

ECONOMICS OF EDUCATION RECONSIDERED: WHAT SHOULD MUSLIM EDUCATIONISTS KNOW ABOUT INVESTMENT IN EDUCATION?

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The issue of the non-market benefits of education has drawn attention from economists almost all over the world and a great theoretical framework has evolved surrounding them. However, the absence of such attention has led to numerous negative developments in several countries, including Muslim countries, so they have had to bring in more resources in an effort to clear the damage caused by the lack of planning in educational investment. In the new development drive, the finances incurred in education were thus considered as an investment in human capital rather than a cost. The main purpose of this paper is to emphasize the value of investment in education, in an Islamic context, for the attainment of both material and spiritual wellbeing of a country, so that people can live without economic and social worries. Additionally, it attempts to explore a relationship between the modern economic theories of education and the Islamic principles addressing social harmony through education, in the context of global development.

Introduction

As the nature and dimensions of socio-economic and cultural factors have brought about a significant impact on the quality of life through a process of careful search for creative solutions to everyday life problems, the role of human capital development through education is duly emphasized. The development of human capital, the impact of which is pervasive on all sectors of growth, is clearly associated with a system providing good education and enhancing the skills of the individual (Belfield, 2003). The importance of the current study is based on the observation of Alexander and Salmon (1995):

Schultz observed that the classical economists had “put us on the wrong road” of economic thought...what Schultz observed was the heterogeneity of capital, and he saw that the individual human was a form of capital that could be developed. Schultz’s important contribution was the assertion that *skills* and *knowledge* [italics added] are a form of capital. (p. 49)

Thus the system of education, which is responsible for the preservation, generation and dissemination of knowledge and skills of the highest order, plays a determining role in the socio-economic and cultural development of the Muslim Nation (*Ummah*). In view of the sweeping advancements delivering educational programs, the vitality of educational institutions is essential to successfully address the unprecedented challenges. Therefore it is to be noted that the principal outputs of education are preparing our generations for a better understanding of the world around them through knowledge, innovation, research and development. In this context, the present paper aims at exploring the areas that our educational system can no longer afford to neglect in the building of sufficiently dynamic individuals.

Investment in Education for Developing Human Capital

In spite of it not being counted and recorded in terms of finances, all nations of the world, since the beginning of their civilizations, have been making various types of investments in the education of their communities. The aim of the exercise has been to boost the cultural competence of the members of those communities, so that they will be able to continue and advance the knowledge and the practices they have developed for their existence. This is clear from the Chinese proverb—“give a man a fish and you feed him for a day; teach a man to fish and you feed him for a lifetime”. The results of the educational investments carried out in the ancient world in this way are clearly visible in the form of great monuments, buildings and statues of marvelous craftsmanship. Formal education in past was restricted to a small number of people.

This situation regarding education changed as a result of the Industrial Revolution. Industries that were focused on mass production in terms of goods and services needed many skilled workers, and irrespective of their family background and class-identity large numbers of people could achieve relevant types of expertise and find employment. Based on this development, in the eighteenth century Adam Smith stressed that money spent on education should be considered as an investment, and since that time, the status of education has changed from a merely consumable service to a commodity that deserves more attention from all sectors of the society, including investors.

Today, in all modern settings, investments made in education are considered part and parcel of the capital expenditure. In the light of this, the current trends of educational investment have undergone for some decades a thorough screening by economists and educational scientists, and as a result education was considered as a critical factor accounting for the unexplained residual economic growth in the USA, for example (Abramovitz, 1962). The connection between economy and education has been further articulated by Schultz (1961) as an investment in human capital. Since then, education and human resources development have gone hand in hand in modern economies (Al-Musaileem, 2002). On the whole, the tenet of this movement is that the more one becomes educated in a certain discipline, the more one can proceed in a career (see Figure 1), while at the same time the nation benefits more from one's expertise.

The ideal situation depicted in Figure 1 suggests that a university graduate's investments in education are repaid well in terms of the benefits he enjoys once he qualifies and enters a job, which pays him a higher salary than a secondary school leaver and which allows him to continue to climb a career ladder with further benefits

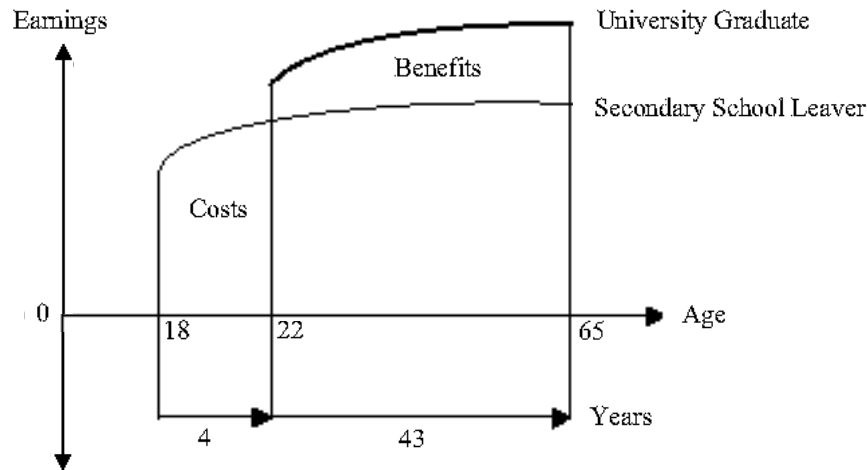


Figure 1. Age-earning profiles of secondary education and tertiary
(Psacharopoulos, 2006)

and entitlements. Let us take an engineer and a construction worker in a construction industry. The construction worker may start working at the age of about 18 when the engineer enters university as an undergraduate. After four years of education the engineer joins the construction worker in the industry in an executive capacity. There the salary and other benefits he enjoys are much higher than those enjoyed by the construction worker. This is a condition universally experienced and the value of education is realized only through the performance indicators of the educated people in society. The micro and macro targets of education observed in this way proceed benefiting both the society at a macro level and the individual at a micro level.

Investment in education as experienced in some OECD countries

It is evident that education has become a big business all over the world, considering the capital value it adds to the recipients of education in various disciplines. Investment levels vary from discipline to discipline, as do the achievement levels, and dependent on that even the human capital value of the individual recipients of education in the respective disciplines varies. This is why there is competition among the nations to maintain the standards and specifications of their education at a unique level.

This fact is realized from the heavy investments made by different nations in education. In the United States alone, education is a rapidly growing \$1 trillion industry, and the federal and state expenditures on education exceed \$750 billion (Johnes & Johnes, 2007). The implication of the data is that the United States has a great trust in education as a developmental investment. A comparison of educational expenditures in the gross domestic product of a group of Organization of Economic Cooperation and Development (henceforth OECD) countries will reveal how some other economies in the world value education in the context of their development, which is mainly oriented on the strength of the human capital.

Table 1: Educational Expenditure as a Share of the Gross Domestic Product (GNP) % for the Year 200

Country	Public share	Private share	Total education share in GDP
Australia	4.4	1.5	6.0
France	5.7	0.4	6.1
Germany	4.4	0.9	5.3
Japan	3.5	1.2	4.7
Korea	4.2	2.9	7.1
UK	5.0	0.9	5.9
USA	5.3	1.9	7.2
OECD Mean	4.9	1.2	6.1

Source: OECD (2005, p. 184)

Table 1 shows how the total education share in the GDP of these countries is formulated. In fact, the private share is less than the public share in every country. Of these countries, France has the highest public share and Japan has the lowest, while Korea has the highest private share and France has the lowest. However, the USA has the highest total education share of 7.2% in GDP, and Korea differs from the USA just by 0.1 %. The overall view that can be formulated from the data is that these countries have more faith in educational investment than others. The OECD mean of the 6.1% total education share in GDP is much higher than that of any developing countries.

Micro-level and macro-level sources of funding for investment in education

Now the question is who invests in education. In many industrialized countries, education is almost privatized as the average citizen is supposed to have a sound economic footing to finance their children's education. In certain countries, education is still free and in certain others, it is free up to the baccalaureate level. However, in all these countries, up to a certain grade or form at school, education is compulsory for the children, be it fee-levying or not, and there the national universities still function on a non-profit basis (Atkinson, Lamont, Gulliver, White & Kinder, 2005; Dustman, Fitzenberger & Machin, 2007).

How education is valued and how investment in education is appreciated in modern societies are clear in the national concerns about educational investment. For example, the countries of the European Council at a meeting prior to the European Union summit in June 2005 expressed this concern. There Prime Ministers agreed to push for more EU funding to be spent on investment for the future—research, innovation and education, and warned that they would 'be on completely the wrong track' if they did not do so. They further considered that Europe must fully embrace the knowledge-based economy in the face of globalization (Alqahtani, 2008).

In the Islamic World, experts also accept this. For instance, Google CEO Dr. Eric Schmidt stated shortly before the 4th Arab Strategy Forum in 2006 that the top priorities for the Arab World today are health, education, training and the creation of job opportunities, and prescribed the Information Technology industry as a great 'enabler' in assisting the Arab World to better integrate with the global economy

and help improve the quality of life in the region (Alqahtani, 2008; Shams, 2008). The reception of this type of view in the Gulf is clear in the advice given by the Director General of the Islamic Educational, Scientific and Cultural Organization (ISESCO), Dr Abdul Aziz bin Othman Al-Tuwairji to the Arab states to upgrade their educational systems and increase investment in research and development if they want to assume a leading role in the world in the next century. He stressed that although Arab countries have based their educational systems on Western modules, the curricula have not been able to adopt modern methods of education and their backwardness is not helping the countries develop, especially when it comes to scientific research and its applications (Alqahtani, 2008). These concerns uttered by him present a clear position for developing an appropriate educational investment policy for the Arab World.

Based on the above-mentioned fact, at a macro level, in terms of state funding, the government bears the costs of the infrastructure facilities of the relevant educational institutions: lands, buildings, stationery, furniture, electronic and other equipment, personnel, etc. In fee-levying situations the students are charged a nominal fee for their education and in fully welfare situations they are not charged at all. However, the state educational institutions in almost every country function as non-profit organizations.

As the students are considered dependent and are not supposed to work, at a micro level, most often their parents bear the non-direct costs for such items as their food, clothing, traveling costs, stationery, membership fees, medicine, pocket money etc. Moreover, they spend time on providing various things they want, as well as on cooking, laundry, health, sanitation, etc. The moral and material support the parents provide for their children during their education can only partly be calculated. Additionally, as recipients of education, the students themselves have to make an investment for the successful completion of their studies. Although the sacrifices they make in this concern, like missing pleasure activities, are calculated in light of the notion of 'opportunity cost', these sacrifices can rather be calculated in terms of man hours.

However, all the three sectors—the state, the family, and the students—proceed in a single direction targeted at a common goal, i.e., the upgrading of the capital value of the human being concerned. They all function in this as stakeholders of education. The micro-macro approaches to educational expenditure meet at this point.

Equity-efficiency trade-off in development-oriented education

In the 1960s, education was considered an exogenous factor entering an aggregate production function on the same footing as other truly exogenous factors, such as natural resources. Such a specification of the production function necessitated diminishing returns to education, as education investment expanded. This view about education changed over the years, and in the new growth theory, education has been considered endogenous in the production process, i.e., on the one hand it uses resources and on the other it enhances productivity of the other related factors. Thus, in the new specification, education is expected to yield increasing returns. The arguments related to this development in the growth theory leading to more productivity-oriented views about education are supported by Romer (1986) and Lucas (1988) who, based on

Solow's (1957) theory of aggregate production function, argued that, beyond the measure of human capital that enters the production function in the traditional way, the total output depends on the average level of the human capital. The dramatic theoretical implication of this formulation is that the output is no longer constrained by the constant returns-to-scale property of the Solow production function, and that knowledge becomes a public good that spills over the economy as an externality, allowing the output to grow beyond the measurable inputs. As a result of this new perception of economic development, development encompasses items such as reducing income disparities, poverty reduction, democratization, increases in life expectancy, reduction of infant mortality, and a greener environment. So the value of education is now assessed, taking into account its effects on these variables which are generally too complex to quantify (Keller, 2006).

Over the past decades, the new outlook on education produced by a new trend in growth theory has led to a new development in the procedures followed in the selection of persons for educational programmes. A trade-off between equity and efficiency arose from this development (Bakr, 2000). The following diagram shows how objectivity is maintained in an efficiency-equity trade-off leading to fair play in education that ensures a decent employment with a lucrative salary and other benefits. Efficiency-based fair play is the practice in a model situation.

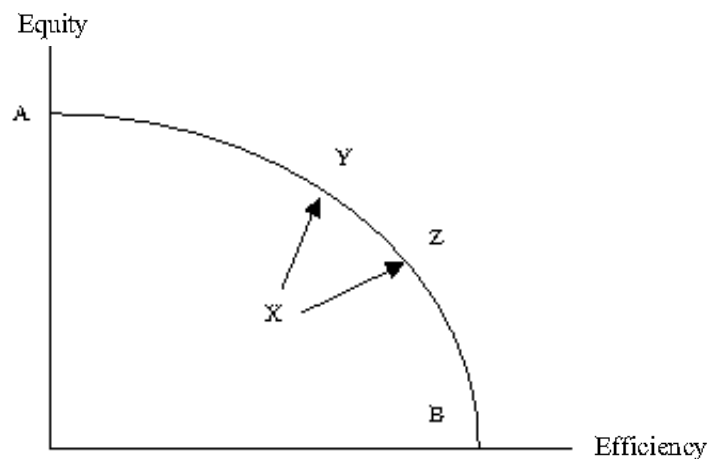


Figure 2. Efficiency-equity trade-off (Psacharopoulos, 2006)

As Figure 2 shows, the consensus today is that all educational systems operate at point X well inside the efficient production possibility frontier AB. Therefore, there is room for implementing policies that move towards Y and Z, i.e., improving both efficiency and equity. This is the analogue of the same trade-off between quantity and quality of education. A careful study of this diagram suggests that combining efficiency and equity objectives introduces the issue of relative weights one should attribute to the two components of social welfare.

Market benefits of educational investment

It is obvious that any nation enjoys, as a primary benefit of education, the enhancement of the human capital stock, which is calculated both input-wise (on the

basis of the financial value of the resources incurred on the respective individual's growth as a professional) and output-wise (on the basis of the demand the respective individual attracts in the employment market as a professional; for further discussion see Gibson & Oxley, 2003; McMahon, 1991). Other than this, education has numerous market and non-market benefits. These benefits of education are typically presented in a four-cell matrix as shown in Table 2.

Table 2: Benefits of Education Generally Classified

<i>Benefit type</i>	<i>Private</i>	<i>Social</i>
Market	Employability Higher earnings Less unemployability Labour market flexibility Greater mobility	Higher productivity Higher net tax revenue Less reliance on government financial support
Non-Market	Better consumer efficiency Better own and family health Better children	Reduced crime Less spread of infectious diseases Lower fertility Better social cohesion Voter participation

(See also McMahon, 1997, p. 447)

According to the matrix presented in Table 2, the private market benefits that manifest themselves in the labour market can be measured in monetary terms and therefore they are the least complicated to calculate. The other benefits need different complex mechanisms to measure and therefore they tend to invite controversies even when calculations are made because it is difficult to indicate their results numerically.

The unemployment figures of the countries round the world that remain high with the secondary school-level population and relatively low with the tertiary-level population, both of which are in the age group of 25-64, indicate that education increases the employability of the individual (OECD, 2001, 2005; Saqr, 2004). Thus, a major return of education is lowering the risk of unemployment at higher education levels. Supporting this tenet, data based on PSID (Panel Study of Income Dynamics) revealed that the minimizing of the incidence of unemployment is believed to be far more critical than the reduced duration of unemployment in creating the educational differentials in unemployment rates (Hall, 2008; Mincer, 1991). Mincer (1991) further argues that (1) more educated workers are in a better position for employment opportunity than those less educated, even in cases of on-job search for new employment; (2) more educated workers are better in acquiring and processing career search information; and (3) employers and more educated individuals search more intensively to fill more skilled vacant positions. According to these labour market trends, the more highly the individual is educated, the higher are his earnings. In the US alone, for example, the average earnings of a tertiary-level educated employee are nearly 2.5 times higher than that of a high-school dropout (Saqr, 2004). Thus the ability the tertiary-level educated persons hold in achieving higher earnings is

common to all countries with variations in the figures. Finally, as Wolbers (2000) points out, employers tend to employ higher-educated people for jobs that were previously occupied by lower-educated employees and therefore higher levels of education boost greater mobility. These private market benefits can be logically coupled with the non-market benefits of education, since the latter are important to consider while deciding investments in education with aims of increasing productivity and net tax revenue, and reducing reliance on government financial support.

Checchi's (2008) clarification that the extreme regional inequality and the serious imbalance between investment in physical and human capital expenditure on higher education has affected production and productivity in the Chinese economy, where labour markets are frequently segmented and where the transition from soft budget constraints is incomplete, is evidence of the powerful impact education has on the behavior of productivity. As Dustman, Fitzenberger and Machin (2008) emphasize, in a drive to increase productivity, solid cognitive and applied skills are still needed to complement general skill requirements because, while jobs change and skill requirements increase, workers need sufficient cognitive abilities to learn new tasks and apply what they already know in new ways. They also still need occupational and professional competencies that provide the applied skills to get the jobs done. The increasing net tax revenue is generally calculated in terms of private returns to investment in education. As Table 3 shows (for elaboration see Pascharopoulos, 1994; Pascharopoulos & Patrinos, 2004), the private returns to investment in education are multidimensional returns.

Table 3: The Private Returns to Educational Investment across a Selection of Dimensions

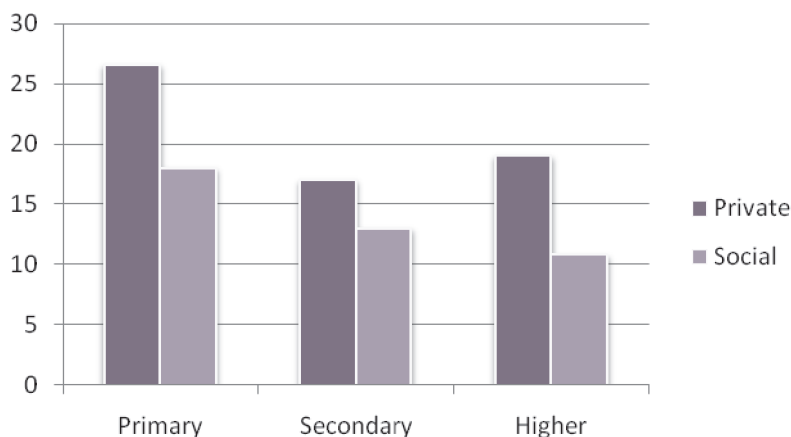
<i>Dimension</i>	<i>Private rate of return %</i>
Level of Development:	
High-income countries	7.4
Low-income countries	10.9
Type of curriculum:	
General curriculum	11.7
Vocational curriculum	10.5
Gender:	
Men	8.7
Women	9.8
Sector of employment:	
Private sector employees	11.2
Public sector employees	9.2
Overtime, 15 year change:	
Primary education	-2.0 percentage points
Secondary education	+1.7 percentage points

(See Psacharopoulos, 1994; Psacharopoulos & Patrinos, 2004)

The global averages depicted in Table 3 signify several implications. First, it is evident that the countries benefit from private returns to educational investments.

Second, it is observed that the higher the returns to education rise, the lower the countries' per capita income falls; this trend reflects a relative scarcity of human capital in poor countries. Third, the vocational track of secondary education exhibits a lower rate of returns relative to the academic/general track, because the former is more expensive. Fourth, investment in women's education exhibits a higher rate of returns relative to men. Although in absolute terms men universally earn more than women, the lower opportunity cost of women's education raises the rate of returns that is a relative concept. Fifth, workers in the private sector enjoy a higher return on their education investment relative to those employed in the public sector. This is because employers in the private competitive sector recognize the higher productivity of educated workers—a finding running against the screening hypothesis. Moreover, returns to higher education are subject to diminishing returns, i.e. they tend to fall as human capital becomes more abundant on the supply side since such returns behave as the returns to physical investment. However, in recent years, the returns to higher education have been rising in most dynamic economies, reflecting the demand for a more educated work force to complement advances in technology (Recent Ref.). Figure 3 shows a visual summary of the private and narrow social returns to education at a world scale.

Figure 3. World averages of return to education by type and level
(Psacharopoulos, 2006)



These returns shown in Figure 3 are described as “narrow” in the sense that they are based on monetary earnings and do not take into account non-market and external effects of education, and the rates of returns remain static, according to a cross-section of a snapshot of what people earn at different ages by level of education. However, according to a more realistic age-earnings trajectory obtained from panel data by Arias and Mahon (2001), the resulting rates of social returns of college graduation in the case of the US males are dynamic and 3% higher relative to the static rates.

Another market benefit of educational investment is less reliance on government financial support. There is so much evidence of this in a review of macro literature, carried out by Sianesi and van Reena (2003) that concludes that a one-year

increase in the mean years of schooling is associated with a rise in the per capita income by 3-6%, or a higher growth rate of one percentage point. Using advanced techniques in measuring qualitative results of education input, Hanushek and Kimko (2000) capture the effect of education quality on economic growth. As shown in Table 4, a country that achieves literacy scores 1% higher than the average ends up in a steady state with labour productivity 2.5% higher than other countries and a per capita GDP 1.5% higher (see also Barnett & Berk, 2007).

Table 4: The Effect of Education Quality in Growth Accounting

<i>Education quality measure</i>	<i>Effect</i>
Test scores in international cognitive achievement tests	A one-standard deviation change in labour force quality is associated with nearly 1 percentage point higher growth rate
Literacy and numeracy skills of young adults aged 17-25	A 1% higher literacy score raises labour productivity by 2.5%

While all these market benefits of educational input are observed from the behaviour of human capital during labour-market hours, non-market benefits are observed during either labour or non-labour market hours.

Non-market benefits of education

The market and non-market benefits of education depicted in Table 2 are interrelated in Figure 4. As said before, the non-market benefits of education are those that result from the use of human capital during non-market labour hours. Education increases the productivity of the time spent at home and in community, as it is used to produce private satisfactions such as enjoyment from reading, and social benefits to the community such as activities contributing to effective civic and eleemosynary institutions (Dustman, Fitzenberger & Machin, 2007). The non-market benefits are shown below the dotted line and are connected with the market benefits to obtain the total benefits without double counting the market benefits.

The non-market benefits are often reported without removing the effects of increased earnings due to education (Ugwu, 2008). For example, education contributes to increased longevity, but part of this is due to the increased earnings that enable purchase of better health care and better diet. To avoid this overlap with the market returns, the household production functions used to measure the net marginal product of education must control for per capita income and thereby remove the effect of education on increased income. So in what follows, attention is confined to those studies of non-market benefits that control for income or earnings. As a result, as shown in Figure 4, the non-market benefits below the dotted line can be interpreted as discrete and over and above the market benefits of education.

Accordingly, the mainstream microeconomic studies establish that the relationship between education, income and life expectancy is linear, where education leads to higher earnings which in turn lead to an increasing life expectancy (McMahon, 2002). This shows that life expectancy is controlled by income. It has

been found that people without a high school diploma live on average 9.2 years less than those who have graduated. The estimated tax costs to society for health care for each person who drops out before completing high school rises to \$120,000 (Ugwu, 2008). This case shows one aspect of the social benefits of education.

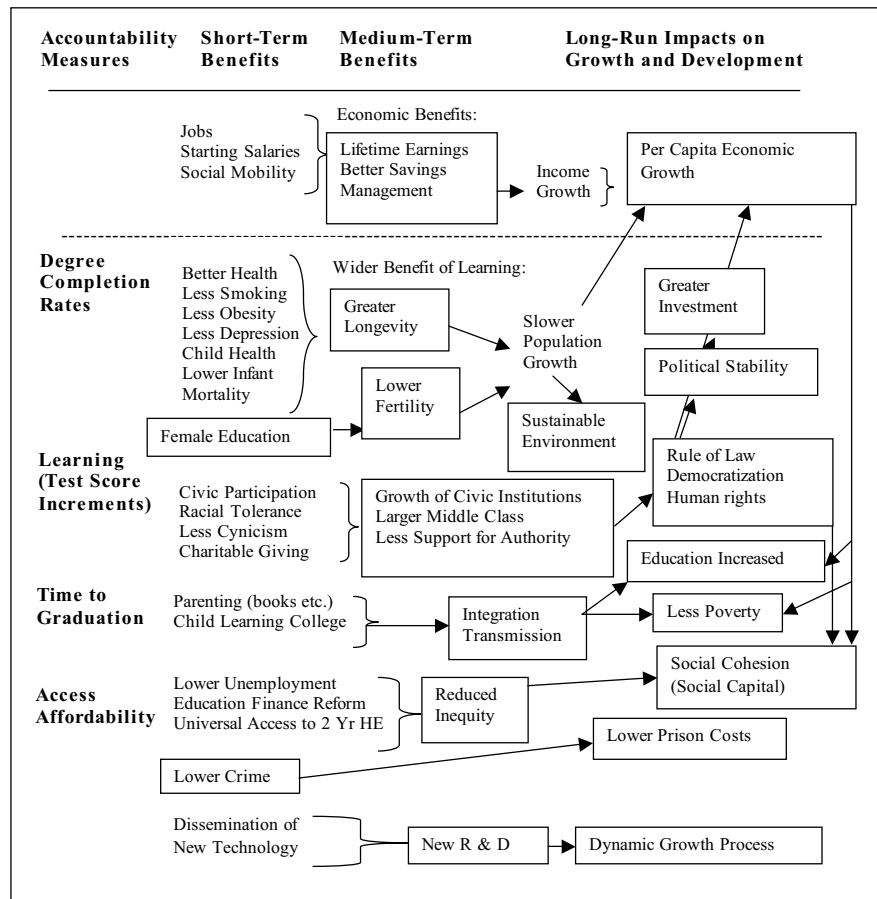


Figure 4. Mapping educational effects into growth and development benefits
(see McMahon, 2004, 2006)

The microeconomic evidence regarding regulating fertility is among the very strongest. Although in Islam, as in other true divine religions, we believe that Allah (Subhanahu wa ta'ala) is the creator of all moving creatures and hence is the Sustainer and Provider for all of them, we are asked to consider the cause-effect relationships in order to maintain a better quality of life. If fertility is merely taken in quantitative terms, then we may sacrifice the quality needed for better parenting. In line with this, in seven independent studies, increased education of the mother is related to a lower probability of teenage daughters giving birth out of wedlock (Khan, 2008). However, the bottom line in all studies concerning the relationship between education and fertility is that educated parents can have healthier and better educated children (cf., Becker, 1981; Saqr, 2004).

The definition of political rights could be read as a wider extension of the franchise especially to the existence of effective opposition parties and candidates with access to the media, lack of denomination by some social groups, viable civic institutions, with a strengthening of the rule of law (Alqahtani, 2008). Human rights are defined here as civil rights, including equal treatment by the courts, absence of mental or physical torture in obtaining confessions, habeas corpus, freedom of the press and of assembly, limited government corruption, and equal educational opportunity. Full access to effective franchise and human rights are highly correlated, and the latter are causally dependent on the degree of exercising rights (McMahon, 2002, p. 103). The published literature shows that there is microeconomic evidence that increased education contributes to improvement in civic institutions, although it usually takes a long time for it to happen (Besley & Case, 2003). Tracer studies on 2- and 4-year college graduates in the US revealed that there are large and significant effects of education on voter participation, free speech, and civic information as measured by newspaper readership (see Besley & Case, 2003). Within each income group, 22% of those with some college education give generously of their time to the community, whereas only 12% of those with a high school education do, and the college-educated give 3% more of their income to charity than high school graduates (NCES, 1998; Hodgkinson & Weizman, 1988). In the UK, Tracer studies also find greater civic participation by those with a college education, but also greater racial tolerance, less cynicism, and less unquestioned support for authority (Bynner et al., 2003). Stronger long-term effects are seen from the creation of a viable middle class that wishes to participate in governance and develop civic institutions for which completion of high school and some college exposure are essential.

The effects of education on political rights are probably seen best in cross-country data because this is such a slow process. Using the Freedom House Index (2005), while controlling for income and military expenditure, McMahon (2002) establishes that a 10-year lag of education has a highly significant effect on the degree of these rights. Clague *et al.* (2001) independently reach the same conclusion. When they go further to include literacy rate their t-statistics becomes very high. Similarly, Keller (2005), using international panel data for 1960-2000, finds enrollment and investment in higher education to be highly significant determinants of political rights in the developed countries. Other similar conclusions appear in Barro (1999), Przeworski *et al.* (2000), and Glaeser *et al.* (2004). Nevertheless, the scenario should not be seen at its face value.

Acemoglu *et al.* (2005), using panel data similar to Keller's (2005), argue that education, political rights, and income are all driven by common long-run factors, with no causal flow from education and income growth to political rights. They present no underlying dynamic view of the process, but eliminate the effect of new knowledge embodied through the replacement of human capital investment by using average years of schooling rather than gross enrolment rates or investment expenditures on human capital. Consistent with their 'static' view, year-dummies are included in all regressions. The lagged value of political rights is one explanatory variable which, with a very slow moving process, could eliminate the little variation that remains in the short-run 5-year movements in the political rights index. It is therefore not surprising that both education and income have negligible effects on political rights.

Political and economic stability is important because it is conducive to new investment and attraction of firms and industries. Economic stability varies somewhat inconspicuously among US states (and dramatically among many countries) due to under-funded pension systems, larger debt service burdens from income bonds, and deficits shifted forward by creative accounting that create tax risks from loan default. There are also political risks from corruption involving political favours through contracts and pressures from election fund-raising as well as risks from politics, from state planning failures, from high inequality and crime rates, and from racial tensions. There are no good measures of political and economic stability among the US states, but there are good international measures from the comprehensive index of the rest of the world (Johnes & Johnes, 2007). These reveal a very high correlation to the degree of political transparency, which depends on education, and a separate additional positive effect from secondary education, especially after controlling for the destabilizing effects of high military expenditure as a percentage of government budgets (McMahon 2002). This is suggestive of the nature of the positive effects of education, partly through the degree of political rights within the US. Political and economic stability in turn, together with the education of the labour force, have significant positive relations to economic growth. This relationship is largely dependent on the quality of education individuals receive from the educational system (Johnes & Johnes, 2007).

A major source of inequality in the income distribution is limited access to good quality education by lower- and middle-income groups (Psacharopoulos, 1977). This phenomenon also fails to build a strong middle class, the creating of which is particularly strongly associated with achieving universal secondary education. In some situations, achieving universal secondary education, while controlling for per capita economic growth and population growth, will reduce inequality significantly (McMahon, 2002). That is, reducing inequality requires not just more education per se, but instead extending secondary and 2-year college access to a larger percentage of the school and undergraduate college age population. This process, however, requires using some of the resources to improve, particularly in quality, basic education in the rural areas and poorer urban areas, achieving universal completion of high school, and greater use of need-based, as distinguished from purely merit-based, college financial aids. To sum up, access to good quality education for all the population is related to minimizing other costs such as resources spent on crime control.

According to Witte (1997), large numbers of unsupervised teenagers, who are not used to attending school, but rather to be roaming the streets, are very significantly related to crime rates. This is a major externality essentially unique to the achievement of universal secondary education. Microeconomic research by Lochner (2003) further supports the fact that education reduces the costs of building prisons, incarceration, and costs to victims and estimates that a one-percent increase in the male high school graduation rate could lead to fewer IUU (illegal unregulated and unreported) crimes each year, saving \$1.4 billion. Simulation of the above model in Figure 4 finds that after controlling for income and other things, education enrolment rate and lower inequality are significantly related to lower homicide rates. Other policies of course also affect crime rates, but the net effect of high school enrolment rates is impressive. The indirect effects of education help to keep lower rates in population poverty and to increase awareness and the economic capacity to support environmental landmarks such as national parks, thereby indirectly slowing the destruction of nature, helping the recovery of forestland, wildlife, and water quality.

Muslim scholars' views on non-market returns of educational investment

The Islamic response to these theoretical and practical indicators of investment in education and particularly its non-market benefits is still unclear. In fact, this discussion takes a new direction only in an interpretation of the relevant findings in the light of Islam, because it really helps to prevent the rat race caused by various new ventures people embark on as a result of modern western-type education with regard to economic prosperity and comfortable living conditions. Under a devastating socio-economic policy bent on materialism, the more people make progress in education, the more they cause damage to society and the environment.

In this sense, the spiritual refinement that education in a real Islamic atmosphere achieves in the individual prevents him from causing even an iota of the harm done to the environment and the human race by the average product of the western type of education. According to Islam, whatever is taken as the source of regulation for one's deeds is considered one's Lord because there is a clear relationship between choosing a Lord and a certain kind of actualization of people's possible states. That is why the term *rubūbiyyah*, conveying the idea 'God is the Lord', was used by all the prophets to introduce a practice that shows the real essence of Islamic education in particular and of religious education in general, because the wrong choice of a Lord made by desire would shape people's characteristics wrongly and would lead them to undesirable states (Bagheri and Khosravi, 2006). Accordingly, Islamic education could be defined as "to know God as the unique Lord of the human and the world, to select Him as one's own Lord, to undertake to follow His guidance and regulations, and to avoid what is contrary to them" (Bagheri and Khosravi, 2006, p. 97). This definition presents a three-fold process of becoming a real Muslim: knowledge (Allah as the Lord), choice (choosing Allah as one's Lord), and action (undertaking to submit to Allah's Lordship throughout one's life); and the process involves rationality (Bagheri and Khosravi, 2006, p. 97). Rational action thus promoted in Islam helps to prevent all the social ills depicted in Figure 5. In this sense, one is compelled to agree with Bagheri and Khosravi (2006, p. 101) on the point that "the Islamic views are not restricted to the Muslim world".

So what is required of education is to bridge the gap between empiricism-based rational thinking and sensitivity to society and the environment. The following grid attempts to recognize some of the possible implications embodied in the five pillars of Islam with respect to the non-market benefits of education (for elaboration see Issi Dien, 2007, pp. 268-69).

Commenting on the environment, Issi Dien points out some major shortcomings in the western-type education which has gained currency all over the world today:

[O]ne of the main contributing factors of the current near catastrophic situation is a general lack of knowledge about the basic values of an environmentally aware way of life. Individuals are taught why, how and when to act in relation to everyday functions, yet there exists an apparent ignorance when it comes to thinking sensitively about the impact and real implications of their actions. Although the education system is addressing environmental issues by reappraising the curriculum, lack of knowledge and seeming apathy remain common characteristics. (p. 266)

The Five Pillars of Islam		
<i>Pillars</i>	<i>Interpretation</i>	<i>Significance for modern society</i>
<i>Shahādah</i> (Faith)	Recognition of no power but the power of the beneficent God	When planning for conservation, only the environmental public interest is taken into account, not the interest of companies or individuals in positions of power.
<i>Ṣalāh</i> (Prayer)	Humility before the divine order and an embracing of the earth in every prostration	Respect for the environment in every activity.
<i>Ramaḍān</i> (Fasting)	Training self-control	Human needs and desires can be modified so as not to have adverse effects on the environment.
<i>Hajj</i> (Pilgrimage)	Obedience to God and the festival of love for both man and the natural world	Train people to grant amnesty to the earth and its components, whereby it is not allowed to kill an animal or cut a tree.
<i>Zakāh</i> (Alms)	Maintaining social solidarity between all the elements; such as earth, water, air, man and all other living creatures	Reduce greed and abstain from exploitation of the resources on the earth for personal benefits.

Figure 5. The five pillars of Islam and their implications for non-market benefits of education (See Issi Dien, 2007, pp. 268-69)

The views expressed here are relevant to all activities in life where the environment remains at the receiving end. Therefore, in order to maintain a high quality of the non-market benefits one derives from educational investment, the ethos of education need to be fine-tuned to be in line with the principles of Islam (Bagheri & Khosravi, 2006). In order to have a society without sorrows, all need peace, harmony, protection, prosperity, and health, and to ensure these, it is necessary to reformulate modern rational educational strategies in the light of the comprehensive mission of Islam (Kuwait National Commission for UNESCO, 2008). An Islamic upbringing would definitely fill the non-market hours of every individual with some activity which is productive both spiritually and rationally, and that will be the greatest non-market benefit of a carefully developed educational investment in the current world. The simplicity taught in Islam would become a catalyst among a wide range of mundane

aspirations, which wear the human out in a consumer society, and save society and the environment from all types of evils. Let this be the greatest non-market benefit of educational investment in all societies in the world, be they Muslim or non-Muslim.

Many Muslim educationists argue that favouring reason at the expense of spirituality interferes with balanced growth (Bakr, 2000; Saqr, 2004). Exclusive training of the intellect, for example, is inadequate in developing and refining elements of love, kindness, compassion, and selflessness, which have an altogether spiritual ambience and can be engaged only by processes of spiritual training.

There are three processes involved in Islamic education: *Ta'lim* - knowledge being sought or imparted through instruction and teaching; *Tarbiyah* - a state of spiritual and ethical nurturing; and *Ta'dib* - development of sound social behavior (Issi Dien, 2007). Spiritual and ethical maturity and sound social behavior enhance further the value of the person who has achieved knowledge or expertise through learning under experienced teachers.

Conclusion

In the above discussion, an attempt was made to develop the theme of investment in education with a focus on non-market benefits, in order to substantiate the point of view that investment in education is essential in achieving far-reaching benefits, which guarantee the reduction of man-made threats to the sustainability of the human race and the environment. In that sense, first a definition of investment in education was formulated in the context of developing the human capital. Then the value of investment in education was discussed with examples from some OECD countries. Further, a theoretical framework was developed on micro-level and macro-level sources of funding for investment in education and equity-efficiency trade-off in development-oriented education, in order to illustrate the direct impact of investment in education on the enhancement of human capital. Moreover, market benefits and non-market benefits of educational investment were presented with examples from a variety of sources.

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