agriculture, forestry, machinery manufacturing and textile categories.

Table 4

Employment Quality Indicators for Vermont Industries

| Industry[1] | Hourly Wage Index[2] | Percentage Employed for 50 or More Weeks Per Year |
|---|---|---|
| Machinery Manufacturing | $ 5.91 | 83.7% |
| Government | 5.59 | 84.2 |
| Transportation, Communication and Utilities | 5.28 | 77.1 |
| Miscellaneous Manufacturing | 4.90 | 75.2 |
| Construction and Mining | 4.85 | 55.8 |
| Business, Financial and Repair Services | 4.76 | 71.9 |
| Health, Education and Professional Services | 4.68 | 61.0 |
| Forestry, Wood and Paper Products | 4.27 | 68.2 |
| Wholesale and Retail Trade | 4.01 | 66.8 |
| Textiles, Apparel and Leather | 3.74 | 52.0 |
| Recreation and Personal Services | 3.22 | 53.7 |
| Agriculture, Related Services, Food Products | 2.69 | 77.3 |
| State Mean | $ 4.49 | 67.8% |

Source: U.S. Census Bureau, 1976 Survey of Income and Education (sample of 3,211 employed persons in Vermont)

Notes:
1. Industrial categories are ranked according to their hourly wage.
2. Hourly wage index numbers are constructed by dividing the survey respondents estimate of yearly employment income in 1975 by an estimate of the number of hours worked that year (hours worked per week times weeks worked per year.)

employment indicator presented in Table 4. While 84% of the employees in government and machinery manufacturing are employed 50 or more weeks out of the year, only 52% of the textiles employees are so consistently employed. Agriculture and its related services have high levels of year round employment, while the recreation industry is one of the poorest employers for providing long term jobs.

How does this data relate to vocational education programs? For one thing, the most often stated goal of vocational education is to provide "instruction that is directly related to present and future job markets". This goal is directly expressed in the Vermont Plan for Vocational Education and typifies goal orientation in vocational education.[5] Therefore, the distributions of industrial-specific employment are directly relevant for targeting vocational education programs. However, the responsibility of these education programs does not stop there. They also have a direct impact on, and close relationship to, state and local economic development efforts. The character of the "future" labor market is not something that is firmly established. Rather, labor markets are subject to manipulation, and present vocational education programs can have a real and profound effect upon that future. By providing a skilled, available work force in a particular economic sector, manpower training and vocational education programs can hope to build state and local capacity. For such economic development related efforts, the quality of employment, as indicated by hourly wages or work duration, is just as important as absolute numbers of jobs for improving the economic welfare of a region's inhabitants. No government would consciously seek to promote low paying, erratically employing industries through its vocational education programs.

These facts have a special meaning for rural areas. For it seems to be true that the high quality jobs -- with high wages, steady employment and

appreciable skill levels -- are usually located in urban areas. So rural areas are put in the uncomfortable dilemma of trying to improv local and regional economies by building a skilled labor force, only to have that labor force steadily leak to the cities in search of good jobs. This problem may be somewhat reduced for the Northeast where, according to data already presented, more enterprises in the higher quality industries are located in non-metropolitan areas than are found in other areas of the U.S. Many towns and small cities in Vermont, for example, have benefited from the establishment of relatively high-paying manufacturing businesses. Yet, at the same time, Vermont's vocational education system is embarking on a new initiative to train workers for the recreation industry, one of the lowest paying and most erratic employers in the state. Here the efforts are to match education programs to absolute sectoral manpower needs. Clearly, for maximum benefit, vocational education efforts must be closely linked to both job quality and economic development objectives.

## III. Vocational Education Programs

Upon the passage of the U.S. Vocational Education Act of 1963, Vermont, like most other states, created a state vocational education board and administrative mechanism in line with the requirements of the new act. While the availability of the new Federal funds seems to have been the instigating factor in the establishment of the Vermont program, its overall financing and subsequent operation attests to significant state and local interest in this area. In 1978, for instance, the Federal government provided only $1.7 million out of a total Vermont vocational education program of $11.8 million (see Table 5). the bulk of the program cost was covered by $3.4 million in state funds and $6.7 million in local support.

Table 5

Vermont Expenditure on Vocational Education and Manpower Training Programs, FY 1978

| Department | Federal | State | Local | Total |
|---|---|---|---|---|
| Vermont Department of Education, Vocational-Technical Education Division [1] | $ 1,545,077 | $2,993,159 | $4,849,628 | $9,387,864 |
| Secondary School Programs | (370,801) | (1,526,511) | (3,637,221) | (5,534,533) |
| Vermont Comprehensive Employment and Training Office [2] | $ 22,097,054 | -0- | -0- | 22,097,054 |
| Classroom Training | (834,442) | -0- | -0- | (834,442) |
| On-the-job Training | (1,253,078) | -0- | -0- | (1,253,078) |
| Vermont Economic Development Department - Manpower Training [3] | -0- | 68,917 | -0- | 68,917 |
| Total | $ 23,642,131 | $ 3,062,076 | $ 4,849,628 | $ 31,553,835 |

Notes:

1. Source: Vermont Department of Education (Montpelier, Vermont).
2. Source: Vermont Comprehensive Employment and Training Office, Quarterly Report. Figures for October 1, 1977 to September 30, 1978 (Montpelier, Vermont)
3. Source: Vermont Executive Budget, 1980-81. Actual manpower training expenditures in FY 1978 were closer to $200,000, the balance being made up by an appropriation of $380,481 in FY 1979.

State government has been most supportive in the actual construction aspects of the vocational education program. Vermont state government has contributed $23 million out of a total $27 million spent on the construction of vocational education facilities in the state since 1974.[6] Local governments' support for vocational education has centered on the operations and administration needs, which they have apparently funded by directing resources away from traditional education programs in line with new state and federal initiatives. In 1978, 70% of the secondary school vocational education program was funded by local governments (see Table 5). In view of these substantial levels of financial support from traditionally tight fisted state and local governments, successful lobbying by vocational education interest groups in state government, business, and labor is indicated.

As a result of these financial and administrative supports from all levels of government, vocational education enrollments have increased dramatically in Vermont. From minimal levels of participation prior to 1964, secondary school enrollments have grown to include more than half of all juniors and seniors in the state, and new adult education programs are appearing regularly.[7] In large part, these increases must be attributed to the Federal initiative which had the effect of encouraging state and local schools to redirect resources away from traditional education programs into vocational education.

In its initial vocational education design, Vermont state government opted for a centralized system and constructed major vocational education centers at 16 high schools across the state.[8] These were meant to be more or less complete and independent operations. All vocational students were to be bused to the new centers for relevant coursework. More recently, however, this centralized system has appeared less than adequate and plans to disperse some vocational education programs have surfaced. A program is

currently being proposed to establish a series of secondary centers located in high schools where vocational education classes were not formerly held. Thus, the proposed plan would teach major vocational classes in locations closer to students' homes.

The vocational education curriculum in Vermont's secondary schools has, for the most part, stressed traditional topics like homemaking, building trades, industrial arts, and secretarial skills, as well as the agricultural courses more characteristic of rural areas. In 1978 for instance, 38% of Vermont's vocational education students graduated from office occupational programs, 36% from trade and industry programs, and 13% from agricultural programs (see Table 6). The vast majority of the office occupation graduates specialized in traditional typing, stenography, accounting, and other clerical skills.[8] The more traditional courses are those most offered to students in the trades and industry area. In this specific area, for example, 62% of 1978 graduates studied either auto mechanics, woodworking, drafting, or machining. Such traditional vocational education subjects prove even more popular according to the statistics on enrollments as contrasted with those reporting program completions.

The vocational education curriculum is the product of a number of factors including faculty competencies, student preferences, government regulations, and various forms of public input. One particularly important form of public input occurs through the mechanism of local advisory committees. The advisory committes serve to advise the vocational education centers, which were established in Vermont according to Federal requirements. Although these committees vary widely in effectiveness (from some which actively represent the local public to others which appear to be only symbolic attempts to meet Federal requirements) for the most part, they do have an important effect on

Table 6

Vocational Education Completions in Vermont Secondary Schools Compared to the Vermont Occupational Profile, 1978

| Occupational Area[1] | Vermont Employment[2] | Vocational Education Completions |
|---|---|---|
| Agriculture | 11,300 (5.7%) | 587 (12.6%) |
| Distribution | 38,200 (19.4%) | 260 (5.6%) |
| Health Occupations | 11,950 (6.1%) | 156 (3.3%) |
| Home Economics | 21,900 (11.1%) | 176 (3.8%) |
| Office Occupations | 36,950 (18.7%) | 1,780 (38.3%) |
| Trade and Industry | 76,700 (38.9%) | 1,690 (36.3%) |
| Total | 197,000 (100.0%) | 4,649 (100.0%) |

Source: Vermont Department of Education. The Vermont Plan for Vocational Education, 1979-1982.

Notes:
1. Occupational areas are categorized according to Vocational Education system for classifying enrollments.
2. Vermont Employment data is taken from the Vermont Department of Employment Security data. It represents unemployment insurance covered employees only, and may mis-represent some groups. Also, it was not meant to fit into these categories, so the categorization process may include some inaccuracy -- the "home economics" employment is suspicious, for example.

the operation of the centers. Sometimes this occurs in formal committee planning activities, and sometimes the impact is through the informal input of important community groups through the advisory committees. Advisory committee members are usually selected to represent groups traditionally interested in vocational education. Typically, they include local businessmen, building trade representatives, and educators. The traditional and business-serving qualities of the curricula of many vocational education centers may well result from these forms of input as facilitated by the advisory committee.

Other local forces which have an impact on the development of vocational curricula are vocationally-oriented organizations like the Future Farmers of America, Future Homemakers of America, and Future Business Leaders of America. These partially curricular, partially extracurricular groups include students, teachers, and outside contacts. As such, these multi-faceted organizations represent a continuing influence on vocational education programs. While these organizations do serve to provide additional outside public input into vocational education curriculum planning, their influence appears to generally support traditional curricular areas at the expense of newer ones that do not happen to enjoy comparable advocacy organizations.

Adult vocational education in Vermont is divided according to three main functions. First, general education programs offer night courses for adults who want to complete high school or obtain specific skills. Generally speaking, these courses have either emphasized basic competencies or hobby-like pursuits such as auto mechanics or woodworking. Secondly, Vermont's vocational education administration is responsible for three schools of practical nursing and an educational program at the Vermont Technical College. These programs service the more career-specific educational needs of post-secondary students. Thirdly, several new programs have appeared which co-ordinate vocational education with state economic development goals in an

attempt to train a labor force which fits the needs of new industries attracted to the state. Most of these latter programs are administered in conjunction with either the Vermont Development Department or the Vermont Comprehensive Employment and Training Office. They will be considered in the following pages along with the programs of these latter mentioned offices.

## IV. Manpower Training Programs

While education agencies were the first to become involved in the area of manpower training and vocational education, they have since been joined by other agencies whose interest in this field depends upon certain well-defined areas of concern. Manpower training, designed for the purposes of strengthening state and local economies, has been a prerogative of state government in Vermont. Specifically, the Vermont Department of Economic Development has had administrative responsibility for this program. On the other hand, training to fulfill the human service function of providing employment opportunities to unemployed individuals, while formerly managed by the state in Vermont, has since been dramatically reorganized by the Federal Comprehensive Employment and Training Act (CETA).

While CETA's state level predecessor in Vermont, the Office of Manpower Services, spent $372,000 in 1970, the new CETA office spent more than $22 million in 1978, over 50 times as much as the previous state program (see Table 5).[10] Much of the new CETA money is spent on public service jobs, but CETA also contributes to several important programs in labor force development and training. These include educational programs and on-the-job money for the employees of new industries, private sector youth employment programs, and general classroom training services. In 1978, it spent $.8 million on classroom training and $1.3 million for on-the-job training programs. Of

this, about $800,000 is given each year to private businesses for their associated job training activities.[11]

Although the allocation and expenditure of CETA funds is subject to specific Federal regulations, there is a substantial degree of latitude available to local and state officials in the use of CETA money. Programs are designed at the state and local level, data is assembled by state agencies, and regional needs are assessed according to state priorities. The result is that manpower training needs are commonly determined by state and local policy making processes and then directly addressed by CETA programs. State and local input help to explain the degree to which certain manpower training and vocational education programs are coordinated. This coordination is particularly common in those training programs initiated by the Vermont Development Department. The Development Department currently spends about $200,000 a year of state money for its manpower training programs (see Table 5), but its effectiveness in this area is multiplied through its leverage over state vocational education and CETA training programs. Two recent Development Department manpower programs illustrate how this occurs.

One of the most important new industries to move to Vermont in recent years is the Digital Equipment Corporation, with a prospective employment of over 2,000. In arrangements with Development Department officials made prior to the establishment of its new plant, Digital received promises of training programs for its new employees, the details of which slowly surfaced as the new plant moved into production. Initially, about 60 unemployed workers participated in a company training program, and were paid during their classroom and on-the-job training period with CETA funds. Instructors and materials for the program were supplied by the Vermont vocational education division under its adult education program. The Development Department

itself took responsibility for a related training program for training the plant's new supervisors. In addition, it arranged for a continuing formal contact between Digital and the local vocational education center. The contract assured that the company's manpower needs would be served by the center's educational program.

Another Development Department coordinated training program also involved arrangements with a newly attracted manufacturing business. Here, too, Development Department leverage was in evidence. The Department set up training courses for the plant's new workers, and hired instructors (including two two of the new company's employees) to teach specific skills related to the plant's operations. It also arranged for three courses on topics associated with the new plant's operation. These courses were offered in the regular adult vocational education curriculum, which the plant's new workers were urged to attend. CETA money was used to provide on-the-job training wages for many of the plant's new employees.

Overall, approximately $31 million was spent in Vermont in 1978 on vocational education and manpower training programs (see Table 5). The bulk of this, or $23 million, was Federal money, most of which was funding for the CETA program. The major portion of state and local expenditures went to the vocational education system. The cost-sharing, administrative, and policy priorities of these programs have implications for the way in which rural employment needs are met, a topic to which we now turn.

## V. Matching Programs With Rural Employment Need

Let us now examine how the profile of students completing vocational education programs compares to the Vermont labor force. While vocational

education also has value for non-career purposes (such as developing hobbies), the use of data on program completions rather than enrollments should serve to filter out some of these secondary interests. Presumably, hobbyists will simply enroll in a particular course of interest without bothering to complete a more extensive career-oriented program.

Table 6 compares 1978 Vermont vocational education completions with the state's occupational profile, utilizing approximate comparable categories for each. Even though this data may only be acceptable for rough comparative purposes, a number of conclusions are evident. First, in two of the most traditional vocational education programs, agriculture and office occupations, the proportion of program completions far outreaches the proportion of the Vermont labor force currently employed in those occupations. That is, 13% of vocational education graduates have training in agriculture, compared to only 8% of the state's workers employed in that field. And fully 38% of the students complete office skills programs, compared to an overall state employment in that category of only 19%. On the other hand, the distribution (or sales and service) and health occupations fields are demonstrably undertrained when it comes to vocational education completions, although the distribution field may present a situation where extensive vocational education is not justified by prevailing required skill levels.

Some important qualifications pertain to these interpretations. For instance, some occupations may not be conducive to extensive training in secondary schools below the professional level -- many of the health occupations being cases in point. Also, data on more finely distinguished occupational categories (currently unavailable), may show either more or less maldistribution in vocational education training. Lastly, these comparisons do not imply that vocational education graduates in "overtrained" categories are

being crowded out of the job market, because such graduates are still outnumbered in absolute terms by the comparable segment of the labor force. However, the comparisons do suggest important insights regarding which occupational areas are not receiving appropriate levels of attention in vocational education.

Although vocational education programs are most easily classified in occupational terms, the dynamics of labor force and regional economic structures demand an industrial-specific view of employment. Thus, an attempt is made in Table 7 to classify vocational education in industrial categories, and to compare them with Vermont's industries. Although the classifications in this table are necessarily crude because they rely on judgements about occupation/industry matching, the data nevertheless supports several conclusions. First, we note that just as with the occupational data, vocational education completions in agriculture and office occupations (as in business, financial, and repair services) proportionately outreach those industries' shares of the current state labor market. The large educational lag that was apparent in the occupational data for the distribution category appears decreased when we contrast the industrial data with the wholesale and retail trade areas. Most importantly, industries for which vocational education is evidently not meeting labor force demand include forestry and wood products, machinery manufacturing, recreation and personal services, and health, education, and professional services. This lack of training has been especially apparent in high skill industries such as machinery manufacturing, in which industry growth and a lack of skilled labor has led to recent industry outcries of great labor need.

In view of these comparisons, there appears to be no significant obstacle to supplying Vermont's rural-type industries with their share of

Table 7

Vocational Education Completions, Secondary and Adult, Compared to the Vermont Industrial Profile

| Industry | Vocational Education[1] Completions | 1976 Employment[2] (as % of total) |
|---|---|---|
| Agriculture, Related Services, Food Products | 784 (12%) | (6.7%) |
| Mining and Construction | 519 (8%) | (8.5%) |
| Forestry, Wood and Paper Products | 136 (2%) | (4.2%) |
| Machinery Manufacturing | 215 (3%) | (5.3%) |
| Textiles, Apparel, and Leather | 75 (1%) | (1.6%) |
| Miscellaneous Manufacturing | 555 (9%) | (8.2%) |
| Transportation, Communication and Utilities | 398 (6%) | (5.5%) |
| Wholesale and Retail Trade | 747 (12%) | (17.2%) |
| Business, Financial and Repair Services | 1580 (25%) | (7.2%) |
| Recreation and Personal Services | 52 (1%) | (6.9%) |
| Health, Education and Professional Services | 933 (15%) | (22.7%) |
| Government | 388 (6%) | (5.0%) |
| Total | 6382 (100.0%) | (100.0%) |

Notes: 1. 1978 figures taken from Vermont Vocational-Technical Education Division records. Placement of completors in industrial categories is of necessity somewhat rough. In cases in which the associated industries were indeterminable, as in the case of "office occupations", completors were allocated roughly according to that occupation's distribution across industrial sectors. These firuges do not include 109 totally indeterminable completors and 3214 graduates of a special firefighting training program.

2. The source for the 1976 employment figures is the U.S. Census Bureau's 1976 Survey of Income and Education.

vocational education and training support. Agricultural training proportionately overweighs the comparable sector of the labor force; mining and construction training is roughly proportional; forestry and wood products training is slightly low; and only the recreational area is significantly under corresponding labor force demand. But the recreational industry is also shown by data on employment quality to be very low in skill levels, wages, and benefits, a factor which must temper its potential for significant publicly sponsored vocational training.

In addition, industrial change data for Vermont show a continuing trend that has been occurring in rural America for decades. Typical rural industries (like agriculture) have either declined in their proportion of the labor force or remained stable, with the balance of employment in the growing areas being taken up by manufacturing and service industries. In recent years Vermont has seen a significant influx of new manufacturing industries into the state which has resulted in a rising proportion of manufacturing jobs. Also, in line with nation-wide trends, Vermont's service sector has grown substantially in recent years. Both of these trends have important implications for vocational education in the state, not only in terms of the selectively increasing demand for labor, but also because of a growing need for different and relatively higher skill levels. The tentative steps taken so far in Vermont to fill these needs, both in secondary and adult vocational education, as yet have not been adequate. Moreover, the state's manpower training programs have not taken up the slack. They are generally directed more towards fulfilling the needs of specific businesses than towards widespread improvements in the labor force. This is one situation that cries out for more coordination between state vocational education and manpower training programs.

However, there is more to judging the effectiveness of vocational education programs than simply comparing educational output with existing labor force profiles. By virtue of its intent to improve the overall labor skill level in a region, vocational education becomes an important tool in economic development policy. We have already seen how this application is partially realized in the administration of state manpower training programs, albeit with a somewhat narrow focus. For economic development purposes it may not be enough to treat all occupations and industries equally when considering labor demand. Data on employment quality serves to raise the question: should limited training resources be allotted equally to both high and low quality employment demands from the labor market? More specifically, in the face of substantial wage and benefit differences between recreational employment and machinery manufacturing employment should equal resources, job for job, be allocated to both these areas? Or should employment quality be taken into formal account in targeting vocational education and training programs, both of which presumably have as their eventual goal the improvement of labor force quality and regional economic development? In general terms, the answer seems to be that for rural areas in Vermont and the Northeast, improvement of the labor force must focus on the manufacturing and service industries, in which growth potential is evident and employment quality high.

## VI. The Rural Dimension of Vocational Education

First of all, rural vocational education does not substantively differ in principal from urban vocational education. Both supposedly teach students work skills that are useful in their later careers or have some personal utility. Both presumably target their efforts to particular regional conditions and problems. The major differences between rural and urban vocational

education programs are in their content and in their different delivery and administrative requirements. Ultimately, these differences can be traced to the basic definitional distinction of rural areas -- their lower population densities.

In Vermont as well as in the rest of the rural Northeast, low population density is a characteristic property. Populations in these areas are typically difficult to serve because of geographic barriers (mountains, bodies of water, and weather conditions) as well as in the ultimate rural characteristic of low population per square mile. The most immediate impact of these low population densities on vocational education clearly involves the problem of delivering educational and training services to a dispersed population. For various regulatory and economic reasons, this usually means transporting students to centralized vocational education centers. Transportation of students in Vermont not only entails costs much higher than those accrued by other school districts, but also involves a certain lack of accessibility for students of particularly rural areas. Specifically, transport over long distances requires significant allocations of time and may substantially interfere with students' sports, clubs, family life and other extracurricular activities. For adult training programs, the problem may be less acute, because personal transportation and reimbursement schemes are ever present. However, the number of people that fail to participate in educational programs because of transportation problems is unknown.

Local population densities also affect intra-state allocations to local vocational education centers. Property values are often the only data available to state education agencies formeasuring local abilities to shoulder educational costs. Yet in Vermont, as in most other Northeastern states, land values have rocketed far beyond their use values. Consequently, the use of

land values rather than an income statistic to indicate local ability to pay, means that those most rural areas in Vermont get proportionately less educational support. Another accounting problem which penalizes rural areas results from Federal regulations which require states to consider local low-income populations in allocating their aid to local schools. Vermont uses data on welfare payments to operationalize local low-income populations because no other current measure is available. Yet because of continuing low levels of participation in welfare programs among rural residents, despite their high poverty rate, the use of this statistic results in yet another factor contributing to inequitable allocations in rural areas.

Problems with the administration of Federal programs in low density a as have arisen in Vermont. This has arisen both because Vermont is a small state, and because it has small school districts. According to Federal regulations, Vermont must submit the same paperwork, collect the same data, and compile the same research reports as the largest of states. And yet the bill for this sizeable effort is paid by the state without Federal help. As an example of what this can entail, Federal authorities recently called for state vocational education agencies to compile educational programs by six-digit occupational codes, which for Vermont's 26,000 student program represents unusable detail and demands excessive administrative effort. Considering the breadth of topics considered in most vocational education classrooms (and particularly rural ones), surely a three-digit occupational code would suffice to adequately describe a course.

Other Federal regulations add to the administrative burden. Vermont must administer a full-scale program of vocational education for the handicapped. These programs are conducted according to inflexible federal regulations even though Vermont's handicapped population is only a small fraction of that in the larger states. In this kind of situation, program costs

per person served skyrocket. In addition, Federal regulations on the acceptability of vocational education centers' programs (i.e., number of programs, required facilities, etc.) have more or less unwittingly influenced the state to adopt a centralized vocational education system, with all its accompanying access and transportation problems. Regulations also require a 20-member state advisory board with very detailed composition requirements. Such requirements can be more problematic to comply with in rural areas than in cities. Imagine trying to collect a 20-member board with the required labor, business, women, and educational participants, all qualified and willing to participate in a state with a widely scattered population, which makes going to state-wide meetings a real chore.

These kinds of inflexible regulations and paperwork requirements are also evident in the Federally funded CETA program, but because that program is entirely federal, such overhead represents more of a national than a state burden. The state manpower training programs, on the other hand, have very few of these types of administrative burdens and consequently are able to perform their duties in a more flexible and effective manner, even taking into account the special demands of rural areas. In certain instances this freedom from regulation leads to minor abuses, such as the inequal treatment of different sub-populations or the granting of excessive benefits to the private sector. However, in general, their effecitve use of available funds should be an example for Federal programs.

In the final analysis, there is no doubt that in many instances the Federal impact on rural vocational education has a stimulating effect. Without it, imaginative and responsive education programs would be rare in many stable, tradition-ridden rural areas. Consequently, Federal requirements for the formation of local advisory boards and periodic innovations are, on the whole, beneficial. State officials acknowledge that despite the problems of

dealing with excessive Federal accountability and questions about the utility of Federal money, the Federal input has irreplaceable advantages in the long run.

## VII. Conclusion

We have tried to use this examination of Vermont to illustrate the problems and characteristics of rural vocational education in the Northeast, a task made possible by the basic comparability of Vermont to the rural areas of the broader region. As we have mentioned, there are specific problems associated with the administration of vocational education and training programs in rural areas -- the problems of transportation and accessibility in low density areas, the problems of program arrangements designed for urban areas, and the problems of excessive Federal regulations and paperwork for small administrative units. But all of these can be solved administratively once the nature of the problem is understood. The real problems and hopes for rural vocational education are deeper and more grand than these, a fact that we suspect is true for urban areas as well.

For one thing, at least in the rural Northeast, traditional rural industries like agriculture, forestry, and related enterprises are generally not able to support the working populations they once could. Manufacturing and service industries are moving in to take their place. Thus, traditional vocational education directions in these rural areas are no longer satisfactory. The potential for these regions appears to be in training for manufacturing skills that can successfully prepare trainees for jobs in the new industries and, at the same time, hopefully attract more such industries to the depressed rural sections of the Northeast by virtue of skills held by indigenous rural people.

A more basic problem symptomatic of vocational education is that it is often used as a way to dodge the responsibility of educating students in basic areas of knowledge. For example, Vermont's vocational education system includes a cooperative education program for working at part-time jobs. While this kind of arrangement can be useful for providing students with hands-on vocational experience, cirtics have pointed to the program as an excuse for providing diplomas despite students' lack of educational desires and basic skills. The fact that cooperative education students appear to be more likely to end up tending the local store or pumping gas than learning machinery skills seems to support this accusation. In addition, the skills that vocational education students are taught in class are often so specific that unless they are fortunate enough to get employment in their area of training, they may never be able to use the skills in their work. But basic mathematics, reading, and communication skills are always useful, and are required for many employment opportunities, as well as for advancement and promotion within traditionally tracted occupational areas. In Vermont, for instance, an industry-wide shortage of machinist apprentices is not, according to employers, primarily a problem with the output of vocational education centers, but a problem of finding qualified apprentices with the necessary mathematics and comprehension skills.[12] Like most other good, non-professional employers, they will train workers at their own expense if the workers are capable and have the basic qualifications. Vermont, like many other states, has responded to this and other similar problems with a program for ensuring that all students graduating from public institutions have certain basic competencies. The effects and potential benefits of this program are yet to be seen, however, and we can only hope for a related improvement in vocational education.

To some degree, the need for skilled workers in the new industries of Vermont and the Northeast is being met directly by manpower training programs. These manpower training programs stand to be more effective in an employment sense because they are specifically directed at the skills required for the new jobs.[13] Of course, these programs could also use improvement. They need to be aimed more at improving the skills of the work force and less at providing training subsidies for new industries. And all vocational education and manpower training programs need to be better coordinated in order to improve service delivery and cut wasteful replication. Such improvements are another step towards making the most of the limited educational and training resources in rural areas.

## NOTES

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1. The Northeast is defined here as the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and Delaware. For statistical purposes "rural" is defined to include all non-metropolitan counties.
2. For more information on how the 1976 Survey of Income and Education data is derived, see Roy C. Haupt, Work in Vermont (Burlington, VT: University of Vermont, Vermont Community Data Bank, 1979).
3. For more information in employment quality in Vermont industries, see Work in Vermont, op. cit.
4. This agricultural wage data may be artificially low because of the data collection techniques used in the 1976 Survey of Income and Education.
5. Vermont Department of Education, The Vermont Plan for Vocational Education, Part II, 1978-1982. (Montpelier, VT: 1979), p. 4.
6. Ibid, p. 2.
7. Secondary school vocational education enrollments were 52% of Vermont juniors and seniors in 1975, according to the Vermont Department of Education, op. cit., p. 2, and has increased since then according to state officials.
8. For an interesting discussion of the centralization of the Vermont school system, see Stuart Rosenfeld, "Centralization versus Decentralization", pp. 205-268 in Jonathan Sher, ed. Education in Rural America (Boulder, Colorado: Western Press, 1977).

9. 67% according to 1978 statistics filed by the Vermont Department of Education.
10. Vermont Executive Budget, 1970-72 (Montpelier, VT: 1970).
11. Estimate from a Vermont CETA planning official.
12. See, for example, the Burlington Free Press, June 25, 1978. This has also been the assessment of several state manpower officials.
13. Recent Census Bureau reports show an increased prevalence of vocational education among people who return to school to learn specific job-related skills. See, for example, Larry Suter, "New Findings About Vocational Education", American Demographics, June, 1979, pp. 25-27.