Labour Economics 30 (2014) 164–175

Contents lists available at ScienceDirect

Labour Economics

journal homepage: www.elsevier.com/locate/labeco

Parents' risk aversion and children's educational attainment☆

Daniele Checchi [a], Carlo V. Fiorio [a], Marco Leonardi [a,b,*]

[a] University of Milan, Italy
[b] IZA, Germany

HIGHLIGHTS

- We model parents' risk aversion when they fund children's college under uncertainty.
- Parents' risk aversion has a negative effect on children's college enrollment.
- Results are robust to non-response to risk aversion and different measures of risk.
- Policy implications: graduate tax insures against the risk of investment failure.

ARTICLE INFO

Article history:
Received 30 October 2013
Received in revised form 22 March 2014
Accepted 7 April 2014
Available online 16 April 2014

JEL classification:
J62
J38

Keywords:
Educational attainment
Family background
Risk aversion

ABSTRACT

In this paper we study the role of parental risk aversion on children's educational choices. In a country like Italy where parental support is the main source of funds supporting college enrollment, we show that parents' risk aversion (elicited by surveys on lottery tolerance) has a significant negative effect on children's college enrollment. This negative effect is robust when we model non-response and introduce measures of liquidity constraints. With the help of a formal model, we interpret this evidence as suggestive that risk averse parents react to the uncertainty of future labour prospects of their children, whose ability is not fully observable. We show that parental risk aversion may contribute to explain the persistence of differences in the odds of attaining a college degree between children of parents with equal educational attainments.

1. Introduction

The existing recent empirical literature on the determinants of schooling decisions has focused on the importance of cognitive skills, parents' background and liquidity constraints.[1]

On the contrary, preference parameters, such as risk aversion or the rate of time discounting, have often been left in the backstage. Yet educational decisions can be viewed as an investment with uncertain outcomes and can be analyzed in accordance with the standard approach of finance theory which assigns a relevant role to risk aversion. The contribution of risk aversion to explaining educational choices is ambiguous: if future returns to college are uncertain, risk averse individuals may want to choose a less risky schooling path. On the other hand, college education may have an insurance character given its positive effects on labour market success. The question is fundamentally empirical.

The link between human capital investment and risk aversion is well-known since the early work of Lehvari and Weiss (1974) followed by more theoretical and empirical research (see, among others (Shaw, 1996; Palacios-Huerta, 2003; Belzil and Hansen, 2004; Belzil, 2007)). The empirical analysis finds ambiguous results or at best obtains that risk aversion is inversely associated with education (Belzil and Leonardi, 2007, 2013).[2]

☆ We thank the Guest Editor and two anonymous referees for their excellent comments and advice, and Orazio Attanasio, Massimiliano Bratti, David Card, Pedro Carneiro, Gianni DeFraja, Luigi Guiso, Helena Holmlund and David Margolis for the fruitful discussions. We also thank the participants to the 2013 EALE conference (Turin), 2011 EEA meeting (Oslo), SIRE conference on Mobility (Edinburgh), Lower conference on 'Intergenerational mobility' (Annency), and SIEP conference (Pavia), as well as the seminar participants at University of Cagliari, Milan and the Université Paris 1 Panthéon-Sorbonne. Usual disclaimers apply.

* Corresponding author at: Department of Economics (DEMM), Università degli Studi Milano, Via Conservatorio 7, 20122 Milano, Italy.
E-mail address: marco.leonardi@unimi.it (M. Leonardi).

[1] See Black and Devereux (2011) for a recent review of the literature. With respect to the determinants of the choice of college enrollment, there is a vast literature on the transmission of socio-economic status suggesting that parental education is still the most important factor for children's educational attainment: see for example Heineck and Riphahn (2009) for Germany, Ermisch and Francesconi (2001) for the UK.

[2] Some papers look at risk aversion and education returns: Brown and Taylor (2005) show that returns to human capital investments are considerably higher among college educated who are risk-takers; Brunello (2002) uses risk aversion as instrument for educational attainment in the estimation of the returns to education; Attanasio and Kaufmann (forthcoming) and Kaufmann (forthcoming) look at the role of subjective expectations.

http://dx.doi.org/10.1016/j.labeco.2014.04.001
0927-5371/

Usually the literature has looked at the relationship between schooling attainment and individuals' own risk aversion, whilst there is barely any evidence on whether parental risk attitudes affect the educational attainment of dependent children. In this paper we investigate if parents' risk aversion plays a role in the decision to finance children's college at equal levels of parents' education and wealth and at equal levels of children's ability, measured with various proxies.[3]

The focus on parents' risk aversion rather than on individuals' own risk aversion allows us to alleviate a common problem in the literature: the potential endogeneity of own risk aversion to education choice when risk aversion measures are elicited after school completion (this is the case in all surveys like the Italian SHIW, the German SOEP and the American PSID). In the present paper, exogeneity can be advocated to a greater extent because we study the contribution of parents' risk aversion with respect to children's educational choices. This distinguishes our paper from previous work which used individuals' own risk aversion (Belzil and Leonardi, 2007, 2013) and allows us to complement it with a new perspective. Of course we are well aware that risk aversion is correlated between parents and children (Charles and Hurst, 2003; Dohmen et al., 2010). What matters for one's college attendance decision is probably a mix of the child's own risk aversion and her parents' willingness to fund such choice, which in turn depends on their perceptions of her children's ability (and how this will affect her future earnings) and on their own risk aversion. To our knowledge there is no survey with both parents' and children's measures of risk aversion and education choice, and in this paper we contribute to the literature interpreting parents' risk aversion as the relevant measure. We see parents' risk aversion as an innate personality trait which may very well correlate with a number of other characteristics (because it is a determinant of them) and concur to determine children's education outcome.

Italy is an ideal country to investigate the effect of parents' risk aversion since college education is not as expensive as that in other countries (tuition costs in public universities are around €1500 per year at 2012 constant prices), private universities are not popular and direct costs are low because of geographical diffusion (Di Pietro and Cutillo, 2006; Bratti et al., 2008) and because a very large proportion of college students live with their family of origin (Manacorda and Moretti, 2006). These characteristics of the Italian system allow us to look at children cohabiting with their family of origin and their choice to enrol in a single type of college (public universities). Moreover we can analyse the choice of financing children's college without modeling the access to financial markets. Because of the relatively low cost of college, it is well-known that Italian families traditionally do not take out debt to finance college education (Perali and Barzi, 2011); therefore we do not model credit constraints as in the recent US literature (Lochner and Monge-Naranjo, 2012), rather we assume that there is no access to financial markets and we model the effect of parents' risk aversion on financing children's college under uncertain information on their ability. We show that parents finance children's college only if their optimal investment under uncertainty is higher than the cost of schooling (Stange, 2012) and that the optimal amount of the financing is negatively correlated with risk aversion. The main predictions of the model are then taken to the data (the Italian Survey of Household Income and Wealth, SHIW) in which individual differences in attitudes towards risk are measured through a lottery pricing question.

The fact that tuition costs are low and college education is publicly subsidized and that most children live at home (therefore the direct and mobility costs of college are low) does not mean that the choice of enrolling one's children in college is not risky. Risk aversion is potentially very relevant because one has to take into account the overall cost of tertiary education. The OECD (Education at a Glance 2013, Table A7.3a) provides the following estimates for the private cost of attaining tertiary education in Italy in 2008 (in PPP): direct cost (tuition, books, mobility) $US 7285; foregone earnings $US 50,608; and overall cost $US 57,893. The figures for the OECD average are $US 11,398, $US 44,055 and $US 55,453, respectively. According to these numbers, the cost of college attendance in Italy is slightly above the average expenditure of other OECD countries (and above the EU21 overall average). These cost estimates of forgone earnings suggest that the college education choice in Italy is a risky choice.

Our results show that parents' risk aversion has a significant negative effect on children's probability to go to college. The effect is robust to the introduction of alternative proxies for unobservable children's ability, including high school final exam marks, type of secondary school attended or even educational attainment of grandparents. We also control for non-response to the risk aversion question and test the robustness of the results to different measures of risk aversion. In the course of the paper we also explore some alternative explanations of children's college enrollment and address some concerns typical of the literature. One first concern is that parents' risk aversion may pick up the effect of family credit constraints.

Usually the literature infers the presence of credit constraints from the effect of family income on college choice whilst in the present paper we use direct survey questions designed to elicit the presence of liquidity constraints in the family. We find no evidence that various measures of liquidity constraints affect the significance of parents' risk aversion as a determinant of children's college enrollment.

Overall the results indicate that risk aversion, which is likely to reflect some fundamental preference of parents, is an important determinant of college enrollment. Given the peculiarities of the Italian system (which are common to many European countries), we believe that parents' risk aversion may affect children's schooling through their willingness to finance college and that this mechanism has better chances to rationalize the negative relationship that we find in the empirical part. However due to data limitations we have to remain agnostic relative to the exact mechanism: it could still be the case that risk averse parents motivate less their children to attend college or they have children who are themselves more risk averse. The policy implications of our findings point to a better institutional design, capable of circumventing the negative effect of parental attitudes on children's educational choices.

The plan of the paper is as follows. In Section 2 we introduce a simple model to highlight the role of parents' risk aversion. In Section 3 we describe the data and discuss the risk aversion variable. In Section 4 we introduce our estimation strategy and show the benchmark empirical results. In Section 5 we try the robustness of the results modeling non-response to the risk aversion question and testing different measures of risk aversion. Finally, in Section 6 we conclude.

2. A simple model of parental investment in children's education

We consider a simple model inspired by Galor and Zeira (1993), Banerjee and Newman (1993) and DeFraja (2001) in order to study the determinants of parental investment in children's education. We abstract from the existence of different stages of education (primary, secondary and tertiary) as well as the opportunity costs of school attendance: as long as the initial stages of education are compulsory by law and (almost) freely provided by the state, this model can be considered as relevant for tertiary school investment.

Since we want to consider the educational choice as a risky investment, we need to introduce some uncertainty about future events. There are alternative strategies to pursue this goal, among which we prefer to introduce imperfect observability of children's ability in human capital formation. This is obviously an extreme assumption, since parents form and revise their expectations on the abilities of their children,

[3] It is plausible that the risky aspect of acquiring education involves not only the investment in college but it is anticipated also in the choice of the type of secondary school. Few papers look into the role of parents' risk aversion on children's schooling. Leonardi (2007) and Heineck and Woelfel (2012) look at the effect of parents' risk aversion on secondary school choice in Italy and Germany, while Brown et al. (2006) look at the effect on children's school test scores in the US.