Appendix A: Relationships Between Vocational Course-Taking and Entry-Level Occupations

ANALYSIS

Coursetaking in vocational areas was examined for the NELS:88/94 respondents who indicated that they were not enrolled in a postsecondary educational program, that they had been actively in the workforce in 1993 and that they had taken at least one vocational education course. Types of vocational education courses for which respondents in different occupations had earned on average at least one half Carnegie unit (one full-time semester) of credit were included in the analysis. Respondents were classified by gender and occupation; average Carnegie units earned were calculated in each of the 10 vocational course areas defined in the *Secondary School Taxonomy* (SST) (6), using the 1992 high school transcripts collected as part of the NELS:88 second followup.[1]

Occupational categories were derived from the 30 occupation categories of the *NELS:88/94 Occupation Codeframe*, which in turn was based on the occupation codes used by the U.S. Department of Commerce, Bureau of the Census (11). The NELS:88/94 codes were condensed to 14 categories by combining subcategories that existed for some classifications when subcategories had only a small number of cases. Table A-6 provides further definitions of the occupational categories.[2]

Limitations

The biggest limitation of this analysis is that it is impossible to tell from available data whether there is a causal relationship between the types of vocational courses students take and their entry-level occupations. Because students (presumably with the help of guidance counselors, parents, and teachers), choose specific courses and specific occupations, it is difficult to separate the influence of the courses themselves on

[1] A Carnegie unit is a standardized measure of coursetaking. One Carnegie unit is earned for every course that meets for five 50-55 minute periods per week for an entire school year. Thus, a one semester-course would earn one-half unit.

[2] The three clerical categories: financial, secretarial, and "other," were combined into a single clerical category; the five management categories: governmental, manufacturing, retail, sales/purchasing, and "other," were combined into a single management category; the six professional categories: arts, engineer, legal, medical, physician, and "other," were combined into a single professional category; the three proprietor categories: manufacturing, retail, and "other," were combined into a single proprietor category; and the two technical categories: computer related and non-computer related, were combined into a single technical category; the categories "not working" and "homemaker-not working outside the home" were dropped from the analysis.

subsequent jobs from other influences. Strong and persistent associations between courses taken and subsequent occupations can suggest that having concentrated in a specific course area helped a student obtain a job in that area, but the analysis is not definitive.

Another limitation of the analysis is that specific courses (as opposed to course areas) cannot be tied to specific jobs. Because of limitations in the sample size both the course areas and occupational areas had to be grouped very broadly. For example, the occupational category "professional" includes everyone from photographers (who could presumably be recent high school graduates) to physicians and judges (who probably aren't recent high school graduates).

A third limitation is that the occupational titles are not consistent with the vocational course titles. For example, "trade and industrial" is a vocational course area, but not an occupational title. These limitations are inherent in the data source.

Results

Table A-1 confirms that most high school graduates and dropouts who do not attend postsecondary school take relatively low-level jobs. Taken together, more than half the NELS sample were in clerical (631 respondents), service (563 respondents), or laborer (500 respondents) occupations (table A-1). Tables A-3 through A-5 show the average Carnegie units earned in 10 types of vocational education courses, by postsecondary occupation and by gender.

Marked differences in vocational course-taking were observed between males and females. It was relatively rare for males in this sample to take more than half a unit in any vocational education area other than trade/industrial and general labor market preparation. There were only two major occupations in which the males' transcripts showed coursetaking above the .5 unit level for four or more vocational course areas. Males in "technical" positions took courses in general labor market preparation as well as trade/industrial, "other specific labor market preparation," and agriculture. Male owner/proprietors' coursetaking patterns included on average more than one-half Carnegie unit of business/management, consumer services, and agriculture, in addition to trade/industrial and general labor market preparation.

The observed pattern of vocational education courses included courses in areas that may be related to the occupation. For example, owner/proprietors were likely to take business/management and consumer services courses. On average, farmers and farm managers took more agriculture courses.[3]

Female respondents tended to sample more widely than males from the vocational education areas. Women in all but one occupational category (owner/proprietor) showed coursetaking above the half-unit average in three or more vocational areas: business/management, consumer services, and general labor market preparation.[4] As did the males, females who had jobs in farming had taken courses in agriculture.

DISCUSSION

If vocational education courses are to be viable they must serve the needs of an economy with a growing service sector and an increasing demand for a technically sophisticated work force. The U.S. Department of Labor, Bureau of Labor

[3]The agriculture course category also shows up in a number of other occupational areas that could exist in an agricultural context (e.g., skilled operative, manager/administrator, proprietor, and technician). For example, skilled operatives may be involved with the use of heavy machinery/equipment. However, the available data cannot be used to determine the specific context of any occupation.

[4]That one exception may be spurious because there were only four female owner/proprietors in the sample.

Statistics (BLS) predicted relatively little demand in 1988 through 2000 for minimally-educated clerical workers in office settings and manual workers in manufacturing and production settings[5] (3,12). BLS projections for 1990 through 2005 predict that one out of every three new jobs will be in the service industries. In particular, the health, social science, and legal industries are all expected to grow twice as fast as other industries. Other service industries such as finance, insurance, securities, and commodities are predicted to demand increasing technical knowledge. Over half of the young people in this sample appeared to haverelatively low level jobs. Even if many were in the growing service occupations (e.g., clerical jobs, other service occupations), it remains to be seen whether their technical skills and wages will rise. in coming years, and how they would fare in relation to their classmates who attend postsecondary education.

[5]Bishop and Carter argue that the methodological procedures used by BLS in the 1980s to extrapolate changes in future employment growth resulted in underestimates of growth in high-skill professional, technical, and managerial occupations and overestimates of in low-skill occupations such as operatives, laborers, and non-technical service workers (9 percent actual compared to 34 percent predicted growth in these occupation) (2).

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