

# Approaches to study educational and occupational trajectories and outcomes

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**Abstract:** This article analyzes the main approaches to study educational and occupational outcomes and trajectories. Young people have to decide when and what to study, later on, where to work. Their life levels will depend on those decisions, but the different ways that in both areas they are able to take and their outcomes in education and in the labor market depend on various factors. Among explications it is possible to identify six large approaches: human capital from economics, cultural and social capital from sociology, the socioeconomic status or familiar background approach and the educational and psychological approaches. These approaches are not contrary necessarily, they can be complementary, and their explanatory power depends on place and time, however, the literature does not have an effort to present together their contributions, methodologies and empirical results. This work seeks to remedy that situation and to point out some methodological and empirical weakness.

**Keywords:** Education – Labor – Trajectories - Human capital - Cultural capital - Social capital - Family background – Clusters - Longitudinal studies.

**Resumen:** Este artículo analiza los principales enfoques para estudiar las trayectorias y resultados educacionales y laborales. Los jóvenes deben decidir cuándo y qué estudiar, y posteriormente en dónde trabajar. Su nivel de vida dependerá de esas decisiones, pero los distintos caminos que en ambos campos pueden tomar y los resultados en su educación y en el mercado laboral dependen de varios factores. Dentro de las explicaciones se pueden identificar seis grandes enfoques: el capital humano desde la economía, el capital cultural y social desde la sociología, el enfoque del status socioeconómico o de antecedentes familiares, y los enfoques educativo y psicológico. Estos enfoques no necesariamente son opuestos, más bien son complementarios, y su poder explicativo depende del lugar y el tiempo, sin embargo, en la literatura no existe un esfuerzo por presentar de manera conjunta sus aportaciones, metodologías y resultados empíricos. Este trabajo busca remediar esa situación y señalar algunas debilidades metodológicas y empíricas.

**Palabras clave:** Educación – Trabajo – Trayectorias - Capital humano - Capital cultural - Capital social - Antecedentes familiares – Clústeres - Estudios longitudinales.

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Life trajectories are conformed by decisions, possibilities and resources. In the end, the level of welfare of each person depends on those decisions and other determinants. Consequently, for young people the decision to study or to get a job is relevant in the present and for the future. A young man or woman has to decide when to begin studying, when to stop, and later, where to work, and their outcomes in education and in employment depend on many factors. In the literature it is feasible to find a large list of determinants of the educational and occupational trajectories of young people, and it is difficult to separate approaches, because the studies are multidisciplinary. Nevertheless, it is possible to identify at least six main approaches: human, cultural, social, socioeconomic, educational and psychological.

During the 1940's and 1960's ethnographers analyzed educational outcomes (DiMaggio, 1982); later on, economists explored the determinants of education as an investment in human capital. Sociologists argued that the decision to go ahead in school or to stop, and go to the labor market, was not clear only with an economic explanation, therefore, especially after the contributions of Pierre Bourdieu in the 1970's, cultural and social capital became essential explanatory variables. The socioeconomic status or background of a young person was always among the independent variables, like explanatory or control variable. But only after the work of Lucas (2001) the backgrounds effects were reconsidered, and not only the socioeconomic characteristics of the family and also the socioeconomic characteristics of the school, it is the educational approach. At the same time that economists, sociologists and other specialists discussed the predictors of educational and occupational outcomes and trajectories, psychologists developed a large literature that other social scientists only looked at a few years ago in what is called the psychological approach. Psychologists emphasize that the educational trajectories and later the occupational trajectories are determined by factors that affect the people's behaviors, for example, their motivation to obtain a degree or good occupational status.

This work presents and analyzes the main ideas, methodologies and empirical results of these approaches. The paper is structured as follows: the first five sections discuss the human capital approach, cultural and social capital approaches, family background and socioeconomic status, the educational approach and the psychological approach, respectively. All these sections included subsections with empirical findings. The sixth section discusses methodologies, typical trajectories and clusters analysis. Finally, I present some conclusions and viable future lines of research.

## HUMAN CAPITAL APPROACH

The human capital approach is based on the research work of Gary Becker, Theodore Schultz, and Jacob Mincer, it sustains that higher levels of education (knowledge and skills) raise the value of the individuals' human capital, which in turn is used in the labor market. Then, the decision to start and to finish an educational trajectory depends on estimations of the future return that an individual is able to obtain in a job.

Like in the neoclassical tradition, human capital approach supposes that individuals are rational and look to maximize their welfare. A person will invest on his/her human capital as long as the present value of expected future return is still bigger than the present value of actual costs. The costs include tuition fees, transport, food, apartment, etc. and more important, they include the opportunity cost, for example, the cost of a job. Individuals make investments in their education in order to gain larger returns in their employments. They think that their labor market outcomes will be superior to those who did not invest in their capacities (Marks, 2008).

This effect of education on job earnings is a rate of return and is possible to calculate it thanks to the Mincer's equation (a wage equation), which allows knowing the percentage increase in earnings for each additional year of education relative to its cost. Really, the majority of studies use a regression analysis where the estimated coefficient of the measure of education is interpreted as the rate of return. For example, income is regressed on years of education. Later on, income differences based on different levels of education are calculated and discounted to the present by using a capital market interest rate (Krenz, 2010). This rate had been calculated for some countries and the empirical research shows that education has an important influence on occupation and earnings: "It is unequivocal that education is associated with better labour market outcomes" (Marks, 2008, p. 1).

Marks (2008) points out that labor experience and unemployment have a special role in the influence of the human capital on returns and therefore on decisions about educational and occupational trajectories. For example, a young man can think that stopping his educational trajectory in some level, to explore the labor market, will help him to obtain experience and later a larger return and higher occupational status, because workers with more experience have better skills and they are more efficient. On the contrary, experiences of unemployment have a negative effect on future wages and occupational status, because they are associated with a deterioration of skills, a reduction of human capital.

In general, the human capital approach is an analysis of costs and benefits, but educational and occupational outcomes and trajectories also depend on abilities, current and expected labor opportunities, preferences, and uncertainty (Perna, 2000 referring to Becker, 1962). In labor markets there are many incongruities, like undereducation and overeducation (Nieto and Ramos, 2011), and outcomes that cannot be explained by dissimilar levels of human capital. People with similar levels of human capital but with race and gender differences, or living in different places, have different returns and occupational status (Bureau of Labor Statistics, 1993; McMillan and Marks, 2003; Andres and Grayson, 2003; Marks, 2008; Mello, 2008; Hango, 2010; Johnston, Sirkeci, Khattab and Modood, 2010). Krenz (2010, p. 7) points out that “human capital theory is being criticized for it does not consider further explanatory factors of income like social background, quality of school, gender, race, religion, luck, social contacts, intelligence, belonging to firm, ambition, motivation, region, unemployment and health”.

It is interesting to notice that the human capital approach is not a solitary contribution of economists, because the effects of family background or socioeconomic status (SES) on educational and occupational outcomes can be considered inside of economics or sociology, depending on the main point of view. In general, economists explore family incomes more than parental education or occupation as explanatory variables, sociologists just the opposite, but all they typically use a set of SES variables. For example, De Graaf, De Graaf and Kraaykamp (2003) exposed the economic hypothesis; where the financial resources of a family explain the outcomes and the educational trajectories, because parents are able to offer their children access to better schools and extracurricular activities. Then, teenagers from high income families can pay for the costs that are involved in extended educational trajectories and they tend to invest more time and effort in schooling. If some levels of education are free of cost (basic education is free and compulsory in a large number of countries), then financial resources and socioeconomic status of the family cannot explain educational trajectories and outcomes, although they can explain occupational, because rich families are proprietors of important firms, and they will employ their relatives.

In economic and sociological approaches, essentially, socioeconomic status (SES) or familiar background is employed as a control variable. Although for some researchers it is the most relevant explanatory variable (Lucas, 2001) financial or economic resources are not the only kind of resources that offer an explanation of the trajectories. Sociologists highlight that social and cultural capital are the most important explanatory variables. These factors and others will be analyzed in the next sections.

### **Empirical evidence of the human capital approach**

Theoretically, the human capital approach has made few advances, and research did not explore specifically the hypothesis that people take into account the future returns in the labor market to make decisions in the present about the education that they want to get. But human capital effects on educational and occupational outcomes together with the Mincer's equation have been tested in many studies, and there are some interesting findings.

With data from the German Socioeconomic Panel, Krenz (2010) examined outcomes in education (years of education) and employment (gross wages monthly). She used a large set of explanatory and control variables, and although her model consists in simultaneous equations, it is also an approximation to Mincer's equation, which included job experience and years of education. A relevant, even though obvious, conclusion is that education explains income (wages). Marks (2008) used data from the Longitudinal Surveys of Australian Youth, the sample included young people enrolled in year nine in 1995 and subsequently interviewed annually until 2005. He explored the effects on occupational status and weekly earnings, the key explanatory variables are prior education (participation in post-secondary study and qualifications from post-secondary study), workforce

experience and unemployment. Also he utilized as control variables gender, literacy and numeracy, school type, socioeconomic background and ethnicity. According with the human capital approach “post-school education and training leads to higher status occupations and, in particular, higher earnings compared to not doing any further study or training” (Marks, 2008, p. 54) and “social background plays only a small role in accounting for differences in occupational status and earnings indicates that education is enhancing social mobility” (Marks, 2008, p. x). Yates (2005) used data from the National Longitudinal Survey of Youth 1979-2002 (USA). The author traced individuals’ careers until age 35. Yates analyzed job mobility and the explanatory variables were education and demographic characteristics. She found that, five years after leaving school, the average worker approximately starts a job that will last three years; however, there was considerable variation by education. At age 35, 66% of those with some college and 63% of those with a college degree had held a job for five years or more, this result is consistent with the human capital approach. In addition, findings showed “significant differences by sex and race in the work experiences of individuals between the end of schooling and age 35” (Yates, 2005, p. 31).

Evidently, human capital is an important explanatory variable of outcomes in employment and of the occupational trajectories. But new empirical studies do not only analyze the Mincer’s equation anymore, because there are evidences of the relevance of other explanatory variables. For example, Johnston *et al.* (2010) utilized the Controlled Access Microdata Sample 2001 for England and Wales. The authors used a skill-level distance score, and then with multilevel multinomial logistic analyses, they analyzed the effects of race, religion and educational qualifications on employment. The main result suggests that race and religion matter to get employment more than educational qualifications. Moreover, one could argue that human capital is able to explain educational outcomes and trajectories, especially of the later levels of education, because prior education explains educational expectations and achievements required to the transition to the next level of education. Shapka, Domene and Keating (2006) utilized a Canadian sample of 218 university adolescents (129 girls, 89 boys) to explain career aspirations and occupational prestige. The main explanatory variable was early high school math achievement. The authors employed hierarchical linear modeling techniques and the results supported the notion that math achievement functions as a critical filter to subsequent career aspirations. Rowan-Kenyon (2007) found that human capital, as academic preparation is an important predictor of the timing of college enrollment. Beside, “graduates who delay enrollment average fewer resources and weaker preparation than graduates who enroll immediately, but they average more resources and better preparation than graduates who do not enroll” (Rowan-Kenyon, 2007, p. 209).

To explore inequalities and the process of accessing professional education in Russia, Roshchina (2010) utilized not only the human capital of students but also parental human capital (parental education) and human capital as school type. The conclusion is that “inequality of pupils’ families becomes fixed and aggravated at high school level as children of poorer and less educated parents study at the worst schools and have lower progress” (p. 1). Brown (2006) also used parental education to explain investments in children’s human capital. This investment included education expenditures, school fees, required textbooks, required uniforms, area of study, hours that parents spend helping their children with homework, reading and discussing. The data come from the Gansu Survey of Children and Families, a survey of 1,970 children ages 9-12 and their families in a province located in northwestern of China. The number of grades completed by fathers and mothers form parental education (parental human capital). The study showed that parents who are more educated allocate higher levels of goods and time to their children’s human capital, even controlling for wealth, teacher quality, village fixed effects, and child cognitive development.

Perna (1998) used data from the National Education Longitudinal Study 1994 (USA), to investigate the decision of enrolling in four-year college or university or not (dichotomous variable). The explanatory variables are divided by type of capital: economic, academic, structural, social and cultural. Education, income and occupation of parents, and items in the home form the economic capital. Perna (1998), in particular, analyzed race differences, and found that Afro-Americans and Latin-Americans had less economic and academic capital than white people, and this works as an explanation of not enrolling (although, the cultural capital is more important). Later on, Perna (2000) analyzed enrollment status, divided into three categories: in four-year college or university, in two-year public college and not enrolled. The explanatory variables were similar to the precedent work, but Laura Perna changed the indicators of economic capital, on this occasion she used expected costs and benefits: tuitions fees, expected occupation at age 30, unemployment rate and financial resources (family income). Nevertheless, these variables do not explain why Afro-Americans and Latin-Americans are less likely than white people to enroll in

four-year college immediately after graduating from high school (mathematics course, parental involvement, values, norms, and characteristics of the high school explain it).

The human capital approach does not provide radical news, but economic variables are routinely used in empirical studies, principally in the form of socioeconomic status. Other investigations based on other approaches as a rule include a measure of economic capital. Coleman (1988) points out the relevance of social capital as explanatory variable of dropouts (to continue or to abandon the education), and human and financial capital are relevant control variables. De Graaf *et al.* (2000) primarily employed the sociological approach, but they also utilized parental financial resources as an explanatory variable. Dostie and Jayaraman (2006) analyzed the effects of schooling infrastructure (educational approach) on school enrollment in India, and they used parental education, expenditure, bicycles, rooms in the house, land owner, cows and goats as other explanatory variables. In some contexts it is difficult to know the family income, and expenditure is used as a proxy variable, for example Glick and Sahn (2000) in the case of Guinea, and Mani, Hoddinott and Strauss (2009) in the case of Ethiopia.

### **SOCIOLOGICAL APPROACH: CULTURAL AND SOCIAL CAPITAL**

Because of dissatisfactions with the explanatory power of the human capital approach, other explanatory variables were explored, principally cultural and social capital. DiMaggio (1982) based on contributions of Pierre Bourdieu, points out the relevance of cultural capital explaining school outcomes. Cultural capital is defined as “instruments for the appropriation of symbolic wealth socially designated as worthy of being sought and possessed” (DiMaggio, 1982, p. 190 referring to Bourdieu, 1977), that is to say, instruments used to promote intergenerational status persistence (Weberian tradition). The cultural capital approach argues that teachers have a better relationship with students who have some high cultural characteristics, therefore these students are able to obtain advantages from this good relationship and because they feel comfortable in the school. As a consequence, their educational trajectories are larger than those of poor cultural students. Paul DiMaggio analyzed Bourdieu’s reproduction hypothesis: returns to cultural capital are highest for students from high status families and least to students from low status families; it is assumed that rich families have more cultural capital and they reproduce their status. By contrast, if cultural capital shows higher rates for low status students, because these students understood the advantages of participating in cultural activities, it is possible to obtain social mobility. This is called the cultural mobility hypothesis of DiMaggio.

After the work of DiMaggio (1982, 1985), the majority of empirical studies employed indicators of cultural capital to approach educational and occupational trajectories and outcomes. Many researchers considered the cultural capital as the most important explanatory variable. Soon after, Coleman (1988) argued that social capital is another kind of capital that researchers have to take into account. The author introduced the concept of social capital, as a response to failings in mainstream economics and sociology. Social capital is, like others forms of capital, productive and it makes possible the achievement of certain ends. Social capital is formed by a variety of different entities, with “two elements in common: they all consist in some aspect of social structures and they facilitate certain actions of actors” (Coleman, 1988, p. 98) within the structure. Social capital is the relation among persons that facilitates action. James Coleman used his concept to analyze education, that is, social capital creating human capital. The social capital, in the family (the relations between parents and children) and in the community, is a way to catch the human capital from parents, with consequences on educational and occupational trajectories.

#### **Empirical evidence of the sociological approach**

Although Pierre Bourdieu did not show any kind of empirical evidence (Lareau and Weininger, 2003), there is a large empirical literature supporting the cultural capital and social capital approaches. DiMaggio (1982) used a random sample of white people respondents, 1,427 men and 1,479 women in eleventh grade in public, parochial and private high schools in 1960. He obtained information about students' high school grades (students' self-reported grades in English, history and social studies, mathematics, and a composite measure of self-reported grades in all subjects), and information about cultural capital (involvement in art, music, and literature). The methodological techniques in his work consist of correlation matrix, principal components and regression analysis. With these instruments, the author concluded that cultural capital has a significant impact on grades,

even when controlling for family background and ability. The pattern of relationships, however, differs strikingly by gender. Later on, this empirical study became the basic reference for other empirical investigations, in particular because of the type of indicators that were used to approach cultural capital.

De Graaf *et al.* (2000) analyzed the cultural reproduction hypothesis of Bourdieu (1977) and the cultural mobility hypothesis of DiMaggio (1982). Cultural resources are defined as “familiarity with the conceptual codes that underlie a specific culture with its major artistic and normative manifestations” (De Graaf *et al.*; 2000, p. 93), and the authors argued that the more appropriate way to measure cultural capital is through parental behavior with respect to cultural preferences. The authors utilized data from the Netherlands Family Survey, 1992-1993 and they obtained information about educational attainment (years of education) as dependent variable. As independent variables they used parental cultural resource divided in two categories: first, parental beaux arts participation (museums, opera, ballet, classical music concerts and theatre), and second, parental reading behavior (regional or historical novels, thrillers, science fiction, war novels, Dutch literature, translated literature and literature in a foreign language). In addition, authors used indicators of parental social background (parental years of education, father's occupational status and parental financial resources), and variables of gender, cohort, and broken family. Their main results indicate that parental reading behavior, not parental beaux arts participation, affects children's educational attainment. The data provide support for the cultural mobility hypothesis (DiMaggio, 1982), because parental reading behavior effectively predicts success in the school, especially for children whose parents have low levels of education.

Sullivan (2001) analyzed educational outcomes in England, she separated the cultural effects for parents and pupils. To measure cultural capital Alice Sullivan used indicators about activities, like time watching television, reading, listening to music and participation in culture. Tests of cultural knowledge and language are added for pupils' cultural capital. Results suggest that cultural capital is transmitted within the home and it has significant effect on performance in the General Certificate of Secondary Education examination. Cultural reproduction (Bourdieu's theory) has not support, because direct effect of social class is low when it is controlled by cultural capital.

Theoretically, cultural capital affects educational trajectories through teachers. Wildhagen (2009) tested this hypothesis with data from the National Education Longitudinal Study (USA). Teacher-selection effect is measured with responses to the following questions: How often is the student attentive in class? How often does the student complete his or her homework? How often does the student try as hard as he or she can in class? As alternative hypothesis the self-selection effect formed by years of education expected, college completion expected and mothers', fathers', and friends' educational expectations for the student are used. Contrary to the main hypothesis, teachers' perceptions do not mediate the effect of cultural capital on academic performance.

The other great sociological approach, the social capital approach, is based empirically on Coleman (1988). He used a sample of 4,000 American students in years 1980-1982 and logistic regressions to analyze the dropout rates. Single-parents family, number of siblings, mother's expectation of the child's going to college, talk with parents, chance of residence and religious school form the indicators of social capital. The main conclusion suggests that lack of social capital within the family differs for different outcomes in education, especially in dropping out of the school, although financial and human capital explain outcomes in education too.

It is interesting to notice that the proxy of social capital is open to criticism. It is obvious, because the social capital concept is very sophisticated. Future empirical studies used social networks and relations inside the family, between parents and children, as proxies of social capital (Roshchina, 2010; Marjoribanks, 2004). Kim and Schneider (2005) point out that social capital is relevant to explain educational trajectories only if the social capital of children and parents is aligned. With data from the National Education Longitudinal Study of 1988-94 (USA) and multinomial logistic regressions analyses, the authors analyzed the decision to continue in postsecondary education and the competitive level of four-year college. Their results show that the “alignment of parents' and students' goals increases students' odds of attending a postsecondary institution in the year after high school graduation. The effect of parents' education on the selectivity of the college attended is also dependent on aligned ambition and aligned action between parents and adolescents” (Kim and Schneider, 2005, p. 1181), even when controlling socioeconomic factors. Marjoribanks (2004) utilized data from the Longitudinal Surveys of Australian Youth to argue that not only the family social capital (discussions with parents and cultural

activities) matter for educational attainments, also the school social capital (students' perceptions of their schools in 30 items). The main conclusion is that "adolescents' family backgrounds, family and school capital, and individual characteristics combined to have a large association with young adults' educational attainment" (p. 10).

At the same time, many studies use as explanatory variables cultural and social capital. They are complementary approaches. Roshchina (2010) used social capital (relations with children and presence of network contacts), and cultural capital (size of home library, computer at home, nationality, language spoken at home and religion) to explain accessing professional education in Russia. Rowan-Kenyon, (2007) to explain the time of enrollment in USA used social capital (parental involvement in the student's education, number of financial aid contacts, student-teacher relations, high school based support, and high school control) and cultural capital (parental expectations, peer encouragement, parental involvement with the school, educational materials in the home, and participation in art, music, or dance classes).

In other studies it is possible to find only one variable for cultural and social capital. Strayhorn (2010) employed the concept of sociocultural capital: parents' highest level of education, discussions with parents, parental expectations, involvement in selected collegiate clubs and organizations. Perna (1998, 2000) used social and cultural capital as single category, although it includes a large list of indicators. In her paper of 1998 she used mothers' expectations, proportion of friends planning to attend a university, and other indicators of the close friends, relatives, teachers, guidance counselor and/or coach, and tools as private classes, books, videos, computer programs and tutors. In her work of 2000, she used received help at school, parental encouragement and support, interactions with peers, extracurricular activities, segregation and indicators of high school. Krenz (2010) found that individuals with more cultural (cultural events and arts) and social (sports and voluntary work) capital get more education, that is to say, have a large educational trajectory. She argued that Bourdieu's theory about mutual dependence of cultural and social capital is confirmed.

In the empirical literature there is a large list of indicators to approach cultural and social capital, and occasionally they are mixed, that is, a same indicator can measure one kind of capital or another. For example, Tramonte and Willms (2010), to explain outcomes in education, used the static cultural capital (highbrow activities and practices of parents) and the relational cultural capital (interactions and communication between children and their parents). However, it is easy to see that this relational cultural capital could be considered as social capital. There are many examples of mixed indicators. Occupation and education of parents frequently are proxies of social or cultural capital, because high educational and occupational status implies the possibility of better social networks and preferences for cultural activities. Also, they are regularly used as indicators of socioeconomic status (Dumais, 2009; Lucas, 2001; Pfeffer and Goldrick-Rab, 2011). To avoid this dilemma in the conceptual framework, some studies use a solitary indicator as a single category, for example, Schildberg-Hoerisch (2010) to explain children's educational attainments in Germany, used parental employment as single explanatory variable; the author found, in general, that parental employment does not affect children's educational attainment. On the contrary, in Guinea, Glick and Sahn (2000) found that the improvements in father's education raise the schooling of children. In Ethiopia, Mani *et al.* (2009) found that parental schooling is positively associated with schooling enrollment but its estimated effects declines over time.

## **FAMILY BACKGROUND AND SOCIOECONOMIC STATUS (SES)**

Sociology and economics share the socioeconomic approach, where the contributions of Lucas (2001) are essential, because he points out that socioeconomic status is still an important variable explaining educational and occupational trajectories, and it is not only a simple control variable. Pallas (2002) points out that the main conclusion after all these years of the National Education Longitudinal Study (USA) is that "the rich get richer" (p. 13). That is to say, the students that in 1988 had the higher rates in socioeconomic status are the same with higher rates in the 1990's. This is evidence against the idea that public investment in free and compulsory education allows social mobility (Székely and De Hoyos, 2009) and it is evidence against the idea that socioeconomic status does not matter for trajectories in basic levels of education, usually free of cost (De Graff *et al.*; 2000).

Lucas (2001) sought connecting the research on educational transitions and the analysis of track mobility. The author points out three theories about the relevance of social background, also called familiar background, which

as a rule includes indicators of socioeconomic status (SES), to explain educational outcomes. First, Life Course Perspective (LCP) sustains that social background loses relevance because children become more and more independent of parents. Second, Maximally Maintained Inequality (MMI) implies that adolescents' independence itself depends on the sociopolitical context. Third, Effectively Maintained Inequality (EMI) "posits that socioeconomically advantaged actors secure for themselves and their children some degree of advantage wherever advantages are commonly possible" (Lucas, 2001, p. 1652). If a particular level of schooling is not universal (free and compulsory), the socioeconomically advantaged actors use their advantages to secure that level of schooling. "Once that level of schooling becomes nearly universal, however, the socioeconomically advantaged seek out whatever qualitative differences there are at that level and use their advantages to secure quantitatively similar but qualitatively better education" (p. 1652).

To measure familiar or social background, Lucas (2001) used indicators as parent's education, father's occupation, family earnings, farm background, siblings, and broken family. It is worth noticing that in some empirical studies, parental education is a proxy of parental human capital, and in others, it is a proxy of cultural capital. In general, what is included in family background depends on the available data and the concept used by authors. For example, Andres and Grayson (2003), to explain job satisfaction, used parental background (parental education) and separately the authors used occupational status as explanatory variable. The majority of empirical studies use socioeconomic status (SES) that includes education, occupation and income of the parents.

### **Empirical evidence of the family background and SES**

Family background or socioeconomic status as a rule is presented in econometric models to control the effects of human, cultural or social capital, but SES indicators for many specialists are the key explanatory variables. Walpole (1997) used the variable background to explain income, educational aspirations and attainments. Also, he compared effects from low and high socioeconomic status. For Americans, MaryBeth Walpole found that nine years after entering college, students from low SES background had lower levels of income and educational outcomes than their peers from high SES background. Lucas (2001) used data from the project High School and Beyond (1980, 1982, and 1986, USA) to explain students' destinations. He sustains that the key independent variable is social background. Employing ordered probit model, the author concluded that the effects of social background occur in at least two ways: first, it determines who completes a level of education if completion of that level is not nearly universal, and second, it determines the kind of education persons will receive within levels of education that are nearly universal. Results are consistent with the general perspective of Effectively Maintained Inequality.

Based on data from the Longitudinal Surveys of Australian Youth, Rothman (2003) analyzed educational achievement (reading comprehension and mathematics). The most important explanatory variable is socioeconomic status (SES), and the author found that the influence of socioeconomic status had declined over the period from 1975 to 1995. Moreover, "there has been a greater socioeconomic segmentation of schooling, which is reflected in the transfer of the effects of socioeconomic status from the individual level to the school level" (Rothman, 2003, p. 9). Pfeffer and Goldrick-Rab (2011) utilized the National Educational Longitudinal Study 1988-2000 (USA) to analyze transition outcomes in four-year institutions, each year until getting the bachelor's degree. Socioeconomic status (parental education, occupation and income) is the most relevant explanatory variable. They found that transitions through college are strongly related to students' socioeconomic backgrounds.

Mello (2009) found that SES (fathers' and mothers' education level, fathers' and mothers' occupation level, and family income) positively predicted educational and occupational expectations. But the expectations explain the educational and occupational attainment in adulthood (Mello, 2008). It is interesting to notice that Walpole (1997), Lucas (2001), Rothman (2003), Mello (2009) and Pfeffer and Goldrick-Rab (2011) did not use indicators of cultural or social capital. In particular, for sociologists cultural capital became the most popular and important predictor of educational and occupational trajectories, because econometric results suggest that SES indicators are worthless when the models include indicators of cultural capital or social capital.

Evidently, indicators of cultural and social capital are correlated with indicators of family background (SES), and it is possible to argue that the effects of SES on educational and occupational trajectories use as channels the

economic, cultural and social capital, and vice versa. Roscigno and Ainsworth-Darnell (1999) used data from the National Education Longitudinal Survey (USA) and they concluded that “significant racial variations in cultural capital and household educational items are largely a function of disparities in family socioeconomic status” (p. 158). Farkas (2003) suggests putting the human, social and cultural capital under one rubric: the family resource theory.

## EDUCATIONAL APPROACH

If family background does not explain the trajectories, it is possible to argue that its effects were transferred to school background. In addition, individual characteristics, in particular intelligence, also have an influence on trajectories. Outcomes in education can be analyzed as production function, the neoclassical economic concept (Hanushek, 1996, 1997), therefore, trajectories depend on resources (factors of production and technology). It includes quality of the students and later on, quality of the workers.

Politicians, for example, to gain votes habitually propose more schools, that is, more resources to improve the educational and occupational outcomes. In general, these resources are approximated with variations in spending per pupil: teacher-pupil ratio, teacher education and teacher experience. However, “the evidence suggests that spending and commonly used resources of schools are not good measures of quality. Moreover, simply adding more resources to schools as currently structured is unlikely to yield significant improvement in student performance. Many people recognize that past spending on schools has brought little reward, but they advocate still another round of investment” (Hanushek, 1996, p. 27).

It is evident that schools with similar resources show different educational results, that later are reflected in the labor market. Then, the quality of the school is relevant for educational outcomes. Levine (1997) accepted that students from low socioeconomic status are more inclined to abandon high school, and never continue on to the next levels of education, than individuals from high socioeconomic status. For that reason, it is necessary to explore how a school can be more efficient, in attention to this vulnerable group. Henry Levin found an answer in the X-efficiency introduced by Leibenstein (1966) to improve efficiency in firms. X-efficiency consists in incentives, motivations, and other organizational dimensions to improve educational outcomes, as an alternative and complement of simple investments in infrastructure, because “how money is spent appears to be much more important than how much is spent” (Hanushek, 1996, p. 9).

To apply the X-efficiency, a school should have a clear objective, later on, it has to generate the correct incentives that are linked to success on the objective, information for decisions and adaptability to meet changing conditions. The indicators of educational efficiency are selected by each school, therefore, there are many potential indicators: student attendance, parental participation, reductions in retentions of students in grade, and student participation, quality of student products in writing, arts, sciences and mathematics, reasoning, and problem solving, test scores, evaluation of the quality of student research projects, improvements in student behavior, etc.

### Empirical evidence of the educational approach

Resources spent in schools have been extensively analyzed in the empirical literature. Hanushek (1996) analyzed 377 studies, “the results simply demonstrate that the current operations of schools do not generate consistent improvements in student performance” (p.18). Only few researchers still support the idea that school and individual characteristics are the most relevant determinants of educational and occupational outcomes. Hedges, Laine and Greenwald (1994) with a meta-analysis found evidence in favor of the educational approach. “These results are sometimes interpreted as a refutation of the conclusion that educational inputs don't affect performance” (Hanushek, 1996, p. 19)

Levine (1997) compared and analyzed the performance of 800 elementary and middle schools in 39 states in USA in 1995-96. After the analysis of experiences, the author concluded that substantial gains in productivity can be obtained through transforming schools to improve their “X-efficiency” (incentives, motivation, and other organizational dimensions).

Nevertheless, researchers recognized that the evidence in favor of the educational approach is weak, particularly because it uses bad indicators. The measures of school resources and cognitive tests cannot measure the quality. In addition, Hanushek, Lavy and Hitomi (2008) argued that tests with educational indicators are biased because “generally ignore family background and individual ability differences, which themselves influence individual knowledge and skills” (p. 69).

Dostie and Jayaraman (2006) explored Indian states (Uttar Pradesh and Bihar) to analyze determinants of school enrollment. As explanatory variables they used not only indicators of school quality, and also indicators of the community: village development, aggregate deprivation and caste structure. Moreover, they used individual and household characteristics (family background). They concluded that “school enrollment generally increases with parental education and wealth, as well as with school quality” (Dostie and Jayaraman, 2006, p. 207). Mani *et al.* (2009) to analyze educational outcomes in Ethiopia used as explanatory variable improvements in school quality, electricity, distance and community characteristics, but these factors are not relevant in their conclusions. Hanushek *et al.* (2008) studied primary school in Egypt and found that school quality (that is an index of quality) explains grade completion (dropouts): “higher skilled individuals —children with greater achievement— tend to be the ones who stay in school. Lower-skilled individuals tend to leave school early. But, with the individual’s own ability and achievement held constant, a student attending a higher-quality school will tend to stay in school” (p. 97).

Later on, in the labor market, the individuals who studied in higher-quality schools and used to be smarter than others are the individuals in the better occupational status. However, after the results reported by Coleman *et al.* (1966) who found that “family characteristics are more important determinants of educational achievement than school quality or teacher experience” (Brown, 2006, p. 759), subsequent investigations used school indicators principally as control variables. Brown (2006) used indicators of teacher quality and school and community characteristics to provide his model with fixed effects, and to test the robustness of the relationship between parental education and educational investments.

Principally, test of knowledge are employed to control the effects of the main explanatory variables. DiMaggio (1982) used vocabulary tests, Perna (2000) used the scores on reading and mathematics, Lucas (2001) used scores in mathematics, science, writing, reading, civics, vocabulary and last grade math, McMillan and Marks (2003) used achievement in literacy and numeracy, Krenz (2010) used ability, grade math, German and language. Pfeffer and Goldrick-Rab (2011), Mello (2008, 2009), Shapka *et al.* (2006) and Robbins, Lauver, Le, Davis, Langley and Carlstrom (2004) used grade point average (GPA). Also, it is common to find type of school, private or public, as a control variable (Marks, 2008, Perna, 1998, Roscigno and Ainsworth-Darnell, 1999). Olmedo-Reinoso (2007) studied the case of Granada city, Spain. He found that private schools concentrate principally students of middle and high classes, and public schools are the students of low classes. The social class and the kind of school have a relevant influence on future occupational trajectories; students of low classes have more probability of abandoning education after finishing compulsory education.

## PSYCHOLOGICAL APPROACH

Pascarella and Terenzini (1991, as cited by Robbins *et al.* 2004) identified over 3,000 studies in 20 years of research about the determinants of success in postsecondary education. Especially, researchers in psychological and educational spheres developed this literature. Farkas (2003) recommends looking at journals such as *Child Development*, to introduce yourself with the extensive psychological approach. Nevertheless, for a long time other social scientists ignored these contributions. If intelligence or other cognitive skills (usually measured by tests) are not good predictors of educational and occupational trajectories, then other individual characteristics have to explain the outcomes in education and employment. Non-cognitive traits and behaviors have to be more important than cognitive skills (Bowles and Gintis, 1976).

In low occupational status activities high cognitive skills are not necessary to be successful. It is better to follow rules and procedures according to superiors. In high occupational status activities, of course, cognitive skills are required but also initiative and good behavior. In the school, to be successful, correct behaviors are required too. “Non-cognitive traits rewarded by employers are the same ones that are rewarded by teachers” (Farkas, 2003, p. 542 referring to Bowles and Gintis, 1976), obedience for low classes and creativity for high classes. Although, it is

possible to identify a large list of habits, traits or behaviors explaining outcomes and trajectories: leadership, sociability, conscientiousness, extraversion, emotional stability, agreeableness, openness to experience, etc. Motivation, self-regulation and expectations have received special attention in the psychological literature (Robbins *et al*; 2004). Educational and occupational expectations, that is to say, the anticipation of attainment in school and work, will influence behaviors through cognitive and motivational processes (Mello, 2008).

In the school and in the labor market to be successful, beside the behaviors of pupils, the behaviors of parents and the strategies that they use to transmit correct habits, traits and behaviors to pupils are essential. Parents have to motivate their children and generate high expectations, and not only give economics resources. This motivation results in good scores and high ability. Mello (2008, p. 1069) points out that “expectations in educational and occupational domains are gendered, in part, due to an interaction among parental gender-specific stereotypes and individual characteristics such as gender and ability”.

It is worth noticing that the psychological approach complements other approaches. With respect to familiar background (or SES), Sewell and Shah (1968) separated it in two categories: the structural characteristics and the social-psychological. The last one included value orientations, parental expectations, parental encouragement and other variables related to the motivational aspects of aspirations. Farkas (2003) points out the relevance to connect human, cultural and social capital theory with the psychological approach. Moreover, cognitive and non-cognitive skills together determine educational and occupational outcomes (Robbins *et al*; 2004; Farkas, 2003).

### **Empirical evidence of the psychological approach**

Farkas (2003) did not present new evidence, however he analyzed previous empirical studies and classified the determinants of educational and occupational outcomes in two main categories. First, cognitive skills: verbal, writing and reading abilities, mathematics, science, music and art. Second, non-cognitive, divided in habits (effort, organization, discipline, attendance, participation and enthusiasm) and other behaviors and traits (leadership, sociability, self-confidence, social sensitive, impulsiveness, openness to experience, emotional stability, vigor, aggressiveness, disruptiveness, high culture, locus of control and self esteem). George Farkas argues that non-cognitive traits and behaviors are more important than cognitive skills in determining school and employment outcomes.

Robbins *et al* (2004) presented a complete review of the empirical literature and developed a meta-analysis on educational outcomes, where the explanatory variables are educational and psychological. They obtained a total of 476 correlations from 109 studies (197 correlations with the retention criterion and 279 correlations with the GPA criterion). Their explanatory variables were categorized into nine broad constructs: achievement motivation, academic goals, institutional commitment, perceived social support, social involvement, academic self-efficacy, general self-concept, academic-related skills, and contextual influences. The authors found moderate relationships between retention and academic goals, academic self-efficacy, and academic related skills. The best predictors for GPA were academic self-efficacy and achievement motivation.

Marjoribanks (2004) found that young adults' educational attainments have a large association with academic self-concept (how they were performing in certain school subjects in relation to other students), educational aspirations (how much education they hoped to attain) and self-confidence (how confident would you say you are and how popular would you say you are) together with indicators of social capital and SES. Wildhagen (2009) found that self-selection effect is more important than a teacher effect on academic performance. Krenz (2010) found that motivation (importance of success in job) is a relevant explanatory variable of educational and occupational outcomes.

Nevertheless, a central problem in the empirical literature is to find correct indicators to measure something as sophisticated as behaviors. Consequently, some studies prefer to use indicators of activities as proxies of behaviors. Huurre, Aro, Rahkonen and Komulainen (2006) used a large list of indicators related to psychological characteristics. The authors studied pupils aged 16 years attending secondary school in spring 1983 in Tampere, Finland. Individuals were followed up to 32 years of age in 1999. To explain educational level attained in adulthood, the authors employed indicators of psychological and somatic health and lifestyle (smoking and heavy drinking, leisure-time on hobbies, among friends or in physical activities, watching TV and social relationships,

current dating and home atmosphere). Among the significant predictors of educational outcomes the authors found for females poor perceived health status, spending less leisure-time on hobbies and more on dating, and among males, poor relationships with teachers and heavy drinking.

Dumais (2009) explored the time spent on school activities and extracurricular activities; hanging out with friends, working, watching television, and time spent using computers. The author found that school-sponsored activities were associated with higher scores, while television-watching and hanging out with friends were negatively associated. School activities were positively associated with the college expectations of students, while spending time hanging out with friends was negatively associated with them.

## METHODOLOGIES, TYPICAL TRAJECTORIES AND CLUSTERS

The methodologies employed to analyze the educational and occupational outcomes strongly depend on available data. There are important national projects that began to collect data several years ago. The National Education Longitudinal Study in USA, the Youth in Transition Survey in Canada, the Longitudinal Surveys of Australian Youth are the most popular, but also England and Germany have other similar projects. In Russia it is possible to obtain data from the Russia Longitudinal Monitoring Survey and the Monitoring of Economy of Education. Also there are international projects, for example, the Programme for International Student Assessment (PISA) coordinated by the Organization for Economic Co-operation and Development (OECD), and the Trends in International Mathematics and Science Study (TIMSS) developed by the International Association for the Evaluation of Educational Achievement (IEA). In addition, some researchers elaborated their own questionnaires or used second-hand information or in collaboration with national governments. These investigations usually only have information for one point in time. Although it is possible to request information from past lives to develop a longitudinal study (Lillard and Willis, 1994).

It is worth noticing that longitudinal surveys do not always imply the option to use methods with panel data, because the individuals and the required information change in the subsequent waves of the surveys. Then, it is possible to make comparisons in time, but rarely with the same respondents. For that reason, cross-sectional analyses are more popular, and depending on the characteristics of the dependent variable the econometrics methodologies consist in least square or logistic regressions, principally.

The majority of the studies use binary variables to approximate the educational and occupational outcomes. In education, the main decision is to continue studying or to abandon. And in employment, the question is to work full time or not, in low or in high occupational status. In these cases logit or probit models are the most common techniques. Studies that employed more than two categories, consequently, use strategies consisting in multinomial regressions.

### Typical trajectories and clusters

The analyses of educational and occupational trajectories in empirical studies strongly depend on available data. The most analyzed point in an educational trajectory is to continue or not to the next level of education, and it depends on the laws of each country, because in developed countries basic education is compulsory, but in underdeveloped countries the enrollment in elementary school is a strong decision.

Anyway, the simplest point in an educational trajectory is a dichotomic decision about continuation in education, or the time of enrollment: immediately after graduating from high school, some years later or not enroll (Rowan-Kenyon, 2007). Moreover, the educational system of a country determines the kind of educational trajectories that a young person can follow, because of large variety of post-school education and grades: apprenticeships, traineeships, technical, certificates, diplomas, university diplomas, university degrees, post-graduate degrees and other qualifications by private providers.

In practice, a trajectory depends on available information, and the possibilities of each decision. In the reviewed literature only Halpin and Chan (1998), Schoon *et al.* (2001); Anyadike-Danes and McVicar (2003), Martin, Schoon and Ross (2008) and Hango (2010) developed a typology of paths. Hango (2010) used data from the

Youth in Transition Survey, Canada, which included five cycles providing information every two years from 2000 to 2008. The author developed thirteen paths into three major sections.

1) No post-secondary education:

Path 1 - high school droppers

Path 2 - 2nd chance at high school, no postsecondary education

Path 3 - high school graduate only

2) Direct route to post-secondary education:

Path 4 - youth who started a postsecondary program but left prior to finishing (post-secondary education leavers)

Path 5 - youth who obtained a trade or other type of diploma

Path 6 - those who obtained a college diploma or a college diploma followed by a university degree

Path 7 - youth with a university degree who went directly to university following graduation from high school

3) Indirect route to post-secondary education:

Path 8 - youth who at one point had dropped out of high school, but then returned to school and obtained their high school diploma before going on to some form of post-secondary training (2nd chance at high school, some post-secondary education).

Path 9 - youth who never dropped out of high school but who then delayed (more than four months) starting a post-secondary education program after high school completion

Path 10 - post-secondary education leavers

Path 11 - those with a trade or other type of diploma

Path 12 - those with a college diploma (technical diploma)

Path 13 - those with at least a bachelor's degree

Anyadike-Danes and McVicar (2003) used data from the British Cohort Study 1970, which longitudinally tracks for all those born in Britain in the week of 5-11th April 1970, information of the wave 1999/2000, at age 29/30 years. Contrary to Hango (2010), Anyadike-Danes and McVicar (2003) used a statistical technique, the optimal matching analysis, to develop clusters and typologies<sup>1</sup>. They analyzed basic activities, and later the sample's information and the statistical technique tell us which paths are rational. The authors used six activities (seven for women). Males are defined as either in education, training, employment, self-employment, unemployment or other. Females are defined as either in education, training, full-time employment or self-employment, part-time employment or self-employment, unemployment, looking after the home, or other. Their typologies of career paths depend on the basic categories. The authors set the number of clusters for each gender to be ten, later they identified distinct types of career paths. For example, for men:

Cluster 1 - full-time employment (the largest one)

Cluster 2 - employment into other non-employment

Cluster 3 - 40 sequences starting with employment and moving into long-term unemployment

Cluster 4 - employment and long-term unemployment (sequence of events differs from Cluster 3)

Cluster 5 - permanent other cluster

Cluster 6 - permanent unemployment cluster

Cluster 7 - further/higher education followed by employment (it is a large cluster)

Cluster 8 - short-medium other into employment

Cluster 9 - long education into other

Cluster 10 - long other into employment

Later on, it is possible to compare these clusters with the basic categories, and with explanatory variables<sup>2</sup>.

Schoon et al. (2001) took data from the National Child Development Study 1958 and British Birth Cohort 1970, they also used optimal matching analysis<sup>3</sup>. But they did not employ theoretical categories, the clusters were formed with F-ratios (the ratio of between-cluster variance to within-cluster variance). For example, for men born in England in 1958 they found seven distinct clusters (seven typical paths):

- Cluster 1 - full-time employment (42%)
- Cluster 2 - training (30%)
- Cluster 3 - full-time education (25%)
- Cluster 4 - other I (1%)
- Cluster 5 - other II (1%)
- Cluster 6 - part-time employment (0.5%)
- Cluster 7 – repeated unemployment (0.3%).

For men born in England in 1970 they found three typical paths:

- Cluster 1 - full-time employment (62%)
- Cluster 2 - full-time education (29%)
- Cluster 3 - repeated unemployment (8%)

Schoon *et al.* (2001) found considerable continuity in the pathways of the analyzed British cohorts, however, for the later born cohort the entry into the labor market is characterized by more fluid transition patterns. Martin *et al.* (2008) used the same data, but six theoretical basic categories: full-time employment, part-time employment, full-time education, government training, unemployed seeking work and out of the labor force. The authors concluded that passages into adulthood have become more diverse since the 1970's.

Halpin and Chan (1998) utilized eight theoretical categories in three groups in an optimal matching analysis, to develop clusters and class careers.

- Group 1: professional and managerial
- Group 2: routine non-manual, self-employed and small employers, farmers, supervisory and skilled manual
- Group 3: semi- and unskilled manual, agricultural labour and awaiting entry to labour market

The authors used data from the Irish Mobility Study (IMS) in 1973-1974 and the British Household Panel Study 1991 (BHPS). The IMS data generated 16 distinct clusters (plus a residual), and the BHPS generated nine clusters (plus a residual). With many clusters it is difficult to discuss and to identify typical paths; anyway the authors utilized that information to describe the job mobility. Again, it is worth noticing that in explanatory analysis the most common point in a occupational trajectory is a binary decision, for example, to have or not a job, to work full time or not, in high occupational status or not, with high earnings or not.

Marks (2008) used the Australian Standard Classification of Occupations schema to obtain four groups: professional and managerial, trade and skilled manual, clerical, sales and personal services, and semi/unskilled, later on, he elaborated a status classification, summary measure of the social standing, prestige and desirability of occupations. This indicator is scaled to range from 0 (low status) to 100 (high status). The trajectory analysis consists in observations in the time about this scale<sup>4</sup>. Finally, it is interesting to notice that the analysis by groups is recurrent, in particular classifications based on income levels: low, middle and high familiar incomes, by social classes or socioeconomic status (SES), and gender or race/ethnicity.

## CONCLUSIONS

The literature on the determinants of educational and occupational outcomes and trajectories is vast, in particular the empirical literature. But in the last 20 years, it is not easy to identify advances in theory, although there are many multidisciplinary approaches, that is to say, explanations that combine the socioeconomic status, human, cultural, social, educational and psychological approaches. Cultural capital appears to be the most popular predictor, but the relevance of other indicators is present depending on place (country) and time. We found that parental education, income and professional status, that is to say, socioeconomic status, and in general family resources, including cultural and social capital, have a larger influence in poor countries than in developed nations. In underdeveloped countries these factors have an effect on low and high levels of education, and in developed countries especially on higher education. In addition, in underdeveloped countries girls usually get

lower educational and occupational outcomes than boys, whereas in developed countries girls usually have better educational results.

Nevertheless, the theoretical literature has some general failings in the conceptual framework and later on in empirical work; because the concepts are sophisticated and they are not always clear, depending on their interpretation. Cultural capital is the most controversial neologism, because the Bourdieu' concept had been interpreted in diverse forms. Sullivan (2001) and Lareau and Weininger (2003) extensively analyzed the definition of cultural capital, they sustain that the concept has been operationalized in different ways; as a result we have different conclusions. Other concepts have the same operationalization problem. How do researchers measure social capital? Why is parental education employed as a proxy of social capital, cultural capital, socioeconomic status or human capital? How do researchers measure quality of teachers and schools? How do researchers measure motivation? It is worth noticing that in the literature the same indicators have been employed as proxies of different conceptual frameworks.

The data sources were not designed to approach a particular theory; consequently the indicators are proxies of complicated concepts. This is common in empirical studies, but in the reviewed literature, the employed econometric techniques did not remedy the evident specification error because of observational errors, either of omission or of commission. It is obvious that the employed data are plagued by errors of measurement, but only Mani *et al.* (2009) used instrumental variables to remedy the problem. Krenz (2010), Schildberg-Hoerisch (2010) and Mani *et al.* (2009) attended the possible problem of endogenous variables and only Lucas (2001) remarked the heterogeneity problem. Moreover, the empirical literature uses a large list of explanatory variables, which might be correlated. For example, parental education and parental income have to be correlated, and occupation status too. We can expect that indicators of socioeconomic status and indicators of cultural, social, and human capital show correlations, but the reviewed literature did not present test of collinearity. Only DiMaggio (1982), Marjoribanks (2004), Krenz (2010) employed principal components to mitigate that problem. In general, between all explanatory variables persist interrelations which suggest that the best way to understand effects on educational and occupational trajectories is with models of simultaneous equations (Krenz, 2010). Therefore, it is possible to contribute to the literature with empirical research taking into account these econometric problems.

It is interesting to notice that in the reviewed literature the historical context of the regions or countries and the not econometric methodologies are undervalued, only Lareau and Weininger (2003) and Oyarzún and Irrazabal (2003) employed case study and life history methodologies. Consequently the importance of context has to be recognized and methods as life course, as Glen H. Elder (2001) points out, can be a good option for future researches.

Coleman (1988) mentioned the contributions of the neoinstitutionalism, and Paul DiMaggio has been considered as proponent of this school. Nevertheless, in the reviewed literature only Buendía (2011), Gangl (2004) and Gupta, Davoodi and Tiongson (2000) used a neoinstitutional analysis to explore the educational and occupational field. Institutionalism can explain educational and occupational trajectories, because formal and informal institutions determine individual decisions and possibilities. For example, a new law to make a level of education free and compulsory, or a tradition that says what a woman has to study. Therefore, an institutional approach can be a promising research area.

The transitions from one level of education to another or into the labor market, from one status of job to another, are only one of many transitions that students and workers habitually are doing; consequently the trajectories can no longer be studied only with key points of choice. Anyadike-Danes and McVicar (2003) point out the relevance of distinguishing many different occupational market states, and in education, because compared to a simple binary distinction at a particular point in time, with longitudinal information and trajectories it is feasible to pick up on certain relationships rarely recognized in the literature.

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## NOTES

1. The optimal matching and cluster analysis and their typologies have been criticized because they rarely are used into explanatory analysis.
2. Anyadike-Danes and McVicar (2003) used a multinomial logit model to predicting the career paths. The explanatory variables are qualifications, school disciplinary history, parental education, family socio-economic indicators and health.
3. With a descriptive analysis the authors concluded that the transition patterns are clearly associated with their social background and educational attainment. There are not tests of causality.
4. The idea of status is used in educational trajectories, for example Shapka *et al.* (2006) used the prestige of the career.

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