

EFFECTS OF DIPLOMA AND BACHELOR'S DEGREE IN EDUCATIONAL ATTAINMENT AND FIELD OF EARNINGS

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ABSTRACT

Educational attainment is a well-documented path to economic success. Apart from the recognized benefits of a bachelor's degree, research documents benefits for sub-baccalaureate education such as vocational and associate's degree programs. This study explores the returns to education from the educational attainment levels that fall between a high school and a college degree. Using data from the 2004 and 2001 panels of the Survey of Income and Program Participation (SIPP), we examine the association between educational attainment and earnings, particularly the role of field of training. Adults with sub-baccalaureate degrees earn more on average than high school graduates, but this was not true for all fields such as education and service. These analyses also address the role of occupation related to the field of sub-baccalaureate training. We find that being in a related occupation is generally associated with higher earnings, but with variation by sub-baccalaureate field and level

INTRODUCTION

Research has consistently documented the positive relation between education and economic benefits (e.g., Day and Newburger 2002). Data collected in 2008 by the Census Bureau show bachelor's degree recipients earned about \$26,000 more on average than workers with a high school diploma. Recognizing its economic importance, policy makers, including most recent Presidents, have advocated improving and expanding education in a variety of ways. President Clinton emphasized access to college. President George W. Bush emphasized improvements to elementary and secondary schools. President Obama has recently moved in a slightly new direction by calling for Americans to commit to at least one year of higher education or training beyond high school.

Post-secondary education has increased considerably in recent decades (Crissey 2009). This trend is particularly evident at the sub-baccalaureate level, which has seen a 28 percent increase in the number of degrees awarded between 1997 and 2007 (U.S. Department of

Education 2009). During the mid-2000's, the rate of increase in sub-baccalaureate degrees exceeded the rate of increase in bachelor's degrees. The growth and the emphasis on short-term postsecondary programs puts a new focus on long-running debates about the value of training programs, certification programs, proprietary schools and community colleges (Grubb and Lazerson 2004, Adelman 2000, Brint and Karabel 1989).

A central element in the debates on the value of sub-baccalaureate postsecondary schooling is the distinction between human capital benefits and vocational benefits. In short, human capital benefits are those that result from the knowledge gained from education – especially that which is not targeted to a specific job. Vocational benefits are those that result from access that is provided to specific well-paying occupations by virtue of the credential earned (see Grubb 1993, Kane and Rouse 1995). Although the cause of these differences remains under debate, sub-baccalaureate postsecondary education with vocational credentials has been shown to provide greater economic return than other types of education (Bailey, Kienzl and Marcotte 2004, Kerckhoff and Bell 1998, Grubb 1993).

In his review of the literature on labor market outcomes for sub-baccalaureate degrees, Grubb (1999) notes consistent positive effects of sub-baccalaureate degrees across multiple studies and data sets. However, he also documents the high level of variability in these effects depending on the characteristics of the individual, program of study, and labor market. As with degrees at the bachelor's level, the field of sub-baccalaureate study impacts earnings. This is true at both the vocational and associate's degree level (Ryan 2005). Using data from the Survey of Income and Program Participation during the 1984 – 1990 period, Grubb (1995) found strong differences in job earnings across field of training, as well as by whether the job was related to the field of study. Taken together, sub-baccalaureate degrees have positive economic effects, but there are conditions where these degrees do not pay off (Grubb 1999).

This study builds upon this research to provide updates and improvements to our understanding about what fields of training contribute to economic success at the sub-baccalaureate postsecondary level. First, we address the association between sub-baccalaureate education and earnings, looking specifically at field and level of training. The second part of the analyses address the effect of working in an occupation related to the field of training, and compared the association between field of training and earnings by employment in a related occupation.

DATA AND METHODS

We use data from the 2001 and 2004 panels of the Survey of Income and Program Participation (SIPP), which provide a large sample of labor market participants with information on education, field of study, earnings and a large number of other demographic and labor-force related variables. The SIPP is an ongoing, nationally representative panel study of the United

States. The survey includes a set of core questions at each interview, as well as a series of unique topical modules that collect detailed information on specific topics at each interview. Each panel includes an Education and Training History Topical Module, which asks the respondents about their educational history, including degrees earned and specific field of training. Our analyses use data from the two most recently completed SIPP panels: SIPP 2004 and SIPP 2001. We restricted the sample to adults who reported any earnings in the 4-month reference period for the Wave 2 interview. We also limited analyses to adults with a high school degree, vocational degree or associate's degree as the highest level of educational attainment. The results in an effective combined sample size of 37,513 people (unweighted cases with a positive final weight) for our analyses.

The outcome variable for analyses is average monthly earnings in 2004. Earnings reported in the 2001 Panel were adjusted for inflation to 2004 dollars based on the annual Current Price Index (CPI-U) (Bureau of Labor Statistics 2010). The field of training categories are separated by vocational and associate's degree, with seven categories for each level. These categories were collapsed from the original categories included in the Education and Training Topical Module Questionnaire. Exploratory analyses examined each field individually, and the collapsed categories were grouped based on similarity of field and similar characteristics in the variables examined. Collapsing the fields yielded larger sample sizes for each field, and resulted in substantive similar findings.

The vocational field question included 19 categories. Of these 19, 4 were kept as individual categories (business/office management, health care, police/protective services, and other). The remaining categories were collapsed into service (e.g. cosmetology, food service), mechanical (e.g. construction trades, metal working), and computer/technical (e.g. computers and information science, drafting). The associate's field question included 14 categories. Of these 14, 3 were kept as individual categories (education, health sciences, and police and protective services). The remaining categories were collapsed into business (business/office management and communications), computer/technical (computer and information systems and engineering/drafting), liberal arts and sciences (e.g. liberal arts/humanities, social sciences/history), and other (other vocational/technical studies and other).

The variable for occupation related to the field of study was constructed from the crosswalk between the Classification of Instructional Programs (CIP) and the Standard Occupational Classification (SOC) developed by the National Crosswalk Service Center (NCSC). The crosswalk was developed in the 1970s along with the development of the Dictionary of Occupational Titles, which involved nearly 75,000 on-site observations by analysts, and consultation with experts in training and employment subject areas. The current classification scheme results from the collapsing of the 13,000 distinct occupations covered in the Dictionary to approximately 1,100 occupations. The crosswalk to the CIP makes use of the expert opinions on occupational training requirements from the original Dictionary of

Occupational titles, adapted to reflect new occupations and occupational changes as they have occurred (see Peterson et al. 2001).

For this research, the detailed the fields of study listed in the crosswalk were grouped to match the fields reported by respondents in the SIPP. Some occupations (e.g., parking lot attendants) did not have a specific field listed in the crosswalk because no specific training is required. Similarly some fields (e.g., pre-law studies) were not associated with specific occupations. For each occupation that had one or more fields listed, any detailed field that fell within one of the reported fields resulted in a match for that occupation with the reported field.

CONCLUSIONS

The results from these analyses reveal a complicated relationship between educational attainment, field of training, employment in a related occupation, and earnings. When considered separately, we find that each of these three characteristics was associated with earnings. However, we also find that these characteristics interact with each other. We first considered the dimension of educational attainment, and found that sub-baccalaureate degrees were associated with higher earnings compared to completing just a high school degree. These findings persisted net of controls for age, sex, race, Hispanic origin, and work status. We then included the field of training, and found that not all fields are linked to higher earnings. Earnings were higher for people who had a sub-baccalaureate degree in business, computer/technical, and health fields compared to high school graduates, while people with degrees in service and education fields did not earn significantly more than high school graduates. Accounting for occupation in a related field explained the effect of several vocational fields of study, but most fields at the associate's level were still positive associated with earnings.

While employment in a related occupation was positively associated with earnings, there were some fields where it did not matter. For instance, the computer/technical field of study was the most consistently lucrative relative to a high school diploma. Whether a person has a vocational or an associate's degree, or whether he or she works in a related occupation, a person with a computer/technical sub-baccalaureate degree on average made more than a high school graduate. This finding is consistent with the theory that education builds general human capital, which translates into higher earnings regardless of employment in a targeted field.

Other fields of study appeared to only pay off if translated into related employment. Sub-baccalaureate degrees in the field of health and police/protective services were only associated with higher earnings relative to high school graduates when employed in a related occupation. This is perhaps more consistent with the vocational theory of education, which stipulates that training provides access to specific occupations that provide higher pay.

Given the increase in the number of sub-baccalaureate awards and the focus on the economic returns to these types of degrees, it is important to note that not all sub-baccalaureate degrees appear to pay off. Vocational service degrees and associate's degrees in education were never associated with higher earnings than a high school degree, even when considering related employment. While there are likely potential benefits to obtaining these types of degrees, we did not find an earnings premium associated with training for service and educational occupations.

This research adds to the long literature on the economic benefits of education. We specifically addressed the role of sub-baccalaureate degrees compared to high school degrees, and find that the economic benefits of vocational and associate's degrees depends in part on the level, field of training, and the ability to find related employment.

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