Quality of social networks and educational investment decisions☆

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ABSTRACT

All individuals belong to a social network with certain quality level. This paper analyzes the role of the quality of the social network in the educational decision making process. I propose a measure for quality of network based on the schooling level and the labor position of the members of the net. The analysis compares individuals who are similar in at least two characteristics: socioeconomic level and intellectual ability. Although they belong to the same type of community (poor), they differ in the composition of their social network. The higher the quality of the network, the higher the probability of investing in education. Hence, socially disadvantaged and equally intelligent individuals may end up acquiring different schooling levels.

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1. Introduction

It is well known that the level of family income play an important role in determining the amount of human capital investment that an individual is willing to undertake. Although public education is free in many countries at basic and medium level of schooling – there is no fee – and relatively cheap at the superior level, there are other costs like transport, food and clothes, among others, that poor families cannot afford. Besides, credit markets for education are incomplete and exclude most of the low income potential applicants.

What we can observe in cities like Cali (Colombia) and many others in Latin America,[1] is that young poor people tend to leave school much earlier than wealthier individuals. In Cali, the lack of attendance rate among youngsters from 18 to 26 years old is around 82% in the poorest neighborhoods (eastern and mountainside areas), while for the wealthier zone the rate is 50%. In the case of 11–17 years old youngsters, the rates are 19% and 10% for the poorer and the wealthier areas respectively (Zuluaga and Benitez, 2009).

Perhaps what is driving the poorer to skip school is a belief that, either way, investing or not in schooling, good jobs will be given to the wealthier. This belief may discourage the decision maker to attain higher levels of education, as he believes the instrumental value of education is low.[2]

This paper aims at exploring the existence of an additional factor influencing the educational investment decisions, i.e. the social networks[3] that individuals belong to. Social network theory goes beyond traditional researches in which the individual's social and economic decisions are only determined by individual traits. Instead, network theory states that both personal characteristics and links with the members of the social network are important determinants of individuals' behavior and decisions.

One example of this influence is the impact of social networks in altering the incentives that individuals have to acquire education. In particular, I state that the "quality" of the network influences the perceived returns to education, encouraging or discouraging

[1] This problem is not exclusive for developing countries. There is also evidence in developed countries on the higher probability of low-income children to drop-out school, as well as evidence on the higher probability of poor young students to abandon high school. See, for instance, Tyler and Lofstrom (2009).

[2] Education has both intrinsic and instrumental value. The first refers to the value of acquiring knowledge itself and the second refers to the positive influence of education on (among others) the capacity of individuals to get higher economic positions. If the individual experiences higher opportunity cost of schooling and lower chances to get a good job compared to an equally educated wealthier person, this affects his perception of the instrumental value of education.

[3] There is no a standard definition of social network in the literature. Jackson (2005) defines it as the group of people "with whom we share information and favors on a regular basis". According to Requena (2003), a social network is a set of social actors linked to each other through a number of relationships with properties like intensity of the relation, position of the actor inside the network, and accessibility of the actor with respect to the others.

individuals' investment in additional years of schooling. For my purpose, I define the "quality" of a social network as determined by the schooling level and links with the labor market of the network's members or ties (e.g. family members, neighbors, colleagues, friends, classmates, teachers, among others). It is worth mentioning that the term "quality" is used here as an attribute (ascribable) of the network, which is not related to the value of the individuals belonging to the network. In this sense, the meaning of quality that I use here is close, in nature, to the meaning that Becker and Lewis (1973) and other authors used in their papers referring to children's quality, which is different from referring to the value of a son or a daughter. In their context, a child's quality is a combination of endowment (inheritance) and household expenditure on the child. Having clarified this important point, the quotation marks for the word quality will not be used any more in the text.

There are no previous works that focus on defining quality of networks. It is more usual to find definitions of the quality of a tie referring to the strength of the relationship (Granovetter, 1973). This paper's definition of network quality is associated with the idea that certain characteristics of the members of the network may (positively or negatively) influence the individual's behavior and decisions. Perhaps other members' attributes besides schooling and occupational position are also important to capture this impact, however, this paper will only focus on these two characteristics. Specifying a method to estimate network quality will allow us to empirically verify the influence of networks on the schooling investment, or any other socioeconomic achievement. In this analysis, the impact of parents' characteristics is separated from the effect of the rest of members of the network. The idea is to check the influence of networks, after controlling for parental background.

It is possible to find individuals belonging to the same community or neighborhood, who share certain attributes like family income and ability, ending up at different schooling levels, expected future income and expected social mobility. The analysis of social networks may offer us an attractive hypothesis to explain this phenomenon and to explore why policies of educational expansion favor only a small portion of low income individuals.

This paper proceeds as follows. The second section corresponds to the literature review, where previous contributions about the influence of social interactions on schooling investment are briefly presented. In the third section of the paper, it is made explicit how the social network quality affects educational investments of individuals. The network's quality has a potential relevant effect on the individuals' perception of the returns to education, which in turn influences their educational decisions. I propose a specific measure for the quality of social networks, whose information requirements are: (i) quality of each member of the network, based on educational level and labor position, and (ii) the weight of each member.

An important definition is the "key tie". This is a concept characterizing a non-relative member of the network who plays a decisive role in determining the overall quality of the social network. A key tie is an initially weak tie (under the kinship criterion) who turns up to be a strong tie if we adjust his weight by factors like closeness, intimacy, economic support and admiration. Although the concepts of weak and strong ties are commonly used in the literature of social networks, there is no consensus on their precise definition. I do not pretend to be more accurate in defining the concepts here, instead, I adopt an ordering for strength of ties originally based on kinship: family (stronger), friends and acquaintances (weaker), and subsequently modified by the mentioned adjustment factors (closeness, intimacy, economic support and admiration). These adjustment factors may lower the weight of originally strong ties and could make a weak tie become a key tie.

The fourth section corresponds to the empirical calculations. Existing databases do not allow us to determine the members of an individual's network, nor their characteristics. In order to obtain the required information for measuring the network quality of a group of individuals, a survey was carried out. This survey was applied to a target group and a comparison group. Individuals in both groups are similar in their intellectual ability and socioeconomic conditions – they live in the same type of poor neighborhood. Those in the first group have continued studying after secondary school whereas those in the comparison group have not. Through the survey, I find out the schooling level and the labor position of each member of the individuals' network in order to estimate the quality of the network. I then specify a Logit model to test the influence of the network quality on the decision of individuals to continue studying, controlling for parental background and network size. The information captured through the survey is valuable because it helps us to determine the appropriate reference group likely to influence our individuals' decisions. The last section gives some conclusions and recommendations.

2. Literature review

The existing economic literature on social networks and their effects on problems resolution, decision making process and socioeconomic achievements levels is very extensive. There is also a vast literature on the formation of networks and their efficiency and stability conditions (see Jackson, 2003, 2005 for a good review). Given the rich nature of social networks, studying their characteristics with no other goal is already very interesting academically. Yet, this paper will not focus on how social networks are established nor on their nature, but on how they influence the educational investment decisions.

Social networks play a relevant role in many economic situations: market labor interactions, risk-sharing loans in underdeveloped areas, research and development, trade agreements, among others. In the case of risk-sharing loans, Fafchamps and Lund (2003) explore the relevance of networks in the ability of households to face adverse shocks.[14] In the same line of research, Dercon (2001) and Bold and Dercon (2009), analyze social networks as an informal group-based mechanism or strategy of households to managing risk and coping with adverse shocks.

In the case of the networks' impact on the labor market, Calvó-Armengol and Jackson (2005) argue that the probability for an individual to get a job is a function of his network's size (quantity of ties) and the labor position of the members of his network, through whom he acquires information about available jobs. In the same line, Contreras et al. (2007) stress the social network as an effective channel, not only to find a job, but also to guarantee the good quality of those jobs. In their paper, social network is empirically defined as the average outcome (employment rate) of people living in the same neighborhood, finding that the network helps the woman in getting more easily salaried jobs, whose quality is higher than self-employment occupations.

Another group of previous studies contributes to the analysis of networks by exploring how individuals learn from each other through the social interaction. These contributions are crucial to this paper, since they make reference to the so-called role models, who influence the decision making process on schooling, among other things. For instance, Bénabou (1993) presents a model relating the choice of neighborhood, schooling, decisions and efficiency issues, where the assumption of human capital spillovers plays a fundamental role. The more people with high schooling level in a given neighborhood, the easier it is for a young inhabitant to pursue any educational goal.[15] In this context, the effect of social networks

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[14] See also Fafchamps (1999).
[15] See Bala and Goyal (1998) to analyze the impact of neighbours' experiences in the decision making of individuals.