Catholic schools or school quality? The effects of Catholic schools on labor market outcomes

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ABSTRACT

This paper studies the effects of attending a Catholic high school on students' labor market outcomes. Using data from the Wisconsin Longitudinal Study, I find that Catholic schooling is significantly associated with higher wages over the careers even after taking into account possible selection into Catholic schools with instruments. Using matched school quality data for public and Catholic schools, I further find that Catholic and public schools are different in various aspects of school quality measures and that these differences explain most of Catholic school effects. Among the school quality variables, teacher quality and the number of math courses taken are estimated to matter the most for students' later earnings in the long run.

1. Introduction

With increased concerns and debates on the quality of public schools, researchers from various fields have paid attention to the performance of Catholic schools. See, for example, Coleman, Hoffer, and Kilgore (1982). According to national statistics reported in 2000, the average high school graduation rate in the U.S. was 86.5 percent, with 64 percent of those high school graduates pursuing a college education, whereas 99 percent of Catholic high school students obtained a high school degree and 97 percent of them moved on to higher education. These figures suggest that Catholic school students performed substantially better than their public school counterparts. However, since Catholic schools are private schools, there exists the issue of selection bias in the evaluation of Catholic schooling.

The effect of attending a Catholic high school has been also a controversial issue in the economics literature. Among others, Evans and Schwab (1995); Sander and Krautmann (1995); Neal (1997), and Altonji, Elder, and Taber (2005b) examine Catholic school effects by taking account of selection into Catholic schools and find that attending a Catholic high school substantially raises the probability of high school graduation or college attendance. On the other hand, some studies find no effect from Catholic schooling. Figlio and Stone (1999) show that only minority students in Catholic schools perform better than their counterparts in public and other private schools in math and science tests. Other than these educational outcomes, Mocan, Scafidi, and Tekin (2002) examine the effect of Catholic schooling on risky behaviors, such as drug use and teenage crime, and find no evidence that Catholic schools affect these behavioral outcomes, whereas Figlio and Ludwig (2000) find Catholic schooling to be associated with a reduction in teenage sexual activity, drug use and arrests.

This study investigates the effects of attending a Catholic high school on students' subsequent wages.
Despite great interest in the economic value added by attending a Catholic school, little is known as to whether Catholic schooling is associated with success in the labor market other than educational achievement. Tyler (1994) and Neal (1997) find that Catholic schooling is associated with better performance at the early stage of careers in the labor market. I contribute to the literature by looking at long-run effects of Catholic schooling on wages, carefully addressing the issue of possible selection bias. In addition, I account for the quality of Catholic schools as well as that of public schools for the first time in the literature. I make use of school quality data collected from Catholic schools to examine specific factors within Catholic schools that help explain the positive wage premium that is estimated.

The data used for this study come from three different sources. First, I use data from the Wisconsin Longitudinal Study (WLS). The WLS is a unique dataset of randomly selected Wisconsin high school graduates in 1957. It collects extensive information from students and their families, and contains detailed information on students’ labor market experience. Moreover, it allows me to match students with the high school they had attended. Second, for Catholic school students, I collected detailed school and teacher quality data from schools and religious orders or communities for most of the Catholic schools that were attended by the WLS respondents. The basic school data were extracted from the Official Catholic Directories and the Annual School Reports from the Milwaukee archdiocese. Lastly, for students who attended public schools, I use the school data reported by the Wisconsin department of public instruction, which were compiled by Olson and Ackerman (2004) for the years when respondents of the WLS attended high schools.

The selection issues with Catholic schooling present a serious challenge to estimation of Catholic schooling effects. This has been understood in the previous literature and in critiques of previous research. See, for example, Goldberger and Cain (1982) and Altonji, Elder, and Taber (2005a). I bring a new and rich dataset to the literature which allows me to combine an instrumental variable approach with detailed information on school quality for the estimation of Catholic school effects. As instruments for Catholic school attendance, I use Catholic religion and the proportion of Catholic population in the county of residence in 1890. The historical density of Catholic population was used in a recent Catholic school study by Cohen-Zada and Elder (2009). Catholic religion has been also used in the previous literature, including Evans and Schwab (1995); Neal (1997) and Grogger and Neal (2000). However, use of Catholic religion as an instrument has been criticized by Altonji et al. (2005a) for the potential correlation with unobserved effects that are associated with student outcomes. To demonstrate the validity of my instruments, Catholic religion in particular, I provide a host of evidence. For example, I find that the mean wage difference by Catholic religion is almost zero for both years that I examine unlike the marked difference in educational outcomes by Catholic religion in Altonji et al. (2005a). Furthermore, I explore the reduced-form relationship between Catholic religion and wages for a sample of students for whom Catholic high school was not a choice, following Altonji et al. (2005a) and Cohen-Zada and Elder (2009). I find that among students from the counties with no Catholic high school, the reduced-form relationship is not significantly different from zero. The overidentifying restriction test results also suggest that my instruments are jointly valid for the wage analysis.

My main findings are as follows. In a baseline model where only individual and family background variables are controlled for, it appears that Catholic school students earn significantly more 17 and 35 years after high school graduation even after taking account of selection bias. Furthermore, I find that there is a substantial difference in school quality between public and Catholic schools. Catholic schools tend to have more highly educated teachers and offer a more extensive curriculum in math and foreign language courses. Although these school quality variables may capture unobserved attributes of a student in the wage regressions, most of the Catholic school effects are explained by these school quality measures. Specifically, teacher quality and the number of math courses taken in high school remain significant in extended wage regressions. The results suggest that school quality plays a significant role for the success of Catholic school students in the labor market.

2. Data

2.1. The WLS

The main data used in this study come from the Wisconsin Longitudinal Study (WLS). The WLS is a longitudinal survey of randomly selected students who graduated from Wisconsin high schools in 1957. The students have been followed in 1964, 1975, 1992 and 2004 since the first survey in 1957. Most of the students in the original sample are white with very few other ethnic groups. The WLS contains detailed information on the individual and family background and it spans a time period long enough to encompass completed schooling and labor market experience. More importantly, Catholic and public high schools that individuals attended can be identified and matched with the school quality data. The biggest obstacle that prevented prior scholars from the investigation of contributing factors of Catholic school effects has been a lack of appropriate data for Catholic schools. Using the WLS and detailed school quality data for both public and Catholic schools, I am able to provide a more concrete evidence of the Catholic school effect.

Most of the students in the WLS were engaged in the labor market in 1974 when they reached their mid-thirties and this study focuses on wages earned in this year. For longer-run outcomes, I also examine wages earned in 1992. The sample is composed of male respondents who participated actively in the labor market in these years. The respondents who earned fewer than 100 dollars a year are excluded as their wages are censored as zero. About 50 percent of the WLS sample are women but they are not considered in this study since more than half of them did not participate in the labor market.
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