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July 2014

Online at <https://mpra.ub.uni-muenchen.de/61800/>

MPRA Paper No. 61800, posted 3 February 2015 06:23 UTC

The Capability Approach

From Theory to Practice

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ISBN: 9781137001436

DOI: 10.1057/9781137001436

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Integrating Human Capital and Human Capabilities in Understanding the Value of Education

Enrica Chiappero-Martinetti and Anna Sabadash^{1,2}

Introduction

The aim of this chapter is to investigate the possibility of combining human capital theory (HCT) and the capability approach (CA) in order to better understand and measure both the instrumental and the intrinsic values of education for individuals, and to trace its relative spillover effects on societies. HCT, pioneered by Schultz and Becker in the early 1970s, has since become an important part of the debate on economic growth and development. Recently, HCT has been criticised for the narrow instrumental role that it assigns to education (inasmuch as HCT disregards some of important non-material aspects of education), as well as for its inability to satisfactorily reflect the cultural, gender-based, emotional and historical differences that can influence educational choices and individual well-being.

While the economic aspects of educational investment certainly constitute an important part of individual well-being, we should not disregard its other dimensions, such as the impact that education can have on self-worth, social integration and political participation. As the contributions of the present volume show, the broader and richer perspective offered by the CA goes well beyond the narrow notion of material well-being in acknowledging not only the instrumental value of education in promoting productivity, economic growth and individual incomes, but also its importance for individual well-being and social development.

As remarked by Sen (1997), HCT and CA are distinct but related areas of investigation as they both put individuals at the centre of attention and are equally concerned with the acquired abilities of people. However, while the former concentrates on the indirect value of education as a 'capital' to be invested in the production process, the latter offers a more inclusive perspective able to encompass both the direct and indirect values of human abilities.

This chapter discusses a combined HCT–CA approach as a possibility for working with a broader information space in assessing the value of education. It presents three integrated sections discussing the role and value of education for human well-being. The first section reviews the most significant attempts to define and measure education from a human capital (HC) perspective. The second is focussed on education and human capabilities and considers those aspects and empirical facts that are not fully encompassed within or justified by the HC perspective. The third section argues that HCT and the CA paradigms can complement each other in measuring the value of education, and discusses some methodological challenges and empirical features associated with this combined view.

1 Education and human capital

This section reviews the most significant attempts that have been made within the HC framework to define and measure the process of acquiring and developing HC. The focus is on the virtues and limitations of HCT in defining and measuring educational attainment and its derived outcomes (by and large, those related to employment), with the limitations being treated as potential entry points for the CA.

1.1 Definition of human capital from the classical perspective

The concept of HC has a long history dating back to A. Smith and W. Petty. It was originally introduced to analyse human beings as 'producers' and to measure their abilities to engage in productive activities. The establishment of HCT in the modern neoclassical economic literature, and the best-known application of the idea of 'investing in HC' can be found in the seminal works of Schultz (1961), Becker (1964) and Mincer (1974). According to HCT, there is no behaviour that cannot be interpreted from an economic point of view, however altruistic, emotional, compassionate or disinterested it may seem to others (Gendron, 2004). Seen from the standard HC perspective, the capital of knowledge and experience embodied in workers is considered as a means of production, together with physical and financial capital. Like investments in other

means of production, investments in HC (for example, through education, on-the-job training, or medical treatment) involve both direct costs (tuition fees or costs of medical treatment) and indirect (or opportunity) costs. Investment in HC yields additional output that depends on its market rate of return.

The definition of HC as an individual's productive ability rests on the assumption that consumption is the ultimate goal of economic activity, and suggests that the value of an individual's HC should be measured as the value of goods and services that he or she produces directly or indirectly.³ In recent years, the understanding of consumer goods has been broadened to include technical and scientific knowledge.⁴ Working on the same paradigm, David and Lopez (2001) have further extended the definition of HC to include the capacity for interpreting data flows and structured information required for goal-driven individual actions and interpersonal transactions and the intellectual creativity that generates new knowledge underpinning technological and organisational innovations.

Though the traditional HC approach has been repeatedly criticised for limiting itself to a purely economic assessment,⁵ it has made an important contribution to debates on welfare, education, health care and retirement. This framework has been made increasingly flexible by allowing for the influence on wages of many additional variables (such as innate abilities, gender, social status, nationality and family background). While in earlier economic research the only type of output recognised by HCT was economic value, more recently the quality and length of life, happiness, social inclusion and social activity have been conceptualised within the literature. Thus, the concept of HC has moved far beyond its original definition and today comprises the knowledge, skills, competencies and personal attributes engaged in the creation of individual, social and economic well-being.⁶

1.2 Main approaches and measurement issues in assessing HC

The main empirical questions of the HCT are: (a) what are the determinants of HC embodied in individuals? and (b) what benefits can be gained from HC? These questions lead to more technical concerns, such as how to measure the HC embodied in an individual and how to measure the (present or potential) benefits that an individual derives from possessing (a certain amount and/or type of) HC. However, as noted by Bowles et al. (2000), while increased schooling is a powerful means of increasing individual earnings, the economic returns of increased schooling are difficult to grasp.

1.2.1 Main approaches

Since HC cannot be directly observed, all empirical HC models are constructed on the basis of various proxies used to measure it. It is thus very important to keep in mind that the estimations of these models are determined by the way one *defines* HC and its chosen proxies. In this sub-section we survey three different approaches to estimating the pay-off of investments in HC, which mainly capture the determinants of labour market success in terms of individual earnings: the income-based approach, the cost-based approach and the educational stock approach.⁷

Income-based approach: This approach defines HC as the present value of expected returns and measures it in terms of the output that it could potentially generate (generally restricted to future earnings). HC is valued at market prices under the assumption that the labour market accounts for many factors, including ability, effort, education and institutional and technological structures of the economy, through the interaction of supply and demand.⁸ A drawback of the income-based approach is that it rests on rather strong assumptions: wages reflect productivity; individuals make rational investment and consumption decisions; the time preferences of individuals are known and measurable; the value of a future stream of benefits can be estimated.

Cost-based approach: HC is calculated as the individual's current stock of skills, knowledge and abilities resulting from past decisions to invest into three types of input: those that individuals acquire (tuition fees, health expenditures, opportunity cost of earnings, etc.) and generate (time and effort spent on learning); those incurred by employers; and those generated by national and local authorities. This method offers two main advantages: first, it provides an estimate of the resources that have been invested in HC; second, it is relatively easy to apply empirically due to the availability of data on public and private spending. The limitations of the cost-based approach are: it assumes a direct relationship between investment and the quality of output; it determines the value of capital by the costs incurred for its production and not by the demand for it;⁹ it does not account for the effect of non-market activities, such as non-market family contributions, or by-products of education, such as enjoyment and self-esteem.

Educational stock-based approach: HC is measured by education output indicators such as adult literacy rates, school enrolment rates, dropout rates, repetition rates, average years of schooling of the working-age population and test scores (Le et al., 2005; Liu and Grecker, 2009). This method has mainly been used for cross-country analyses.¹⁰ The main

rationale for using it is that the aforementioned indicators are closely related to investment(s) in education. While it is widely acknowledged that education is the most important and most easily accessible component of HC, critics of this approach argue that HC encompasses further dimensions which should also be taken into account. Another limitation of the educational stock-based approach is that it gives only a rough idea of a country's educational stock, and emphasises the quantity of HC at the expense of its quality (Le et al., 2005).

Combined approaches: The fact that each of the aforementioned approaches has its own specific advantages and limitations has inspired some researchers to combine the different approaches. Successful attempts in this regard have been made by Tao and Stinson (1997) and Dagum and Slottje (2000), both using U.S. data. While the former combined the cost-based and income-based methods to estimate an average HC for cohorts, the latter suggest a combined approach to estimating the HC of individuals.

1.2.2 *Methodological challenges in measuring HC*

A weakness shared by all of the above-described approaches is their monetary aggregation of the heterogeneous components of human development, which presupposes that individual skills can be converted into monetary equivalents. Recently, this issue has been tackled by measuring individual skills and abilities in a common unit of account at a given point in time (for example, by constructing composite indicators).

Measuring education: HC and knowledge are often thought of as joint products, but conceptually they are distinct and ideally they should be measured separately.¹¹ Nevertheless, much research focuses exclusively on knowledge as measured by educational attainment, proxied by years of schooling. The advantages of using this proxy are obvious: first, the use of 'quantity' of schooling as a proxy for HC is based on sound theoretical grounds (Le et al., 2005); second, most countries keep extensive school records (Keeley, 2007).

However, the measurement of educational attainment in terms of years of schooling fails to account for the quality of the acquired skills and knowledge, and the value of a given number of years of education may vary according to the educational institution. Furthermore, the expenditure and efforts made to obtain a certain type of qualification can differ across regions and countries, as well as across individuals. Moreover, using years of schooling as a measure of HC stock assumes that one year of schooling always increases HC by an equivalent amount.¹²

This assumption contradicts one of the main postulates of HCT, that schooling yields a diminishing rate of return.

Other sources of learning, such as on-the-job training, participation in social activities and even daily life experiences, are important for the formation of an individual's HC and should not be disregarded. This issue goes beyond simple technical matters and has to do with the highly heterogeneous character of knowledge, the value of which is not intrinsic but rather dependent on its relationship to the user. Differentiating between types of educational credentials (for example, ranking them according to the reputation of the educational authority) and accounting for non-formal and informal sources of education can make it possible to capture additional information about the accumulated HC. This is important in view of existing market imperfections, such as labour market segmentation and non-competing groups.

A solution commonly adopted by HCT for tackling these measurement problems is to address the data-quality issue, for example by using standardised test scores, which capture both educational outcomes and cognitive skills and also ensure international comparability. National and international assessments of individuals' actual level of knowledge are made possible by using, for example, data gathered by OECD (Organisation for Economic Cooperation and Development) projects such as the Program for International Student Assessment (PISA), which since 2000 has provided comparable information on the level of reading literacy, mathematical and scientific competencies and problem-solving abilities; or the International Adult Literacy Survey (IALS), which in 1994 fielded the world's first large-scale, comparative assessment of adult literacy.¹³

Measuring the outcomes of education: The economic benefits of education are defined in HCT as enhanced performance on the labour market enabling a higher earning capacity. However, the level and the content of skills, knowledge and abilities that are developed through education determine many other aspects of a person's economic and social well-being: higher lifetime earnings, lower unemployment, greater employment opportunities and improved health and life expectancy.¹⁴ Because this broad stream of benefits is often resistant to measurement, most economists focus on current earnings and employment.

One of the central assumptions of HCT is that a certain stock of knowledge, skills and abilities can be associated with a precise economic value. This approach rests on two major assumptions. The first is that abilities are automatically 'translated' into a specific income level on the market.

The two most significant problems connected with this statement are information asymmetry and the existence of personal factors (gender, temperament, personality) that may affect the worth of an individual's HC. The second important assumption is that each individual is capable of evaluating the costs and benefits of various types of education, and makes his or her decision to enter a certain type and level of educational system on a rational basis. These major assumptions risk reducing the broader economic analysis of HC investment decisions to a constricted one of earnings maximisation.

Another important measurement issue arises in relation to the price and quantity dimensions of returns on education. The *price dimension* is addressed when comparing the wage rates of individuals who possess different levels of HC. Alternatively, the *quantity dimension* assesses the different amount of work performed by individuals with different levels of education. The price returns on education do not depend on an individual's choice, but are determined by the market,¹⁵ while the quantity of returns on education depends on the employment opportunities available on the market and on the individual's willingness to be employed under current employment conditions.

Although most research focuses on market returns, in reality an individual derives a more comprehensive stream of utility from acquired capabilities and knowledge.¹⁶ As Grossman (1999) has argued, if knowledge and traits acquired through education influence decisions made at work, they are just as likely to influence decisions made with regard to cigarette smoking, eating behaviour, contraceptive techniques and personal savings. Non-market returns from schooling are not a new topic in the economic literature.¹⁷ Wolfe and Haveman (2002) distinguish between two types of effect: the *intra-family effect* of education, which is dependent on the earning capacity of a spouse, the cognitive development and educational level of one's children and family nutrition and health levels; and the *own effect*, which is linked to better health and life expectancy arising from occupational choice, location choice and knowledge of nutrition and health issues. Moreover, education appears to be positively related to the quality of choices regarding consumption and savings,¹⁸ marriage,¹⁹ number and well-being of offspring and type of employment.

In light of this consideration, it seems straightforward to conclude that measuring education-derived outcomes based on monetary variables alone leaves out a substantial part of the benefits under analysis. However, since this broad stream of benefits is difficult to measure it is often left out of HCT-based analyses.

2 Education and human capabilities: bringing theory closer to reality

The HCT discussed above is based on two crucial assumptions: first, markets work rationally, perfectly and efficiently; and, second, the only element of distinction among people lies in their differing amounts of HC. Both of these assumptions conflict with the complexity of the real world and receive only partial empirical confirmation. First, while education and economic growth are unquestionably related to each other, the direction of this relationship and its extent are far from clear (Does education lead to economic growth or vice versa?). Second, they might be associated with one another, yet driven by a third variable such as innovation or technology (what we call a 'spurious correlation'). Finally, the relationship between education and economic growth is typically characterised by a temporal lag: investments in children and their education require a decade or more to produce effects on the economic growth rate, and databases are not always sufficiently long to enable the measurement of these transformations.

Higher investments in HC do not directly and automatically translate into more opportunities on the labour market or higher salaries for everybody or everywhere. For example, the persistence of over-education in OECD countries, where a substantial number of workers have a higher level of education than their job requires, raises some doubt as to the capacity of the labour market to allocate people to occupations that are appropriate for their skill level.²⁰ Furthermore, a higher level of education does not automatically enable individuals to find better jobs and improve their economic status. There is also plenty of empirical evidence that discrimination and occupational segregation in terms of job opportunities, careers and wage gaps remain pervasive in affluent societies, particularly for some groups such as immigrants, women and youth.²¹

A major drawback of HCT is therefore the scarce attention that it pays to human diversity and unequal opportunities. As Elaine Unterhalter (2009, 211) notes, 'The [HCT] framework does not take into account segregated labour markets where people, irrespective of their level of education, are allocated to particular jobs on the grounds of race, gender, or assumptions about class or caste.' Moreover, as Sen (1997; 1999) has noted, the benefits of education go beyond its role as a mere input to the production process. To quote him: 'The use of the concept of HC, which concentrates only on one part of the picture (an important part, related to broadening the account of "productive resources") is certainly

an enriching move. But it does need supplementation. This is because human beings are not merely means of production but also the end of the exercise' (1999, 296).

The CA views human beings in a broader perspective and goes beyond the notion of HC by acknowledging not only the instrumental value of education in promoting productivity, economic growth and individual incomes, but also the direct relevance that it can have in terms of individual well-being and freedom, as well as for social development.

The accumulation of HC expands people's achievable opportunities and functionings, and enlarges individuals' freedom 'to do and to be' in other not directly 'productive' spheres. These functionings include being able to communicate and to argue, to know, to participate in the life of a community, to be able to interact with other people based on mutual respect and all related functionings that constitute the background of human agency, that is, the ability to pursue one's life goals.

Education is also relevant for its role as a public good and for the consequences it can produce at the collective level in terms of social development and political participation. As Martha Nussbaum notes, 'Nothing could be more crucial to democracy than the education of its citizens. Through primary and secondary education, young citizens form... habits of mind that will be with them all through their lives' (Nussbaum, 2006, 387). Although the development of these socio-political qualities is particularly obvious in developing countries and in fragile or nascent democracies, they remain crucial in more mature democratic systems (Walker and Unterhalter, 2007).

By drawing a clearer distinction between the intrinsic and the instrumental roles of education (Robeyns, 2006; Unterhalter, 2009), it becomes possible to give more emphasis to the undeniable value that investments in education have for both economic growth and human flourishing, and to portray individual well-being in a broader and more comprehensive perspective. It also makes possible a better understanding of the real opportunities and constraints that people have in different domains of well-being, including participation in the labour market.²²

Recently, Young (2009a; 2009b) has shown how the capability approach can also offer a more appropriate perspective for evaluating learning outcomes, by comparing it to the standard quantitative and qualitative methods such as performance-based and relevance-based approaches. The former method, which is based on national and international comparisons of aggregated scores,²³ measures performance outcomes in a rather mechanical and standardised manner, and does

so only for those within formal education systems, neglecting differences in cultural values and in resources available in various contexts. In contrast, the latter method focuses on the community and individual level and is based on subjective perspectives, thus taking culture, values, and diversity into account and capturing the different impacts that learning outcomes can have on individual lives. However, this approach does not fully account for the comparability between groups and populations. It is for this reason that Young suggests complementing the performance-based and relevance-based approaches with CA: because his combined approach includes the local perspective within the framework of valued learning outcomes, it enables an evaluation of the real freedoms gained through education that allow individuals to improve their lives.

In short, integrating HCT and CA would make it possible to preserve the undeniable strengths of the former – its recognition of the instrumental value of education as a productive investment – while integrating it within the broader view that the latter offers in virtue of its recognition of the intrinsic value of education. The significant number of contributions put forth by capability scholars over the last decade has clearly demonstrated that this change in perspective could be advantageous in many respects. It remains to be seen how this integration is possible from a conceptual and empirical point of view. In the following sections we take a first step in this direction, using a more specific ‘capability language’ to discuss in greater detail how education can find room within this framework.

2.1 The role of education from a capability perspective: theoretical grounds

In the capability literature it is becoming quite common (Robeyns, 2005; Chiappero-Martinetti, Grasso and Pareglio, 2008; Ruggeri-Laderchi, 2008) to define the well-being generating process as a mechanism that transforms the overall endowment of public and private resources and services (means to achieve) into a set of achievements (functionings). As shown in Figure 9.1, this transformation is mediated by the ‘capability set’, which represents the set of real options from which people have to choose.

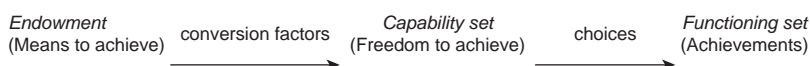


Figure 9.1 The well-being process

What an individual can achieve with a given endowment depends on a variety of internal and external conditions which ultimately determine their capability to transform the means into a vector of functionings (our capability set, in the intermediate part of Figure 9.1) and, through personal choices, into achieved functionings. Within this scheme, education can play a crucial role on at least three different levels, as briefly discussed in the following sub-sections.

2.1.1 *Education and knowledge as ends*

The intrinsic value of education and knowledge can be defined, according to Robeyns (2003), as ‘being able to be educated and to use and produce knowledge’.²⁴

Educational inputs and resources include the financial and human resources invested in formal education (e.g., the number of public and private schools present in a given area, the teacher/pupil ratio, public expenditure on education as a percentage of GDP or of the total government budget by region, in-school facilities, facilities and support for students with special needs), private resources (i.e., household income), as well as libraries, newspapers, other media, theatres and spaces for public debate and cultural initiatives. The ability to convert these resources into well-being largely depends on internal characteristics (age, sex, natural abilities and disabilities) and on external factors (parents’ level of education, social and cultural norms that can generate discriminating practices or stereotypes) that can affect the rate of conversion of the *means to achieve* into effective *freedom to achieve*, as shown in Figure 9.2.

The capability set represents the individuals’ real freedom and opportunities to achieve through the competencies, knowledge and level of education that they have reason to value. For instance, in choosing to study engineering or art, or deciding to undertake specific vocational training, an individual will realise a given achieved functioning that represents the final step or output of this (type of) well-being production

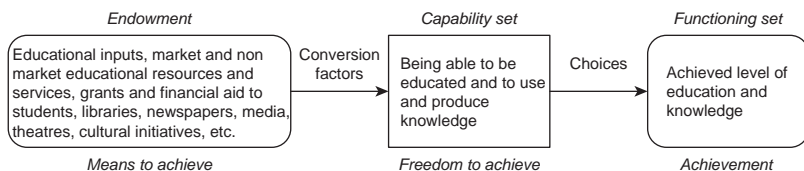


Figure 9.2 Education and knowledge as ends

function. At the individual level this will be measured in terms of years of schooling or the highest level of education achieved, while the macro-level may take into account variables such as enrolment ratio, average years of schooling, student performance (e.g., PISA) or adult functional literacy skills (e.g., IALS).

Broadly speaking, while the resources space can be linked to the cost-based approach of the HCT, the achievements space is connected to the educational stock-based approach of the HCT (both discussed in Section 2.2).

2.1.2 Education as means: education and work status

Let us now examine the instrumental value of education as a means for achieving well-being in other relevant dimensions, namely in terms of work status, thus adopting the standard HC perspective. Once again, we refer to Robeyns's (2003) definition of 'being able to work or to undertake projects'.²⁵

The current observable work status of a person is (or should be) the result of a free choice within the actual opportunities set (which may include being able to work or to undertake projects, being able to choose between full- or part-time jobs, etc.). In turn, this is related to the level of education, professional experience and achieved competencies as well as to the ability and real possibility to convert these 'means' into ends, as illustrated in Figure 9.3.

Internal factors such as abilities and talents should positively affect this conversion process, while other characteristics such as sex, race or nationality should be neutral. However, external (social, cultural and economic) factors generally determine gender and racial discrimination and segregation conditions in the labour market, with a negative effect on peoples' capability sets. For example, a woman's freedom to achieve what she would value in terms of work and professional projects is generally (and strongly) affected by the unequal distribution of parental responsibilities and the imbalanced burden of care activities and domestic work within the household. Cultural norms and welfare

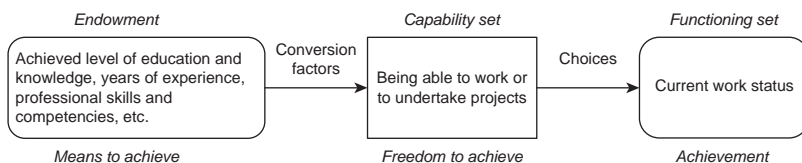


Figure 9.3 Education and knowledge as means

state services (e.g., child care and elderly care services) directly affect the conversion rates and thus the real opportunities and choices that men and women have.

2.1.3 *Education and conversion factors: the link between education and health*

Finally, a third way to incorporate education and knowledge in the well-being process is to consider its role in the conversion process for achieving well-being in other relevant well-being dimensions. An obvious example here is the potential role of education and knowledge in allowing people to be 'able to have good health, including reproductive health' (Nussbaum, 2003).

In this third example, (quantitative and qualitative) indicators related to the public provision of health care, private medical care services and the availability and accessibility of medicines, contraceptive methods and family planning programmes, are included in the endowment space.

The possibility of making optimal use of these 'means to achieve' is systematically linked to interpersonal characteristics (age, sex, physical and mental abilities and disabilities, metabolic rates) and external circumstances (e.g., epidemic conditions, immunisation and the incidence of HIV, malaria or tuberculosis, in addition to social and cultural norms such as genital mutilation practices, domestic violence and sexual crimes against women).

The ability to convert available resources on the basis of these internal and external conditions expands the range of potentially available choices relating to good health, including reproductive health (as specified by Nussbaum, 2000), the avoidance of escapable morbidity and premature mortality (as described by Sen, 1999), or the awareness of the risks of drug abuse and unsafe sex. Consequently, this ability increases the individual's potential space of functionings and their corresponding achievements (e.g., current health status, reproductive/fertility decisions), as illustrated in Figure 9.4.

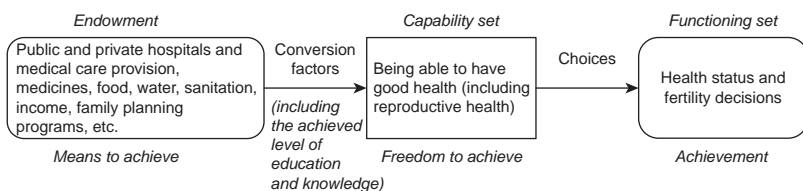


Figure 9.4 Education as a conversion factor

Needless to say, literacy and education can deeply affect all these layers of analysis and thus, indirectly, one's health achievements. They positively affect women's decisions regarding reproductive/sexual health and contraception and their access to hospitals and medical care. They improve women's own living conditions as well as those of their children and families through a better use of food, medicine and sanitation. They also play a central role in the capability space, empowering women and giving them more respect within the family, increasing their agency and helping them to make decisions based on their own values and goals. This, in turn, can influence women's achievements in regards to health conditions and fertility decisions, thus reducing fertility rates and child-mortality rates. From this point of view, education and knowledge become an internal personal characteristic that determines one's ability to convert input (means) into output (well-being).

3 Towards an integrated view of human capital and human capabilities

In this section we look at the conceptual and measurement implications of complementing the classical HC paradigm with the CA perspective and suggest specific ways in which the CA could add to HCT. Using the micro-data from the British Cohort Study (BCS70), we make several suggestions on how to expand the range of variables beyond a narrow economic view and move towards the non-economistic aspects of education.

The BCS70 is a representative sample of individuals followed longitudinally since birth in 1970. This dataset provides information on the socio-economic and demographic backgrounds of the sample units during their childhood and on educational and employment outcomes in their early adulthood. For the purpose of this study, we refer specifically to the round of data collection which took place in 2004/2005, when the BCS70 cohort members were 34 to 35 years old. The data provides information about the period in which the cohort members completed their transitions into adult life (including leaving full-time education, entering the labour market, setting up independent homes, forming partnerships and becoming parents).

3.1 Some theoretical conjecture

The possibility to make a clearer distinction among the different roles education can play in our lives may affect the way in which we compare and assess individuals, opportunities and living conditions. Let

us consider the three following cases and see how HC and CA would appraise them.

Case (1) A migrant woman in an industrialised country (let us say Italy) who has a high level of formal education but access only to poorly remunerated and low-qualified jobs (i.e., housemaid/cleaner or caregiver), due to segregation or discrimination mechanisms in the labour market.

Case (2) A young woman with a poor or scarcely remunerated HC resulting from her household's strong cultural bias against investing in education for girls. This parental gender bias restricts the young woman's opportunities set, reduces her freedom of choice and lowers her educational achievements which, in turn, will generate inequalities in wages and job opportunities.

Case (3) A man with a high level of education and access to high wages through highly skilled jobs. This favourable situation on the labour market may be due at least partially attributed to gender discrimination on the job market (which shelters men from female competition), and to an unequal distribution in time allocation, unpaid work and family responsibilities, which allow men to allocate time and effort to paid work alone.

If we view education as an intrinsically valuable dimension of individual well-being (i.e., education as an end), Cases 1 and 3 might reflect a situation of equal opportunity (if both individuals have chosen a high level of education, we can reasonably assume that this was just one of the various feasible options available in their opportunity set, indeed the one most conducive to their HC accumulation) and therefore an equivalent (high) level of achievement. In Case 2, on the contrary, gender disparities impeded the ability of the young woman to express her choice and to achieve her desired level of education.

The well-being ranking of these three cases might be rather different if we focus our attention on crucial factors other than education as a means for achieving well-being – factors such as having control over one's material environment, participation in the labour market and having equal opportunities for seeking employment, or having the social basis for self-respect (to take examples from Nussbaum's list of ten central human capabilities). The low level of well-being in Cases 1 and 2 would contrast strongly with the high level of well-being in Case 3, even if the main causes of these capability failures or successes were substantially dissimilar and explicable in terms of different factors, namely, social

norms, intra-household inequality in time and opportunity allocation and labour-market discrimination.

The three cases above clearly demonstrate how individual educational achievements are determined, not only by the availability of personal, family and social resources, but also by an individual's ability to access and exploit these resources, which are not equal for everybody. Accounting for these diversities can be helpful from both conceptual and measurement points of view, casting light on the linkages among different evaluative spaces (resources, opportunities, outcomes) and on the plurality of factors (internal and external) that can affect the well-being-generating process.

Although some of these factors are acknowledged and even measured in classical HCT, most theoretical and empirical research is focused on the transformation of achieved education into observed labour-market outcomes. Questions regarding the equality of opportunities to develop one's skills and abilities using all available resources, or regarding the achievement of welfare gains other than employment-related ones, are tackled only marginally (with the single exception, probably, of the gender gap in earnings). One can therefore conclude that measuring education-derived outcomes by way of monetary variables alone would leave out a substantial part of the individual benefits under analysis.

Moreover the individual non-market benefits derived from education are associated with additional spillover effects within and across social groups and can promote democratic values. For example, higher education is positively associated with the amount of time and financial resources that one is willing to invest in charitable, political and social activities. According to the BCS70, the share of individuals who are involved in politics, human rights and religious groups is seven times higher for those with higher degrees (PhD, MSc) than for those with no qualifications. Additionally, 77% of those with the highest educational attainment voted in the last general elections as opposed to 48% of those with the lowest qualifications.

Additionally, more schooling means less risky behaviour (in terms of drugs, alcohol and criminal activity) and lower welfare state dependency. While a given level of education might be considered unprofitable and even useless in terms of productivity (both for society and for the individual in question), it may still yield individual health benefits and the individual satisfaction of nourishing and enriching one's internal world and enhancing one's self-esteem and concern for others. This can be illustrated by a simple example derived from the BCS70 individual

data. Thus, in comparing two groups on the margin of the education distribution (those with a highest qualification and those with no qualification), one can see that more educated individuals are more likely to perform regular physical exercise (70% versus 68%) and are less likely to smoke (21% versus 32%). Similarly, the share of individuals concerned about the environment or animals is six times larger among the highly educated group than among those with no degree. The more highly educated are also twice as likely to be members of voluntary groups or charities.

3.2 Methodological challenges in applying an integrated framework

Any attempt to integrate two (rather complex) theoretical frameworks for empirical analysis must first confront the issue of data requirements. These can be met through micro-data which, though not universally available, are at least published for some industrialised countries. In this section we compare and summarise both approaches and list a set of variables that is frequently included in standard surveys on individual and household living conditions. This can be used to broaden conventional HCT boundaries by integrating CA insights.

As discussed in the previous sections, while HCT narrows its attention to the instrumental role of education (column two in Table 9.1), the CA makes it possible to capture other aspects related to the accumulation and exploitation of HC outside of the labour market (columns three and four). In order to measure capabilities, we should have access to information regarding the full set of options that people have, that is, information that is rarely available in standard secondary data. Similar limitations are involved in measuring agency and autonomy, which play an important role in Sen's capability approach. But even though it is unlikely that we could obtain a complete account of the full set of feasible options that people have, or of the goals they would like to achieve, in recent years researchers have made several interesting attempts to estimate capabilities and agency. For example, using the longitudinal data of the BCS70, Burchardt (2009) has examined the agency goals and the educational and occupational aspirations of youth in Britain and argued for a broader, more dynamic definition of 'capability as autonomy', including the process by which agency goals, aspirations and preferences are shaped. While this particular dataset is unusually rich, it is also true that most household surveys now include variables that can be used as a proxy for capabilities and agency. The EU-SILC, for instance, provides information related to a household's ability to afford such things as a

one-week annual holiday away from home, several common durable items, or a meal with meat or fish every other day.

It is easier and more usual to find appropriate data for measuring achievements on the three different aspects considered in Table 9.1 (education as a means, an end and conversion factors). In fact, most cross-sectional and longitudinal surveys include variables, such as work status, educational attainment and achievements in other education-related spheres. Similarly, these data sources often comprise information that can be ascribed to the category of 'means to achieve', as well as to the broad set of explicative factors – at the individual, household and contextual levels, that can affect the capabilities set, and therefore individual achievements.

By taking a broader perspective that allows a thorough inquiry into the multifaceted space of educational outcomes – one that includes but is not limited to those of income and employment, we can cast light on important aspects of personal well-being that cannot be captured or explained solely from an HC perspective. Some illustrative examples can be drawn from the BCS70 data. For example, employment status is neither directly nor necessarily determined by educational levels: only 47% of individuals who have earned a complete high school diploma or higher are in part-time or full-time employment (including the self-employed), and 71% of those in the sample who are unemployed and seeking work have an educational attainment equivalent to a high school diploma or higher.

Furthermore, wages and employment status do not necessarily reflect personal satisfaction: 44% of the lowest quartile of the wage distribution are very satisfied with their current employment, and one out of five in this quartile characterises their financial situation in the most optimistic terms ('living comfortably'). On the other hand, 14% of the highest quartile of the wage distribution are dissatisfied with their jobs, and one out of six of them are 'just about getting by', or 'finds it (very) difficult' with regard to their financial well-being. In both examples, pure economic reasoning fails to provide a satisfactory conclusion, while CA, on the contrary, gains in explanatory power. In the first example, we might conclude that individuals derive satisfaction not only from their income, but also by enriching their internal world or leading a socially active lifestyle. In the second example, those earning relatively high incomes still do not seem satisfied with their financial well-being. These simple descriptive statistics hint at a rather complicated relation between earning capacity and one's ability to autonomously choose and live a life that one has reason to value (see Table 9.1). By shedding light

Table 9.1 HC versus human capabilities: a comparison and some recurrent survey variables for measuring the two concepts

Focus of analysis	HUMAN CAPABILITIES		
	HC	Education as an end	Education as a conversion factor (e.g. political and social participation, health)
Capabilities	Education as a means 'being able to work or to undertake work projects'	Education as an end 'being able to be educated and to use and produce knowledge'	Education as a conversion factor 'being able to participate effectively in social and political life'
Measured by	Opportunities on the labour market	Educational opportunities	Opportunities to participate in political and social life; to have a healthy life, etc.;
Functionings	Work status and conditions, wages	acquired skills and knowledge	a) Active and effective political participation (to be a member of or active in a political party) b) Frequency or intensity of social relations, participation in social networks c) Marginal effect of education in self-reported political interest d) Health e) Employment well-being
Measured by	– type of employment (permanent, temporary, full-time, part-time) – pension arrangements	– educational attainment – abilities – is your degree a required qualification for your job?	– involvement in politics, human rights, religious groups; – being part of voluntary or charity groups; – voting in the past general elections – does regular exercise – ever been a regular smoker – satisfaction at work

Agency and Autonomy	(Only implicitly considered in terms of command over economic resources)	Able to make informed choices, to have access to information, to have voice and to be aware of his or her own social, political and civil rights	
Means to achieve	Level of education achieved by subject and grade, years of experience, professional skills and competencies, active labour market policies	<ul style="list-style-type: none"> a) Free access to school, quality indicators of schools, other resources (libraries, computers, etc); students grants, etc. b) newspapers and books read, media, cultural resources, etc. 	<ul style="list-style-type: none"> a) number of political parties and organisations; access to communication technologies (proxy for access to information) b) number of social networks; access to communication technologies (proxy for access to information)
Conversion factors	<ul style="list-style-type: none"> a) nationality, age, gender, race, ability and disabilities b) social background (father's occupation, poor/non-poor family), c) trends with regard to specific unemployment rates, involuntary part-time workers, labour market characteristics, regional dummies (for regional disparities) 	<ul style="list-style-type: none"> a) nationality, age, gender, race, ability and disabilities b) social background (mother's/father's education, poor/non-poor family) c) average educational attainment; student/teacher ratio 	<ul style="list-style-type: none"> a) age, gender, level of education b) social background (mother's/father's education, poor/non-poor family) c) number of media, newspapers and access to information;

on aspects of well-being that are neglected from the HC standpoint, CA has the potential to explain the divergence between objective measures of economic well-being (expressed in measurable incomes) and personal assessments of one's financial situation.

Moreover, the CA also complements the traditional HC perspective by shifting the focus from the outcomes derived from education towards individual benefits that are not directly valued in the marketplace, yet are important from both an individual and a societal viewpoint. Thus, education turns out to be an important conversion factor for valued aspects that have spillover effects from the individual to society as a whole: for example, the data show that 80% of all cohort members who do regular physical exercise have a high school education or higher; that a similar proportion of most educated people are active members of a voluntary or charity group, voted in the last general elections and are interested in politics; and, finally, that environmental and animal concerns increase among individuals with higher educational achievement, with 1.6% of those showing such concerns having the lowest educational attainment and 9.6% having the highest.

These considerations lead to the intuitive conclusion that there is a need to go beyond the instrumental role of HC accumulation and to consider the broader impact that education can have on the life choices of the individual, by combining the HC and CA frameworks.

Conclusion

This chapter showed that the HC approach only marginally tackles questions regarding the equality of opportunities to develop one's skills and abilities using all available resources, both public and private (with the single exception, probably, of the gender gap in earnings). HCT also disregards the fact that education is not only an instrument for producing higher employment outcomes, but also has intrinsic value for human well-being. In addition to being an important resource for business and science, for accumulating intellectual capital and for boosting technological progress, education is an intrinsic generator of satisfaction for individuals, due to the ways in which it can nourish and enrich their internal worlds and enhance their self-esteem.

Should we really ignore these 'by-products' of learning, restricting our analysis to a much narrower, utilitarian view of education? We advocate a view that values the intrinsic and instrumental importance of education and the various ways in which it directly contributes to individual well-being and to societal progress. This chapter argues for the need

to improve our ability to estimate and evaluate the gains derived from education by extending the range of variables taken into consideration and moving towards a broader vision of well-being. We have argued here that this can be done by integrating HCT and CA conceptually and methodologically. Such integration could provide valuable new insights into public action and the design of policies aimed at enhancing individual well-being through education.

Notes

1. The views expressed in this chapter are those of the authors and not necessarily those of the European Commission.
2. This chapter was produced within the FP 7 EU Project 'WorkAble – Making Capabilities Work' – Grant agreement No.: 244909. We would like to thank all the WorkAble colleagues for their comments and suggestions.
3. Thurow, 1970.
4. Gendron, 2004.
5. In, for example, Polachek, 1981; Darity, 1982; Mojab and Gorman, 2003.
6. OECD, 2001.
7. Here we do not consider indirect methods used to assess HC on the macro-level by positing that an unexplained part of net national income is attributed to the stream of income from the HC component.
8. Dagum and Slottje, 2000.
9. Applied to our discussion, this means that the HC of a less gifted or less healthy person who requires greater investment in order to develop his or her HC will be overestimated as compared to a better-endowed person.
10. E.g., Barro and Lee, 1996; Ederer et al., 2007; OECD, 2008.
11. Stroombergen, 2002.
12. Le et al., 2005.
13. Initially by nine countries – Canada, France, Germany, Ireland, the Netherlands, Poland, Sweden, Switzerland and the United States – and later by a larger number of participating countries and national communities.
14. Haveman and Wolfe, 1984; Boudarbat et al., 2010.
15. Bourdarbat et al., 2010.
16. Stroombergen, 2002.
17. See, for example, Michael, 1982; Haveman and Wolfe, 1984 and 2002.
18. Carroll and Summers, 1990; Clark et al., 2006.
19. Bruze, 2010; Lafortune, 2010.
20. It is estimated that the share of over-educated workers in OECD countries ranges between 17% in the UK and Germany (Daly et al., 2000) and over 40% in Italy (Cutillo and Di Pietro, 2006; Ordine and Rose, 2009) and the United States (Daly et al., 2000). Of course, over-education might be due in part to unobserved characteristics of individuals, such as ability, university degree subject and quality of education. Nonetheless, the extent of the phenomenon is quite remarkable in many countries. See also Buchel et al. (2003).
21. See, among others, the Quarterly Reports published by the European Employment Observatory.

22. Burchardt and Le Grand (2002) shows that in the late 1990s nearly three out of four British women who were not currently in work lacked employment capability and only one third of these were actively seeking work.
23. In particular, performance-based indicators such as the Education Performance Index (EPI) suggested by Oxfam or the Education for All Development Index (EDI) formulated by UNESCO.
24. We refer here to Robeyns's specification because it is sufficiently illustrative and operationally simpler than Nussbaum's definition of 'sense, imagination and thought', which goes well beyond the narrow definition of education to include 'Being able to use the senses, to imagine, think and reason – and to do these things in a "truly human" way, a way informed and cultivated by an adequate education, including, but by no means limited to, literacy and basic mathematical and scientific training. Being able to use imagination and thought in connection with experiencing and producing self-expressing works and events of one's own choice, religious, literary, musical, and so forth. Being able to use one's mind in ways protected by guarantees of freedom of expression with respect to both political and artistic speech, and freedom of religious exercise. Being able to search for the ultimate meaning of life in one's own way. Being able to have pleasurable experiences, and to avoid non-necessary pain' (Nussbaum, 2000, 78–79).
25. Nussbaum (2000) includes a similar, if more articulated and complex definition, in her list of central capabilities.

References

- Barro, R.J. and J.-W. Lee. (1996). 'International Measures of Schooling Years and Schooling Quality', *American Economic Review*, 86(2), pp. 218–223.
- Becker, G. S. (1964). *Human Capital*, Columbia University Press, New York.
- Boudarbat, B., Lemieux, T. and W. C. Riddell. (2010). 'The Evolution of the Returns to Human Capital in Canada, 1980–2005', *Canadian Public Policy*, 36, pp. 63–89.
- Bowles, S., Gintis, H. and M. Osborne. (2000). 'The Determinants of Earnings: Skills, Preferences, and Schooling', *University of Massachusetts Economics Department Working Paper Series*, Paper 87.
- Bruze, G. (2010). 'Male and Female Marriage Returns to Schooling', *Working Papers 10–17*, University of Aarhus, Aarhus School of Business, Department of Economics.
- Buchel, F., de Grip, A. and A. Mertens. (Eds.) (2003). *Over-Education in Europe: Current Issues in Theory and Practice*, Edward Elgar Publishing, UK.
- Burchardt, T. (2009). 'Agency Goals, Adaptation and Capability Sets', *Journal of Human Development and Capabilities*, 10(1), March, pp. 3–19.
- Burchardt, T. and Le Grand (2002). 'Constraint and Opportunities: Identifying Voluntary Non-Employment', Working Paper CASE n. 055, London School of Economics, UK
- Carroll, C. and L. H. Summers (1990). 'Why Have Private Saving Rates in the United States and Canada Diverged?', *NBER Working Papers 2319*, National Bureau of Economic Research, Inc.
- Chiappero-Martinetti, E. Grasso, M., and S. Pareglio (2008). Wellbeing Assessment and Policy Simulations: Toward a Micro-Macro and Dynamic Integrated View Based on the Capability Approach, HDPC-IRC Working papers series, 1/2008.

- Clark, R. L., Ghent, L.S., and A. A. McDermed (2006). Pension Plan Choice among University Faculty, *Southern Economic Journal*, 72(3) (Jan), pp. 560–577.
- Cutillo, A. and G. Di Pietro (2006). ‘The Effects of Over-Education on Wages in Italy: A Bivariate Selectivity Approach’, *International Journal of Manpower*, 27(2), pp. 143–168.
- Dagum, C. and D. J. Slottje (2000). ‘A New Method To Estimate The Level And Distribution Of Household Human Capital With Application’, *Structural Change and Economic Dynamics*, 11(1–2) (July), pp. 67–94.
- Daly, M., Buchel, F. and G. Duncan (2000). ‘Premiums and Penalties for Surplus and Deficit Education: Evidence from the United States and Germany’, *Economics of Education Review*, 19, pp. 169–178.
- Darity, W.A. Jr. (1982). ‘The Human Capital Approach to Black-White Earnings Inequality: Some Unsettled Questions’, *Journal of Human Resources*, University of Wisconsin Press, 17(1), pp. 72–93.
- David, P. and J. Lopez (2001). ‘Knowledge, Capabilities and Human Capital Formation in Economic Growth’, *NZ Treasury Working Paper*, Wellington, 01/13.
- Ederer, P., Schuller, P., and S. Willms. (2007). ‘Innovation at Work: the European Human Capital Index’, *The Lisbon Council Policy Brief*, 2(3), Brussels.
- Gendron, B. (2004). ‘Why Emotional Capital Matters in Education and in Labour? toward An Optimal Exploitation of Human Capital and Knowledge Management’, *Les Cahiers de la Maison des Sciences Economiques, série rouge*, no. 113, Université Panthéon-Sorbonne, Paris, 37 pp.
- Grossman, M. (1999). ‘The Human Capital Model of the Demand for Health’, NBER Working Papers 7078, National Bureau of Economic Research, Inc.
- Haveman, R. H. and B. Wolfe (1984). ‘Schooling and Economic Wellbeing: The Role of Non-Market Effects’, *Journal of Human Resources*, 19(3): 377–407.
- Haveman, R. H. and B. Wolfe (2002). ‘Social and Nonmarket Benefits from Education in An Advanced Economy’, Conference Series Proceedings, Federal Reserve Bank of Boston, Jun issue, pp. 97–142.
- Keeley, B. (2007). ‘Human Capital: How What You Know Shapes Your Life’, *OECD Insights*, Paris.
- Lafortune, J. (2010). *Making Yourself Attractive: Pre-Marital Investments and the Returns to Education in the Marriage Market*, Unpublished Manuscript, Department of Economics, University of Maryland, College Park.
- Le, T., Gibson, J. and L. Oxley (2005). ‘Measures of Human Capital: a Review of the Literature’, *New Zealand Treasury Working Paper*, 05/10, Wellington, New Zealand.
- Liu, G. and M. Greaker (2009). ‘Measuring the Stock of Human Capital for Norway: a Lifetime Labour Income Approach’, Documents 2009/12, *Statistics Norway Research*.
- Michael, R. (1982). ‘Measuring Non-Monetary Benefits of Education: A Survey’, in W. McMahon and T. Geske (eds), *Financing Education: Overcoming Inefficiency and Inequity*, University of Illinois Press, Urbana.
- Mincer, J. (1974). *Schooling, Experience and Earnings*, National Bureau of Economic Research, New York.
- Mojab, Sh. and R. Gorman. (2003). ‘Women and Consciousness in the “Learning Organization”: Emancipation or Exploitation?’ *Adult Education Quarterly*, 54(4), pp. 228–241.

- Nussbaum, M. (2000). *Women and Human Development: The ca*, Cambridge University Press, Cambridge, UK.
- Nussbaum, M. (2003). Capabilities as Fundamental Entitlements: Sen and Social Justice', *Feminist Economics*, 9(2-3), pp. 33-59.
- Nussbaum, M. (2006). 'Education and Democratic Citizenship: Capabilities and Quality Education', *Journal of Human Development*, 7(3), pp. 385-395.
- OECD (2001). *The Wellbeing of Nations: The Role of Human and Social Capital*, OECD, Paris.
- OECD (2008). *Education at a Glance 2008, OECD Indicators*, OECD, Paris.
- Ordine, P. and G. Rose. (2009). 'Higher Education Quality, Opportunity Costs and Labor Market Outcomes', *Rivista Italiana degli Economisti*, 14(2), pp. 267-292.
- Polachek, S.W. (1981). 'Occupational Self-Selection: A Human Capital Approach to Sex Differences in Occupational Structure', *The Review of Economics and Statistics*, 63(1), pp. 60-69.
- Robeyns, I. (2003). 'Sen's Capability Approach and Gender Inequality: Selecting Relevant Capabilities', *Feminist Economics*, 9(2-3), pp. 61-92.
- Robeyns, I. (2005). 'The Capability Approach: A Theoretical Survey', *Journal of Human Development*, 6(1), pp. 191-215.
- Robeyns, I. (2006). 'Three Models of Education: Rights, Capabilities and Human Capital', *Theory and Research in Education*, 4(1), pp. 69-84.
- Ruggeri-Laderchi, C. (2008). 'Do Concepts Matter? An Empirical Investigation of the Differences between a Capability and a Monetary Assessment of Poverty' In Comim, F., Qizilbash, M., and Alkire, S. (eds), *The Capability Approach: Concepts, Measures and Applications*, Cambridge University Press, Cambridge, UK.
- Schultz, Th. W. (1961). 'Investment in Human Capital', *American Economic Review*, 51(1), pp. 1-17.
- Sen, A. (1997). 'Editorial: Human Capital and Human Capability', *World Development*, 25(12), pp. 1951-1961.
- Sen A. (1999). *Development as Freedom*, Oxford University Press, Oxford, UK.
- Tao, H.-L. and T.F. Stinson. (1997). 'An Alternative Measure of Human Capital Stock', *University of Minnesota Economic Development Center Bulletin*: 97/01.
- Thurow, L. (1970). *Investment in Human Capital*, Wadsworth Publishing Company, California.
- Unterhalter, E. (2009). 'Education', in Deneuline, S. and Shahani, L. (eds), *An Introduction to the Human Development and Capability Approach: Freedom and Agency*, Earthscan, London, pp. 207-227.
- Walker, M. and Unterhalter, E. (eds) (2007). *Amartya Sen's Capability Approach and Social Justice in Education*, Palgrave Macmillan, New York.
- Wolfe, B. L. and R. H. Haveman (2002). 'Social and Nonmarket Benefits from Education in an Advanced Economy', *Conference Series Proceedings, Federal Reserve Bank of Boston*, Jun issue, pp. 97-142.
- Young, M. (2009a). 'Basic Capabilities, Basic Learning Outcomes and Thresholds of Learning', *Journal of Human Development*, 10(2), pp. 259-277.
- Young, M. (2009b). 'Capability as An Approach to Evaluation of Learning Outcome from Local Perspectives', in Chiappero Martinetti, E. (ed.), *Debating Global Society: Reach and Limits of the Capability Approach*, Fondazione Feltrinelli, Milan, pp. 267-300.