

The economic assessment of education: Social Efficiency or Social Reconstruction?

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Educational policy is a very complex process: the all too familiar assertion “we should invest more in education” is really of little help. Investment in education, something difficult to reject, competes however with many other public expenditures also highly beneficial from a social point of view. Even within the educational sector itself, more precision is required regarding the allocation of scarce economic resources. The social decision maker would surely appreciate a somewhat more precise recommendation: investing in primary education, or in doctorate studies? Reducing the number of students in the classroom? Increasing teacher’s salaries?

In this sense, some information regarding the impact on social welfare not only of different public investment alternatives, but also of different policy models in the education sector would be highly desirable. Furthermore, as the final impact of these expenditures depends to a great extent on the positive reaction of the recipients of the investment (schools, teachers, students), the establishment of some link between expenditure and results would also be welcome.

It is in this context where economic analysis may provide some very useful tools. On the one hand, a measuring rod of the relative social profitability of

different education investment and policy alternatives: their Internal Rate of Return. A simple quantitative measure that allows comparing the social benefits associated to different education expenditure, as well as in relation with public investment in other sectors. On the other hand, an analysis of the better ways to link investment with results, based on the study of the incentives of the agents involved. *Accountability* seems to be the issue here.

Yet, and in order to ascertain the positive impact of different education measures, as well as whether the recipients are reacting as expected, the analyst needs to know very precisely which are the social objectives pursued. Without knowing the final destination one does not know whether we are approaching it, or just the opposite. In the case of both accountability and the Internal Rate of Return methodology this final social objective is related with *economic growth*. Being so, the contribution of economic analysis to the assessment of education alternatives fits very well with the Social Efficiency ideology regarding the education process. Yet, this may be somewhat short-sighted: surely, education efforts may have some other objectives as well. Not to mention the fact that the way this contribution to economic growth is ascertained may also be flawed.

ASSESSING EDUCATION INVESTMENT: THE INTERNAL RATE OF RETURN METHODOLOGY

The social decision maker in charge of education policy has some very hard decisions to make regarding investment priorities in different localities, education levels, expenditures, etc.

To help answer these questions, different indicators of educational performance have been suggested. One of them is of particular interest for our purposes: the Internal Rate of Return (IRR) of education investment. This rate, as it is only too well known, reflects the profitability of the last euro invested in an education activity, by showing the value of the real interest rate that the financial sector would have to offer to match the benefits of this investment. Taking into account that many of the costs and benefits of the education investment, both from a private and from a social point of view, are not expressed originally in monetary terms, they are translated into its euro equivalent along well established methodologies.

The IRR methodology therefore simply compares the social costs of education investment in different alternatives with the corresponding social benefits.

The social costs of education include two components. On the one hand, the real costs associated with the educational facility: infrastructure, teacher's salaries, administrative costs, etc. On the other, the opportunity cost of the student: if the student is of working age, the amount of goods and services that he or she would have helped to produce while working. This is measured by the ruling wage in the corresponding sector (as a reflection of his/her marginal productivity) times the probability of having a job. In the case of children aged 11 and 12 in developing countries also engaged in agricultural work, two or three years of foregone earnings while in primary school are accounted for (Jiménez and Patrinos, 2008).

The social benefit of investing in education, on the other hand, is reflected in the increased productivity of the educated workers (increase in *human capital*) reflected again in their higher expected wages (wage times the probability of being employed). In the case of underdeveloped countries, some adjustments have to be made to take into account the fact that most workers are located in the *informal sector* where they do not work for wages (Rosenzweig, 2010).

To this major benefit, different *externalities* are added. Some of these externalities have to do with the production process: the fact that a well educated worker is not only more productive, but makes also more productive the workers working with him/her. And this may not be fully reflected in his/her wage. The same may happen within the family: to have an educated member benefits everybody in the household. Some others are not directly related to the production process, and because of this, are much more difficult to estimate: for instance, women education may lower fertility rates and improve children's health. "Young women with primary education are twice as likely to stay safe from AIDS, and their earnings will be 10-20 percent higher for every year of schooling completed. Evidence gathered over 30 years shows that

educating women is the single most powerful weapon against malnutrition – more effective even than improving food supply” (Jiménez and Patrinos, 2008, p. 10).

In any case, when estimating the IRR of any given alternative, special care has to be taken regarding the *counterfactual*: for example, when assessing the social benefits of investing in public education, the benefit should not be calculated comparing the productivity of the student with and without this extra education, but taking into account that in the absence of public education, a number of the potential students may have attended some kind of private education (ibid.).

Summarizing: the IRR methodology begins by analysing the relationship between the wage structure and the education level of the worker, implying in this way that a higher education level is reflected in a higher wage and, because of the equality between wages and marginal productivity, in a higher contribution to the process of production. Furthermore, introducing this labour-quality adjusted factor in the *growth accounting* framework, the analyst is able to estimate the contribution of education to the overall economic development process.

In this same trend, and reinforcing the role of economic appraisal in the context of educational policy, *accountability* appears as a very useful tool: by making rewards and sanctions depend on student performance, it is argued, the quality of schools would increase, as well as that of teachers.¹

THE OBJECTIVES OF EDUCATION AND THE SOCIAL EFFICIENCY IDEOLOGY

To value the performance of any alternative, the efficiency of any investment, it is necessary to have a clearly identified objective. In other words, the performance criterion will measure the contribution of the alternative considered to achieve this goal. In the case of education, this objective seems to be “a better society”.

The first difficulty then is that not everybody would agree on what exactly a better society is. What is an improvement in this direction? And, furthermore, how does education contribute to this social objective?

In the case of the Internal Rate of Return methodology, the answer to these two questions is straightforward:

First, the IRR shows the contribution of education to social welfare in *economic* terms: i.e. the expected *increase in national income* associated, directly and indirectly, to this investment in education.

Second, once this final objective has been identified, there is the need to establish the casual connection between the educational policy (investment) being assessed and the desired achievement. In other words, what is the channel through which education improves econom-

¹ For a highly critical view of this policy in the No Child Left Behind framework see Lang (2010).

ic growth? What is the theoretical link between the two? Again the answer is quite simple: education enhances *labour productivity* and this, in turn, increases economic growth. This is why the major focus of the methodology behind the estimates of the IRR is on wage differentials, as a proxy for differences in labour productivity: in a market equilibrium economy, wages equal the marginal productivity of workers.

This IRR approach seems to be quite in line with the Social Efficiency vision regarding curriculum philosophy.

According to Schiro (2008), Social Efficiency ideology with respect to educational policy appeared in the early years of the 20th century in the work of scholars like Franklin Bobbitt (1918). It was to experience its major influence over the educational community in the second half of the 20th century: see, for instance, Ralph Tyler (1949), or Gagne (1965)². At the beginning of the 21st century, the fear that the economic leadership of the US could be in jeopardy has again given a new impulse to this ideology.

It may be worth recalling in a nutshell the major aspects of this ideology following Schiro (2008).

Perhaps the best way to start would be to recall that one of the main proponents of this ideology, the already mentioned Franklin Bobbit, compared the educational process to the industrial manufacture of steel rails: the child would be the raw material, and the adult the finished product. Education then is at the service of whoever demands the final product: the client. As in the case of the railway factory, the manager does not decide about the final product. It is for the client to specify what precisely he wants.

In the case of education, this final client is *society*. Society demands a given type of education to achieve some predetermined social objective.

Now, if society is the client, the task of the educator is, first, to discover what society's demand with respect to education is. Here, the Social Efficiency ideology adopted the principles of the movement for *utilitarian education* that appeared in the United States at the end of the 19th century and the first quarter of the 20th century. This movement was a reaction against what was perceived as a misguided education system based on memorizing generally useless textbooks. For their part, they stressed the importance of making the school useful and relevant to the life of individuals. This involved "providing students with job training skills that would allow them, as adults, to function constructively in an industrial society" (Schiro, 2008, p.70). The emphasis on agricultural and industrial education together with, above all, the importance of *vocational education* was one obvious result.

In this sense, Social Efficiency ideology was then perfectly in line with the social reform movements that, at the turn of the century, were putting social needs above all else.

² "Between 1940 and 1989 Social Efficiency advocates became the major group of faculty teaching within schools of education and greatly influenced generations of teachers" (Schiro, 2008, p. 90).

To accomplish its goals what was of importance for education was to focus on *action*, on skills and capabilities: teaching *to do*, rather than *to know*, should constitute the major purpose of the educational process. “Social Efficiency curricula specify behaviour that is learned, not content that is acquired” (ibid, p. 53). Adopting a “behavioural engineering” approach within the behavioural psychology framework, this was to be accomplished through a deterministic combination of action-reaction, stimulus-response dynamics.

Finally, the context in which this process takes place is one of *specialization*: the belief that human activity can be divided into a large number of self-contained specialized activities that will be later assembled easily into larger activities.

As mentioned, the beginning of the 21st century witnessed a revival of this approach.³

SOCIAL EFFICIENCY, EFFICIENCY AND EQUITY

There are several problems, however, with this approach, worth mentioning.

First, some authors simply deny the very assumption that is fundamental to this approach: that more education results in better professionals. A somewhat paradoxical if not ironic example of this position has to do with the educational system itself: “requiring teachers to obtain a master’s degree to be fully certified does not, by existing research on student outcomes, improve the quality of instruction” (Hanushek and Rivkin, 2010, p. 136). An alternative approach would be the one focusing on the “screening” role of the education system: higher earning is not due to the added productivity, but to the sorting that the school or college does between the highly and lowly skilled. In this case, the IRR will overestimate the benefits of education because wage differentials will not be associated to the added productivity of the student but to the sorting that the school does between the highly and lowly skilled (Jiménez and Patrinos, 2008).

Second: even accepting that more education results in better professionals, recent research is showing that it is not a matter of *quantity* (augmenting the number of students or the number of years of study) but of *quality*: i.e., of improving the acquisition of cognitive skills: “Growth research demonstrates that considering the quality of education, measured by the cognitive skills learned, dramatically alters the assessment of the role of education in economic development (...) The effect of years of schooling (on the annual rate of growth of GDP per capita) is greatly reduced by including quality, leaving it mostly insignificant” (Hanushek and Wössmann, 2007, p. 5). The problem is exacerbated in underdeveloped countries: “In many developing countries, the share of any cohort that completes lower secondary education and passes at least a low benchmark of basic literacy in cognitive skills is below 1 person in 10” (ibid., p. 14). The effect of educational quality on economic growth may also differ depending on the economic institutions of a country: rent seeking activities versus entrepreneurship. Cognitive skills

³ “The capacity of America’s educational system to create a 21 st-century workforce second to none in the world is a national security issue of the first order” (Teaching Commission, 2004, p. 20), cited in Schiro, ibid.).

might be applied to unproductive activities. Furthermore: stressing the ability to do rather than the ability to know introduces a bias in the education curricula in favour of applied techniques and away from basic science, something that may be reflected later on the Research and Development field. It is worth recalling, in this sense, that initial phases of education are more important for imitation, whereas higher education is more important for innovation (Hanushek and Wössmann, 2007).

Third, and regarding *accountability*: the fact that student's scores (and at a higher level wage differentials) is the main factor behind the performance assessment of different educational alternatives sends the wrong signal to school officials. Being an average measure of performance it ignores the fact that universal proficiency is not an appropriate goal for an education system due to the role of diminishing returns in education efforts (Neal, 2010). Rather, as any introductory economic analysis would show, the proper aim should be to equalize the efficiency of investing education resources to different students in terms of individual *learning improvement*, thus mitigating skill differences created by differences in home environment and student preparation. On the other hand, accountability is meant to increase efficiency by, among other things, providing incentives to teachers to better do their job. Whether this is always accomplished is, however, doubtful: "results from Kenya suggest that teachers incentives increased teachers' efforts on short-run outcomes (test scores) but not on stimulating long-run learning (through changes in teacher attendance, student dropout rates, or pedagogy)" (Jiménez and Patrinos, 2008, p. 20). Together with this, making rewards and penalties to schools and educational institutions on the basis of their student's results will lead, it is argued, to the rejection of those in most need of help. Yet, skill improvements achieved by less-skilled students should indeed be more valuable (ibid.). This fact will be further aggravated by the impact of this policy on the allocation of good and not so good teachers between good and not so good schools (Hanushek and Rivkin, 2010).⁴ Neal (2010) recommends in this field the use of *percentile performance indices* that, even if unfitted to build a universal ranking of education institutions, allows the policymaker to identify schools that are clearly inefficient.

Turning now to the determinants of economic performance.

Economic growth is also related to *income distribution* and *social mobility*. Although widely discussed in the early literature on economic development, there seems to be a consensus nowadays with respect to the fact that a more equal distribution of income enhances economic growth. It is important then to analyse the role of different education models and policies with respect to income distribution and the opening of new opportunities for the less favoured. Does more education promote a more equal income distribution? Does it provide better opportunities to the poorer members of society?

⁴ Even if "the supply of people training for teaching exceeds by a considerable margin the number of positions that annually became open in schools (...) there are persistent shortages of mathematics, science, and special education teachers as well as shortages of certified teachers willing to work in high poverty schools". "Teachers react strong to working conditions as measured by the achievement of students and the racial composition of schools" (Hanushek and Rivkin, 2010, p. 138-139).

The importance of vocational training within the Social Efficiency ideology has already been pointed out. It is argued, in this sense, that Vocational Education and Training (VET) not only improves economic growth, but also promotes social inclusion because it compensates early school leaving among young people who are tired of school by inducing them to continue their education. For this, however, the involvement of employers and trade unions is required, and this, as the experience shows, cannot be taken for granted. Whereas in some cases VET (training) produces productivity gains in companies that provided that training, and these gains were equally divided between the company and the worker, in many others things worked out differently (Nilsson, 2010). As it was to be expected, children from working class families are sorted into vocational rather than theoretical strands of education, something that may be seen as the result of the schooling system reproducing social inequalities (ibid.).

As for education in general, it should be really disturbing, in this sense, to find out that in many cases, further investment in education may lead to an increase in income inequality (Patrinos et al, 2006). Using an Instrumental Variables-Quantile Regression analysis to control for the impact of different variables in the returns to education investment for the different income quantiles in a wide set of countries, the authors find increasing returns with quantiles in 15 out of 16 European countries studied, as well as in the United States and South Africa, something that entails that education investment increases inequality. Although there are very few empirical studies for developing countries, the existing evidence is mixed: whereas in the case of Latin American (Argentina, Bolivia, Brazil, Chile, Colombia, Guatemala, Mexico and Venezuela) education seems to increase inequality, in Asian countries (Cambodia, China, Indonesia, Mongolia, the Philippines, Thailand and Vietnam) the opposite appears to be true. It is worth recalling from this data that education investment seems to increase inequality in the most unequal countries of the World, whereas it does the opposite in the more balanced ones.

EDUCATION ASSESSMENT AND THE SOCIAL RECONSTRUCTION IDEOLOGY

Be it as it may, by relying on the study of wage differentials as a proxy for differences in labour marginal productivity, the IRR methodology is implying that the main objective of the education process is given by the labour market: to prepare the kind of workers that the market demands.

Yet, and apart from increasing the production of goods and services, and thus helping to better cover social basic needs, should not education also try to *change society*?

This is the core of the Social Reconstruction ideology (Schiro, 2008). According to this position, education should be a way not to perpetuate the *status quo*, but to change society, to change a state of affairs that is unhealthy.

Surely, Social Efficiency advocates do not identify themselves as defendants of the *status quo*. Even if their proponents consider that the main purpose of education is to perpetuate the well functioning of society (“functional education”), this does not mean that social progress is ab-

sent from their concerns., Nevertheless, their approach to social progress is gradual and somewhat in line with the social basic structure. Social progress is seen not as a result of new and more acceptable behaviours, but as a process of reinforcing the most desirable traits within current society while eliminating its weaknesses and deficiencies (ibid., p. 64).

On the other hand, Social Reconstruction ideology considers that education should be directed towards changing a social model that is not acceptable: *towards reconstructing society*.

Social Reconstruction Ideology can be traced back to George Counts' speech at the annual meeting of the Progressive Education Association in 1932 in which he asked "Dare the School build a new social order?" (Schiro, 2008, p. 155), and his related work (Counts, 1932).

The proponents of this approach consider education as a *social process* (thus emphasizing group work), based on the students experiences and surroundings, and aimed to change the social model. To do so, they need to understand the way society functions, its class structure, and the values associated to it. The second stage in this process is to reach a consensus about what would be an ideal society, and the *direction* in which social forces should move in order to approach it: *utopias of social reconstruction* rather than *utopias of escape*. A process based on *constructivism*. The role of education therefore is that of, first, understanding, then building consensus about social values and, finally, promote action.

The main problem with this approach is, of course, who determines what is wrong with the present state of affairs, and what should be considered an improvement: the set of values that reflect this ideal society. Here the role of the teacher is crucial, and, in some cases, somewhat at odds with a democratic entourage: "From the Social Reconstruction perspective, educators have the responsibility to go beyond simply reflecting the wishes of society and to do what is best for society". What is best for society is something that the teacher knows in advance: "it is permissible to educate the masses as one chooses, since one knows what is really good for them" (Schiro, op. cit., p.152). As Brameld put it: "if the reconstructionist is prepared to argue that he is the minority spokesman for values that are already cherished by the majority, whether consciously or not, he is equally prepared to show that another minority actually dominates the majority" (cited in Schiro, ibid.). Clearly now, education objectives are no longer dependent on society' demand as reflected by their representatives, but should be to shape and to attain these true objectives as the teacher understand them.

It is of course disputable whether the educator is ethically justified in transcending society' wishes, because he or she believes that they are simply the reflection of a given class structure which is unacceptable. Nevertheless, there is something to be said in favour of understanding the way society is structured, the social values that accompany this process, and the implications of this state of affairs. This understanding is what gives the individual the possibility of critically assessing the social environment in which he or she lives, and in which he or she will develop as an adult. And this understanding has also important economic implications regarding economic growth and stability. As it has been shown time and again in the literature, the economic performance of different societies depends on economic and political stability. Sta-

bility in its turn depends on variables like income and wealth distribution, voice to the people and political accountability: the *dividend of governance*. In the short run, some governments may acquire legitimacy by helping to improve the economic situation of the population. However, in the long run, as history shows, government legitimacy requires also a sense of participation in a common social project. And here, Social Efficiency-bound education is no longer sufficient: it needs to be complemented by a greater emphasis on understanding the social fabric and the role of the individual in improving it. This is not contradicted by the fact that “countries with more engineering students grow faster and countries with more law students grow more slowly” (Hanushek and Wössman, 2007, p. 10). Although it is tempting to associate engineering with social Efficiency and law studies with Social Reconstruction, this implication is false. First, because there is no denial of the importance of engineering studies: it is a matter of how engineering, or mathematics for that matter, is studied. Second, because as the authors remark, the relative importance of law studies in slow growing economies is due to the relative profitability of rent-seeking activities: something characteristic of non democratic and corrupt countries.

Now, if this is the case, the way the different education efforts and investments is appraised from an economic point of view, is somewhat short-sighted. The Internal Rate of return methodology only considers the role of the student in the labour market, not as a fully participating citizen. On the other hand, rewarding schools and education institutions with respect to their pupils’ scores is not only inefficient from an economic point of view, is also unduly narrow in scope, because it does not take into account the role of the school in promoting social values.

SUMMARY AND CONCLUSION

When trying to help the decision making process in the field of educational policy, economic analysis provides some very useful tools.

On the one hand, it offers a measuring rod that enables the decision maker to compare the impact on social welfare of different education investment and policies: first, with themselves and, second, with other public investment alternatives. This is the Internal Rate of Return methodology.

On the other, and by devising a set of incentives for the education institutions that link rewards and penalties to their achievement (accountability) it may help to reinforce efficiency.

The problem with these two evaluation tools is that they are too narrow in scope: they are only directed towards the goal of having a more productive labour force. Quite in line with the Social Efficiency Ideology that dominated education discourse in the second half of the 20th century. Yet, a well functioning society, also from an economic point of view, requires not only good workers but also well informed and participating citizens. And this is something that an education system based on this ideology, on the acquisition of an atomistic and specialized body of knowledge directed towards doing rather than knowing, will not procure. An approach to the education process partially based on the Social Reconstruction ideology, emphasizing

the importance of understanding the way society functions, the values that society holds, as well as the role of the citizen in this social fabric, is also required. But, unfortunately, the contribution of this kind of education to social wellbeing, even if crucial, will be hardly recorded by the two economic tools mentioned above.

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