

Risk and Returns to Education

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Education choice produces an uncertain stream of income. We investigate how education choices in terms of an individual's highest qualification and the field of study contribute to future earnings. Traditional analysis of returns to education tends to focus on average or median earnings rather than analysing the whole distribution of earnings. However, there is variability of earnings and it is therefore important to take into account this risk component into modelling returns to education. This risk varies across occupations and riskier occupations have higher average returns to compensate for the additional risk (Dillon, 2018). As such, we analyse the full distributional impacts in terms of risk and returns of education on earnings in Australia. This also builds on previous evidence that there are differences in unemployment risk and wage risk across education levels (Brown, Fang and Gomes, 2012; Delaney, 2019). Further, recent data allows us to analyse this full distributional impact based on type of degree and field of study which is more meaningful given the diversity of programs and outcomes. This paper is the first to model the risk component in estimating returns to education across different types of degrees and fields of study.

We use data from wave 16 of the Household, Income and Labour Dynamics in Australia (HILDA) Survey which is a nationally representative longitudinal study of Australian households. This particular wave contains detailed information about individuals' highest completed education including type of degree and field of study for more than 17,000 individuals. HILDA also provides a rich source of data on income and further characteristics of individuals and this allows us to control for other relevant factors that could affect both earnings and education outcomes. The methods for this paper are based on standard economic models such as Mincer's human capital earnings function (Mincer, 1974) which relates income (expressed as a natural logarithm) to an individual's education, as well as other individual characteristics (e.g., age, tenure, experience, gender, marriage status). We extend this regression by incorporating the individual's field of study, additional socio-demographic variables and we also include three proxies for an individual's ability based on tests that are conducted as part of the HILDA Survey. We estimate these Mincerian wage equations via Ordinary Least Squares and we then extend these by incorporating statistical techniques to model higher moments (variance, skewness and kurtosis) for different combinations of field of study and type of degree.

We find significant differences in returns to education across all four moments of the earnings distribution in terms of individuals' highest qualifications and fields of study. Our findings

have practical implications for individuals, as higher education is a major financial decision, and a thorough understanding of the relationship between education and future earnings helps students to make informed decisions about their education. There are also applications in public policy from a fiscal policy perspective, such as public investment in education and student loan programs. For example, the Institute for Fiscal Studies in the U.K. is interested in the impact of tertiary education on earnings from a fiscal policy perspective (Belfield et al., 2018; Britton et al., 2020). The U.S. Department of Education has recently released data on College Scorecard¹ which includes the median first-year earnings of graduates based on their university and field of study to increase transparency (U.S. Department of Education, 2019).

References

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Key Words

Risk, returns to education, higher moments, earnings distribution, field of study

¹ <https://collegescorecard.ed.gov/>