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

The aim of this chapter is to investigate the possibility of combining human capital theory (HCT) and the capabilities approach (CA) in order to better understand and measure both the instrumental and the intrinsic value of education for individuals, and to trace the relative spillover effects for 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. It became an important tool in micro-analysis and has been used to study the patterns of economic well-being and the forces underlying educational choices as investment decisions. Recently HCT has been criticized for the narrow instrumental role that it assigns to education, which disregards other important non-material aspects related to it, as well as for its inability to satisfactorily reflect the cultural, gender, emotional and historical differences that can influence educational choices and individual well-being. While the "economic" component of educational investment certainly constitutes an important part of individual well-being, we should not disregard its other dimensions or the impact that education can have on different domains of human life. Regarding the latter point, the CA seems to offer a broader perspective that goes beyond the narrow notion of human capital (HC). It does so by acknowledging not only the instrumental value of education in promoting productivity, economic growth and individual incomes, but also through the direct relevance that it can have in terms of individual well-being and freedom as well as for social development.

This chapter presents three integrated blocks of arguments that assess the value of education. The first focuses on education and HC, the second on education and human capabilities, and the third establishes a link between HC and human capabilities.

The first block of arguments reviews the most significant attempts that have been made within the HC framework to define and measure the process of acquiring and developing HC. These range from rational choice approaches to other more flexible ones that allow additional variables, such as innate abilities, gender, social status and family background, to influence the rate of return on HC. The main focus of this section of the chapter is on the value added and limitations of HCT in defining and measuring the attainment of education and the outcomes derived from it (by and large, those related to employment). HCT views education as an investment aimed at increasing the value of HC, with the final goal of achieving higher returns in the future. We pay special attention to the role of education in the formation of HC. We critically assess the most common definitions, main approaches, assumptions and proxies used to estimate HC, and identify their main...
benefits and limitations. We attempt to demonstrate the limitations of the classical paradigm in defining the value of education for individuals, viewing these limitations as potential entry points for the CA in tackling the issue.

The second block of arguments, which is focused on education and human capabilities, considers those aspects and empirical facts that are not fully encompassed or justified by the HC perspective. In this section we outline some questionable aspects of HCT and provide an overview of the most recent research contributions regarding the array of roles that education can play, as seen from a capabilities perspective. The latter approach allows us to take a broader view of education and to sketch out a more nuanced theoretical proxy for the many roles it can play in our lives. In particular, we lay the theoretical grounds for envisioning education and knowledge as ends, as means and as conversion factors.

Finally, the third block of arguments sketches the ways in which the two paradigms — HCT and the CA — could complement each other in measuring the value of education. The main contribution of the CA in assessing the multidimensionality of the HC of individuals is the radically different way in which it defines the meaning of education. It is, however, appropriate to support this observation with empirical evidence and to provide persuasive data regarding the added value of using such an extended approach. In this section we look at the measurement implications of complementing the classical HC paradigm with the CA perspective and suggest specific ways in which the CA could add to HCT, for example, by considering education both as a measure of HC and as an end in itself, and looking at the gains from education as means and as conversion factors for achieving individual and societal well-being. 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 final part of the chapter summarizes our main findings and outlines the main issues for discussion. Expanding the definition of HC to include aspects such as health, employability, self-worth, social integration and political participation would not only make an important contribution to a more comprehensive theoretical understanding of the role of education; it would also have an indisputable value for applied economics and policy discussions. We believe that complementarity between HCT and the CA would move us closer to an ambitious goal, namely that of achieving a pragmatic approach which integrates both concepts in an extended framework and reflects both the quantitative and qualitative aspects of individuals’ capabilities to shape their personal well-being.

2 Education and Human Capital

2.1 Definition of human capital from the classical perspective

The concept of HC has a long history dating back to Adam Smith and William Petty. It was originally introduced to analyze human beings as "producers", and to measure and quantify 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), representatives of the Chicago School of economics. In this view, there is no
behavior 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 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, medical treatment) involve both direct costs (such as 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. However, unlike physical and financial capital, HC cannot be transferred from one individual to another.

The founders of HCT defined HC as an individual's productive ability. This definition 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 (Thurrow, 1970). In recent years, researchers such as Gendron (2004) have broadened the definition of consumption goods to include technical and scientific knowledge. Working based on the same paradigm, David and Lopez (2001) have further extended this definition to include the capacity for interpreting flows of data and structured information required for goal-driven individual actions and interpersonal transactions, and the creative agency for generating the new knowledge that underlies technological and organizational innovations.

Though the traditional HC approach has been repeatedly criticized for limiting itself to a purely economic assessment (for example, see Polachek, 1981; Darity, 1982; Mojab and Gorman, 2003), it has undeniably made an important contribution to debates on welfare, education, health care and retirement. This simplified framework, which tends to explain differences in wages in terms of the investment decisions made by individuals at different points in time, has recently been further developed and made increasingly flexible by allowing many additional variables (such as innate abilities, gender, social status, nationality and family background) to influence wages. Moreover, if in earlier economic research the only type of output produced by HC was economic value, more recently the economic literature has conceptualized other types of services derived from the value and structure of the HC of individuals. These comprise the quality and length of life, happiness, social inclusion and social activity. Thus the concept of HC has moved far beyond the original definition provided by Becker, Mincer and others, and today comprises the knowledge, skills, competencies and attributes that are employed in the creation of individual, social and economic well-being (OECD, 2001).

2.2 Main approaches and measurement issues in assessing HC

According to HCT, workers are considered as the unit of analysis and conceptualized as economic entities that possess a certain stock of HC in terms of skills, knowledge, abilities and experience. Economic agents are assumed to assess their past investments in their capital and to be capable of analyzing derived future streams of earnings. Related empirical questions included in the framework of the HC approach are: 1) What are the determinants of HC embodied in individuals? and 2) 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 derived by an individual from possessing (a
certain amount and/or type of) HC. However, empirical researchers attempting to quantify HC quickly encounter difficulties. As noted by Bowles et al (2000), increased schooling is a powerful means of increasing individual earnings, yet the economic returns of increased schooling are difficult to grasp.

2.2.1 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 estimation results derived from these models are determined by the way one defines HC and proxies its various aspects. In this section we survey the different approaches used to estimate the pay-off of investments in HC in the HC framework, which mainly captures the determinants of labor market success in terms of individual earnings. We will identify the main assumptions underlying the HC approach and outline the most significant measurement issues faced by researchers.

In the classical paradigm HC refers to the skills, knowledge and competencies that an individual possesses and uses to increases his or her utility. HC is the outcome of many different factors, but the most important, as well as the most closely examined of these, is formal education and training. HCT considers education as an investment aimed at increasing the value of HC, with the objective of achieving higher returns in the future.

Three main approaches can be found in the literature for directly estimating HC: the income-based (or output-side) approach, the cost-based (or input-side) approach and the educational stock approach.

Income-based (or output-side) approach

The income-based approach defines HC as the present value of expected returns and measures it in terms of the output that it could potentially generate. This is generally restricted to potential future earnings. This approach considers human welfare to be dependent on the future streams of benefits which an individual can achieve using his or her HC. The income-based approach was first conceptualized by Farr (1853), and explored in-depth in a number of more recent studies. Income-based approach is the preferred tool for researchers who are attempting to evaluate the working power of an individual. This method values HC at market prices and rests on the assumption that the labor market accounts for many factors, including ability, effort, productivity and education, as well as the institutional and technological structures of the economy, through the interaction of supply of and demand for HC (Dagum and Slottje, 2000). Interest in this method revived in the mid-twentieth century, when the availability of micro-data allowed researchers to explore it systematically using cross-sectional data for earnings, employment rates and survival probabilities.

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labor markets work. Moreover, other strong assumptions need to be made: (1) individuals make rational investment and consumption decisions; (2) the time preferences of individuals are known and can be measured as a rate of return that would make them indifferent in terms of spending money today versus spending the same amount of money in the future; and (3) the value of a future stream of benefits can be estimated (taking risk and uncertainty into account).

Cost-based (or input-side) approach

According to the cost-based approach, originated by Engel (1883) and further developed in the studies of Schultz (1961), Kendrick (1976), and Eisner (1985), HC is calculated as a sum of past streams of investments. This approach assesses the HC held by each individual by looking at his or her current stock of skills, knowledge and abilities as a result of a set of past investment decisions. Researchers who use this method consider three types of inputs, namely: a) those that individuals acquire (tuition fees, health expenditures, opportunity cost of earnings, etc) and generate (time and effort spent on learning), b) those incurred by employers and c) 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 education and other dimensions of HC, which can be very useful for cost-benefit analyses; second, it is relatively easy to apply empirically, due to the availability of data on public and private spending.

However, the input-based approach also has several limitations (Le et al, 2003 and Liu and Greaker, 2009). First, there is no direct relationship between investment and the quality of output. Furthermore, the value of capital is determined in the first place by the demand for it, not by the costs incurred for its production. Applied to our discussion, this means that the input-based approach will overestimate the HC of a less gifted or less healthy person who requires greater investments in order to develop his or her HC as compared to a better-endowed person. Second, a further issue arises due to the difficulty in distinguishing between expenditures made on people that satisfy their preferences as consumers (consumption effect) and expenditures that increase people's economic efficiency (investment effect). Third, HC might depreciate (Kendrick, 1976) or appreciate (Mincer, 1974) over time, and thus far no conventional techniques exist for assessing such phenomena. Fourth, the approach 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 in developing one's individual capabilities.

Educational stock-based approach

The educational stock-based approach\(^4\) measures HC with reference to education output indicators (current stock of individual characteristics in the population) 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, 2003; Liu and Greaker, 2009). This method has mainly been used for cross-country analyses (see, for example, Barro and Lee, 1996; Ederer et al, 2007; OECD, 2008). The main rationale for using it is that the aforementioned indicators are closely related to investment(s) in education. While it is widely

\(^4\) Also called the indicators approach in Fraumeni, 2008.
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 the educational stock a country has, and emphasizes 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 limitations has inspired some researchers to combine the different approaches in an attempt to counterbalance these weaknesses. 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 estimate the HC of individuals.

To conclude this rather general and incomplete review of estimation approaches, we would like to mention that each of the above-described methods has both advantages and weaknesses, and should be chosen based on one’s research objectives as well as the availability and quality of data. One important consideration that an empirical researcher must keep in mind is that application of conventional HCT inevitably involves a number of major assumptions and approximations. We will review the main of them in the next sub-section.

2.2.2 Methodological challenges in measuring HC

A common weakness shared by all of the above-described approaches is a monetary aggregation of the heterogeneous components of human development. This entails the assumption 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 using alternative ways to weight the different components of HC).

Measuring education
HC and knowledge are often thought of as joint products, but conceptually they are distinct and ideally they should be measured separately (Stroombergen, 2002). Nevertheless, much research focuses exclusively on knowledge as measured by educational attainment, considered in turn in terms of the number of years of schooling. The advantages of using years of education in HC studies are obvious: first, using "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, if an analysis is limited to educational attainment as measured by the number of years of schooling, it fails to say anything about the quality of skills and knowledge that have been achieved through that education. The same amount of years spent in one educational institution may be worth more than in another. 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 incorrectly assumes that one year of schooling always increases HC by an
equivalent amount (Le et al, 2005). This assumption contradicts one of the main postulates of HCT with regard to the diminishing rate of return of schooling.

In addition, HC cannot simply be reduced to the highest level of educational attainment. Formal education, while an important supply-point of knowledge and a place for developing one’s abilities, is not the only source of learning: on-the-job training, participation in social activities, and even daily life experiences are also important in the formation of an individual’s HC. The complex nature of HC makes it impossible to obtain an aggregate estimate of knowledge inputs. This measurement problem 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. Using aggregate types of educational qualifications such as diplomas or other certificates from educational authorities, and especially differentiating between different types of educational credentials (for example, ranking them according to the reputation of the educational authority in question) can make it possible to capture some additional information about the HC accumulated by an individual. The type of educational specialization or the prestige of a credential may give us important information regarding the content of accumulated HC as well as determine the value of one’s education. This observation becomes more important in the view of existing market imperfections such as labor market segmentation and non-competing groups.

A most common solution offered by HCT for tackling these measurement problems, which are especially relevant in cross-country comparisons, is to address the data quality by, for example, using test scores. The latter are appealing HC indicators because they measure both educational outcomes and cognitive skills, and also ensure international comparability (Le et al, 2005). Barro and Lee (2001, 2010) introduce more quality measures into the standard HC assessment by including international test scores of high school students and of adults into their empirical studies. National and international assessments of individuals' actual level of knowledge are made possible by using, for example, data gathered by OECD 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; or the International Adult Literacy Survey (IALS), which in 1994 fielded the world’s first large-scale, comparative assessment of adult literacy.

Measuring the outcomes of education

The economic benefits of education are defined in HCT as a better performance on the labor market which enables a higher earnings capacity. However, the level and content of skills, knowledge and abilities that are developed through education determine many other aspects of a person’s economic and social well-being. Private benefits from education include higher lifetime earnings, lower unemployment, greater employment opportunities, improved health and life expectancy (Haveman and Wolfe, 1984; Boudarbat et al, 2010). Because this broad stream of benefits is often resistant to measurement, most economists focus their research on the impacts of skills and knowledge on earnings and employment.

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5 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.
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 entails two major assumptions. The first is that abilities are automatically translated into a specific income level on the market. The two most significant problems related to 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. This major assumption risks limiting the broader economic analysis of HC investment decisions to a constricted one of earnings maximization.

Most labor economics studies are focused on the impacts on earnings and employment of measurable skills and knowledge derived from education, experience and personal characteristics, and make an important distinction between the average and marginal return to education (Boudarbat et al, 2010; Card 2001; Brunello et al, 2000; and others). The average return to education compares the average lifetime earnings of groups of individuals with the same educational attainment within groups. The best-known case in literature compares the average outcome for those who received the college education and those who did not. The marginal return to education becomes important in light of efficiency considerations, i.e. when deciding whether to invest an extra unit of wealth or time, and, hence, comparing the marginal benefits and marginal costs of such investments (Boudarbat et al, 2010; Dearden et al, 2004; Brunello et al, 2000). An optimal investment in HC (for example, an optimal number of years of schooling) is reached when marginal costs equal marginal benefits (Card, 2001; Brunello et al, 2000).

Another measurement issue arises with the price and quantity dimensions of returns to education. The price dimension is addressed when comparing the wage rates of individuals who possess different levels of HC. The most commonly used measure of earnings in empirical studies is the weekly wage and salary earnings of full-time workers. The market wage differential does not depend on an individual's choice, but is determined by market forces (Bourdarbat et al, 2010). Alternatively, the quantity dimension assesses the different amount of work performed by individuals with different level of education. The quantity dimension of returns to education partly depends on the employment opportunities available on the market and is partly determined by the individual's decision to be employed under current employment conditions.

Due to the multidimensional nature of HC, the present and future stream of benefits that an individual derives from developing his or her knowledge and abilities is not exclusively determined by the market. Although most research focuses on market returns, in reality an individual derives a more comprehensive stream of utility from acquired capabilities and knowledge (Stroombergen, 2002). 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, the types of food to eat, the type of contraceptive technique to use, and the portion of income to save.

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6 The marginal return to education is measured as the derivative of log earnings with respect to an additional year of schooling (Card and Lemieux, 2001).
Non-market returns from schooling are not a new topic in the economic literature. Describing non-market outcomes of education, Wolfe and Haveman (2002) distinguish between several types of effects. The *intrafamily effect* of education is derived from the relation between one’s own educational level and the earning capacity of a spouse, the cognitive development and educational level of one’s children, and family nutrition and health level (Berhman and Wolfe, 1987; Grossman and Joyce, 1989; Pritchett and Summers, 1996). *Own effect* is linked to better health and life expectancy, owing to occupational choice, location choice, and better skills and knowledge on nutrition and health. Moreover, education appears to be positively related to the quality of choices regarding consumption and savings (Carroll and Summers, 1991; Clark et al, 2006), marriage (Benham, 1974; Boulier and Rosenzweig, 1984; Bruze, 2010; Lafortune, 2010), number and well-being of offspring, and type of employment. This is due to information gains (schooling promotes more efficient decisions) and is achieved through the ability to make better matches and reduce search-time.

The individual non-market benefits that one derives from education are associated with additional spillover effects for social groups and can promote democratic values. Thus, higher levels of education are positively associated with the amount of time and financial resources one is willing to invest in charity or volunteer work and political and social activities. Moreover, more schooling can lead to less risky behavior (e.g. drug and alcohol use, criminal activity).

An important observation is that marketable benefits derived from higher education, in the sense of higher wages and greater job stability, often do not act as goals in themselves, but rather expand the range of human choices. Better-educated people, who are able to achieve greater earnings stability, enjoy higher levels of health, greater community involvement and better present and future prospects. In the 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. On the other hand, this broad stream of benefits is often difficult to measure and is for this reason often left out of HCT-based analyses.

### 3. Education and human capabilities

As shown in the previous section, from a HC perspective level of education, learning by doing and skills formation (i.e., what is traditionally labeled as HC accumulation) make a person increasingly productive over time, positively affect his or her income-generation process, and increase individual material living conditions, thereby contributing to the economic growth of a country. From this perspective, investment in education and HC are absolutely legitimate and desirable for every society at any time.

There are, however, several substantial aspects and empirical facts that cannot be fully encompassed or justified from a HC perspective. On the one hand, HCT does not seem to be able to provide reasonable explanations for certain recurrent empirical facts that characterize today’s labor markets in most affluent societies, such as a persistent gender wage gap (despite the growing level of education of women), the question of over-education (high-skilled

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7 See, for example, Michael, 1982; Haveman and Wolfe, 1984 and 2002; and Wolfe and Zuvekas, 1997
workers with low-skilled job positions), and a growing lack of opportunities for the younger educated generations. On the other hand, education affects everyone’s daily life and personal well-being in numerous other respects. At the personal level, people can assign a value to education independently of, or in addition to, its instrumental function, as a vehicle for getting access to better job positions, but also for the sake of knowledge, as it is often the case with literature, music or arts (Robeyns, 2006). At the collective level, a higher and widespread level of education can strengthen social cohesion and democracy, reducing poverty and inequality and increasing the social fabric of a community (Nussbaum, 2006).

In this section we will briefly sketch some of HCT’s critical aspects and provide a brief overview of the most recent studies on the array of roles that education can play, as seen from the capability perspective, and what we can learn from this. This will lead us to several methodological and empirical consequences which will be further discussed in Section 4.

3.1 A broader view on education: bringing theory closer to reality

The HCT discussed above in Section 2.1 is based on two rather crucial and major assumptions: first, markets work rationally, perfectly and efficiently; and second, the only element of distinction among people lies in the different amount of HC that they possess. Both of these assumptions conflict with the complexity of the real world and find only a partial empirical confirmation. Moreover, as already touched on in Section 2.2, there are some measurement issues that mean that empirical evidence is sometimes inconclusive or contradictory. First, even while education and economic growth are unquestionably related to each other, the direction of this relation, and its extent, are far from being clear (does education lead to economic growth or vice versa?). Second, they might be associated with each other, 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 characterized by a temporal lag: investments in children and children’s education require a decade or more to produce effects on the economic growth rate, and databases are not always sufficiently long to enable researchers to look into and measure these transformations.

Higher investments in HC directly and automatically translate into more opportunities on the labor market or higher salaries neither for everybody and nor everywhere. While this might hold true on the average, it is also true that labour markets in industrialized countries are characterized by systematic educational mismatch. On the one hand, the persistence of the phenomenon 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. Furthermore, a higher level of education does not automatically enable individuals to find better jobs and improve their economic status. This generally varies both across countries and

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8 On this subject, see the collection of contributions in the Buchel et al (2003) edited volume. 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 (see 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.
within countries across levels of schooling and social groups. The possibility of unemployment actually increasing with the expansion of education might hold true in particular for groups that have traditionally been excluded or discriminated from wage employment, such as women or the rural poor or ethnic minorities in developing countries (Hannum and Buchmann, 2003). Similarly, there is plenty of empirical evidence showing that discrimination and occupational segregation in terms of job opportunities, careers and wage gaps are still pervasive in affluent societies, as well, particularly for some groups of the population such as immigrants, women and youth⁹.

In fact, a second major drawback of HCT is the scarce attention that it pays to human diversity and unequal opportunities. As Elaine Unterhalter (2009) notes, "This 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."

People with an identical amount and quality of education can have very different sets of opportunities in the labour market, and thus the economic returns of education can vary. It has been shown that while more schooling brings absolute benefits to disadvantaged groups, it does not seem to be able to reduce social inequalities rapidly, except perhaps for gender inequalities in more recent times (Hannum and Buchmann, 2006). Family origins and ethnicity seem to be resistant to educational expansion, and social disadvantages can run across generations (Machin, 2009).

Moreover, as Sen (1999) has noted, the benefits of education go beyond its role as a mere input in 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, p. 296).

The capability approach, in fact, views human beings in a broader perspective; it 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 individual freedom "to do and to be" in other not directly productive spheres. These individual functionings, include for example 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, i.e. the ability to pursue one's life goals.

Education is not only relevant for the direct effects it can produce at the individual level, but also 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

⁹ See, among others, the Quarterly Reports published by the European Employment Observatory.
Nussbaum notes, ‘nothing could be more crucial to democracy than the education of its citizens. Through primary and secondary education, young citizens form, at a crucial age, habits of mind that will be with them all through their lives’ (Nussbaum, 2006). These aspects, which seem to be more obvious for developing countries and fragile and young/budding democracies, are nonetheless crucial in more mature democratic systems as well (Walker and Unterhalter, 2007).

Drawing a clearer distinction between the intrinsic and the instrumental role of education, as the capability approach literature suggests should be done (see Robeyns, 2006; Unterhalter, 2009), makes it possible to give more emphasis to the undeniable value that investments in education have both for economic growth and for 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, for example, participation in the labour market, as Burchardt (2002) has demonstrated with reference to women’s voluntary non-employment.10

Recently, Marion Young (2009a, 2009b) has shown how the capability approach can also offer a different, more appropriate perspective for evaluating learning outcomes compared to the use of 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 scores11, measures performance outcomes in a rather mechanical and standardized manner, and does so only for those within formal education systems, neglecting differences in cultural values as well as in terms of resources available in different contexts. The latter method, which is focused at the community and individual level and based on subjective perspectives, takes cultural and values diversity into account and is able to capture the different impacts that learning outcomes can have on individual lives, with an obvious weak point in terms of comparability between groups and populations. Young’s proposal is to complement the performance-based and relevance-based approaches with a capability perspective, in order to combine the local perspective within a framework of valued learning outcomes through which to evaluate the real freedom that people have to improve their lives.

In short, there seem to be good reasons for moving beyond the notion of HC to focus on human capabilities. Doing so would make it possible to preserve the undeniable strengths of the former approach, which recognizes the instrumental value of education as a productive investment, while integrating it within the broader view offered by the latter approach, which recognizes the intrinsic value of education as well. 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 will try to take a first step in this direction, discussing in more detail and using a more specific ‘capability language’ how education can find room within this framework (see Nussbaum, 2000 and Robeyns, 2003).

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10 The author 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. See also Burchardt and Le Grand (2002).
11 Young refers here to performance-based indicators such as the Education Performance Index (EPI) suggested by Oxfam or the Education for All Development Index (EDI) formulated by Unesco.
3.2 The role of education from a capability perspective: theoretical grounds

In the capability literature it is quite common now (see Robeyns, 2005; Chiappero-Martinetti, Grasso and Pareglio, 2008; Ruggeri-Laderchi, 2008) to define the well-being generating process as a sort of conversion 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 the following figure, an intermediate position between these two elements is occupied by the capability set, which represents the set of real options from which people have to choose.

Figure 1 - The well-being process

What an individual can achieve with a given amount of means depends on a variety of internal and external conditions which in the end determine that person’s capabilities to transform the means into a vector of functionings (our capability set, in the intermediate part of Figure 1) and, through personal choices, into achieved functionings (the right side of Figure 1).

Conversion factors and individual choices are two central components of the capabilities approach. The former depends both on personal or “internal” characteristics, such as age, sex, physical and psychological conditions, abilities and talents, and on other “external” factors such as the family context and social, economic, environmental, cultural, political, and institutional circumstances. The latter individual choices occurs in the shift from the capabilities space (which identifies the extension of well-being in terms of the plurality of available options from which an individual is able to choose) to that of achieved functionings; making the choice to carry out a specific action (for example, to acquire a certain level of education, such as a vocational training certificate) while having a plurality of alternatives available, has an intrinsic value for the well-being of individuals which ought to be taken into account and valued, especially with regard to certain conditions in which the same achievement (i.e., the same level of education) is the only option available (for example, because family reasons or social conditions preclude any other choices).

Within this scheme, education can play a crucial role at at least three different levels, as briefly discussed in the following sub-sections.

3.2.1 Education and knowledge as ends

Let’s start by considering the intrinsic value of education and knowledge, which can be defined, according to Robeyns (2003), as “being able to be educated and to use and produce knowledge”.

12 We refer here to Robeyns’s specification because is sufficient for our illustrative purposes and operationally simpler compared to Nussbaum’s definition of “sense, imagination and thought” which contains education and
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 percentage of GDP or of total government budget by region, in-school facilities, facilities and support for students with special needs), private resources (i.e., household income) but also libraries, newspapers, medias, theatres and spaces for public debates and cultural initiatives. The ability to convert this amount of various 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.

The capability set represents the real freedom and opportunities an individual has to achieve different competencies, knowledge and a level of education that she/he has reason to value. For instance, in choosing to study engineering or art, or deciding to undertake a specific vocational training courses, an individual will realize a given achieved functioning that represents the final step or output of this (type of) well-being production function. At the individual level this will be measured in terms of years of schooling or the highest level of education achieved, while at the macro-level variables such as enrolment ratio, average years of schooling, student performance (e.g., PISA) or adult functional literacy skills (e.g., IALS) might be considered.

Broadly speaking, while the resources space can be linked to the cost-based (or input-side) approach discussed earlier (see Section 2.2), the achievements space is somehow connected to the educational stock-based approach that was also looked at earlier.

### 3.2.2 Education as means: education and work status

> Being able to use the senses, to imagine, think and reason 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).
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 taking the standard HC perspective. Once again, we refer here to Robeyns’s (2003) definition of being able to work or to undertake projects.\footnote{This is also included in Nussbaum’s list of central capabilities in a more articulated and complex manner. See Nussbaum (2000).}

Figure 3: Education and knowledge as means

<table>
<thead>
<tr>
<th>Achieved level of education and knowledge, years of experience, professional skills and competencies, etc.</th>
<th>Conversion Factors</th>
<th>Being able to work or to undertake projects</th>
<th>Choices</th>
<th>Current work status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Means to achieve</strong></td>
<td><strong>Freedom to achieve</strong></td>
<td><strong>Achievement</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The current observable work status of a person is (or should be) the result of a free choice within the real opportunities set (to be able to work or to undertake projects, to be able to choose between full- or part-time jobs, etc.). This is, in turn, related to the level of education achieved, as well as to professional experience and competencies but also to a set of internal and external factors that determine the individual conversion rates, that is the actual ability to transform means into ends.

Internal factors that should play a role in this example are ability and talents, while other aspects such as sex, race or nationality should be neutral in non-discriminating labour markets. 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.

Seen from a gender perspective, the freedom to achieve what a woman 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 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.

Last but not least, an important is played by the set of external factors that characterize not only labour markets (e.g., full-time and part-time job positions, rates of unemployment that can encourage or discourage women to participate in the labour market, working conditions, etc.) but also other related markets (e.g. purchasing choices on the product and services markets, access to financial assets, anticipation of and reaction on credit market failures, etc.).
This vision of the instrumental role of education is closer to that found in HCT, and is linked methodologically speaking to the income-based (output-side) approach discussed in Section 2.2.1.

3.2.3 Education and conversion factors: the link between education and health

Finally, a third and different 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 role that education and knowledge can have in allowing people to be Ňable to have good health, including reproductive healthÑ(Nussbaum, 2003).

In this third example, macro and micro indicators related to the public provision of health care (quantitatively and qualitatively), private medical care services, as well as access and availability to medicines, contraceptive methods and family planning programmes, are generally considered in the endowment space.

Figure 4 Ň Education as a conversion factor

The possibility of making optimal use of these Ňmeans to achieveÑ is systematically and significantly linked to interpersonal characteristics (age, sex, physical and mental abilities and disabilities, metabolic rates) and external circumstances (epidemic conditions, the percentage of children who have been fully immunized, the percentage of HIV, malaria or tuberculosis cases, as well as Ňonce again Ň social and cultural norms such as genital mutilation practices, domestic violence and sexual crimes against women, legal protections against gender-based public and private violence).

The ability to convert available resources, based upon our internal and external conditions, will determine the real expansion of our potentially available choices (i.e., the capability set) in terms of being able to have good health, including reproductive health (as specified by Nussbaum, 2000), or to avoid escapable morbidity and premature mortality (as described by Sen, 1999), or to be aware of the risks of drug abuse and unsafe sex and, consequently, to realize in the functioning space the corresponding achievements (e.g. current health status, reproductive/fertility decisions).

 Needless to say, literacy and education can deeply affect all these layers of analysis and thus, indirectly, one’s health achievements. Empirical research has shown very clearly how education positively affects women’s decisions regarding reproductive/sexual health and contraception, and their access to hospitals and medical care. It improves their own living conditions as well as those of their children and families through a better use of food,
medicines and sanitation. That is, education positively and substantially affects the conversion process and directly determines conversion rates. It also plays a central role in the capability space, empowering women and giving them more respect within the family, increasing their agency, i.e. their ability to choose and act within and outside of the family, and to make decisions based on their own values and goals. This, in turn, can influence women’s achievements in terms of health conditions and fertility decisions, reducing fertility rates, child mortality rates, and gender bias in survival (particularly in terms of young girls). From this point of view, education and knowledge become an internal characteristic of the person that determines her ability to convert input (means) into output (well-being).

4. Human capital and human capabilities: towards an integrated view

4.1 Some theoretical conjectures

In the previous sections we showed how education and knowledge can be conceptually considered within the capability framework, by placing emphasis on their intrinsic value, their instrumental role, or as key ingredients in the individual process of conversion of means into achievements. We will now look at how these three key roles can be interpreted from a HC perspective and from a CA view with reference to the following cases:

*Case 1* A migrant woman in an industrialized country (let’s 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 as a consequence of gender-based intra-household inequalities. This could be the case, for instance, when the real opportunities or freedom in education choices for girls are substantially lower than those for boys within a given family. This gender bias in terms of capabilities and choices will generate, in turn, inequalities in terms of wages and job opportunities (i.e., the existing gap in the enrolment ratio of girls, or more professionally-oriented educational choices for boys than for girls).

*Case 3* A man with a high level of education and access to high wages/high-qualified jobs. This favourable condition on the labor market may be at least partially brought about by the existence of gender discrimination on the job market (which excludes women from competition) as well as by 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 look at education as an intrinsically valuable dimension of individual well-being, Cases 1 and 3 might reflect a condition of equality of opportunity in terms of the freedom to achieve the level of education that the two individuals in question wanted (if both of them 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 best one in terms of HC
accumulation), and therefore an equivalent (high) level of achievement. In Case 2, however, gender disparities impeded the ability of the young woman to express her choice and to eventually achieve her desired level of education.

However, the well-being ranking of these three cases might be different if we focus our attention on education as a means for achieving well-being in other crucial dimensions, such as having control over one's material environment, participating in the labour market and seeking employment on an equal basis with others, or having the social basis of self-respect (just a selection 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 causes of these capability failures or successes are substantially dissimilar and can be explained by different factors such as personal features, 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. Thus, a gifted female child in a society with strong gender discrimination might not be able to fully develop her abilities even if there are good and affordable schools in her neighborhood.

The possibility to account for these diversities can be helpful from the measurement point 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.

The considerations revealed by the above examples are usually left out by the conventional HC framework, but can be captured by the CA, according to which the current observable level of education, skills and abilities of an individual is influenced by the free choice that individual makes within his or her real opportunity set. The capability to acquire a certain type of education, on the one hand, is determined by the individual's innate abilities, health, gender, family background and financial situation. On the other hand, his or her real opportunity set of educational choices is also influenced by external socio-economic conditions and the environment such as, for example, the availability of educational units in the individual's neighbourhood, his or her access to the credit market, and current labor market preferences for certain type of skills. Finally, these two sets of resources are linked together differently for different individuals.

One could argue that some of these factors are acknowledged and even measured in classical HCT. However, HC theoretical and empirical research is mainly focused on the transformation of achieved education into observed labor market outcomes. Questions regarding the equality of opportunities to develop one's skills and abilities using all available resources are tackled only marginally (with the single exception, probably, of the gender gap in earnings).

It is important to note that the marketable benefits derived from higher education in terms of higher wages and greater employment stability often do not serve as goals in
themselves, but rather as factors that enlarge the range of human choices. Better-educated people, being able to achieve greater earnings stability, enjoy better health status, greater community involvement and better present and future life-visions and prospects. In the light of this consideration, it seems straightforward to conclude that measuring education-derived outcomes by way of monetary variables alone would leave out a substantial part of the benefits under analysis. Furthermore, this broad stream of benefits is often resistant to measurement and for this reason is often left out of HCT analyses.

Because of the multidimensional nature of HC, the present and future streams of benefits that an individual derives from developing his or her knowledge and abilities is not exclusively determined by the market. Although most research focuses on market returns, in reality individuals derive a more comprehensive stream of utility from acquired capabilities and knowledge (Stroombergen et al, 2002). As noted by Grossman (2005), if the knowledge and traits that an individual acquires through education influence the decisions he or she makes with regard to work, they are just as likely to influence the decisions he or she makes with regard to cigarette smoking, the types of food to eat, the type of contraceptive technique to use, and the portion of income to save.

The individual non-market benefits that one derives from education are associated with additional spillover effects across and within social groups, and can promote democratic values. Thus, higher education is positively associated with the amount of time and financial resources that one is willing to invest in charity and political and social activities (see Table 1). Additionally, more schooling means less risky behavior (in terms of drugs, alcohol, and criminal activity) and less state welfare transfers. While a given level of education might be considered non-profitable and even useless in terms of productivity (both for society and for the individual in question), it may still bring individual satisfaction in terms of nourishing and enriching his or her internal world and enhancing his or her self-esteem and concerns for others (see Table 1 for some examples).

**4.2. Methodological Challenges**

We would like to continue our discussion by shifting into a methodological dimension. In doing so, we will compare human capital and human capabilities with the aim of highlighting the common points and differences between the two concepts, and the potential added value that could be achieved by integrating them. The following Table compares and summarizes the two approaches and lists a set of variables that are frequently included in standard surveys on individual and household living conditions. In our illustrative example introduced in Table 2 and discussed below, we refer to the British Cohort Study (BCS70), a longitudinal representative sample of individuals followed since their birth in 1970. This dataset provides information on the socio-economic and demographic background of the sample units during their childhood, and on educational and employment outcomes in their early adulthood. For the purpose of the present discourse we refer specifically to the round of data collection which took place in 2004/2005, when the BCS70 cohort members were 34-35 years old. This 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).

[TABLE 2 HERE]

As discussed in the previous sections, while HCT narrows its attention to the instrumental role of education (column two in Table 2), the CA makes it possible to capture other aspects related to both the accumulation and exploitation of HC outside of the labour market. In order to measure capabilities, we should have access to information regarding the full set of options that people have, i.e. 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 while it is unlikely that we could obtain a complete account of the full set of feasible options that people have, or the goals that they would like to achieve, in recent years researchers have made several interesting attempts to estimate capabilities and agency. For example, Burchardt (2009), using the longitudinal data of the BCS70, 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” which includes 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 inability to afford a one-week annual holiday away from home or several common durable items or a meal with meat or fish every other day. Another dataset, the British Household Panel, makes it possible to estimate employment capabilities for women in the 1998-99 period (see, for example, Burchardt and Le Grand, 2002).

It is relatively easier and more usual to find appropriate data for measuring achievements in the three different aspects that are considered in Table 2 (education as a means, an end, and conversion factors). In fact, most cross-sectional and longitudinal surveys typically include variables such as work status, educational attainment and achievements in other educational-related spheres. Similarly, these data sources often comprise information that can be ascribed to the category of the “means to achieve” as well as to the broad set of explicative factors at the individual, household and contextual level - 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, including and beyond those of income and employment, we can cast light on important aspects of personal well-being and functioning that cannot be captured or explained from a 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 a part-time or full-time employment situation (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 of them characterizes their financial situation in the most optimistic terms ("living comfortably"). On the other hand, 14% of the highest quartile of the wage distribution are not satisfied with their jobs, and one out of six of them is "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 its 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 to be 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 2). By shedding light on the well-being aspects that are left out from the HC standpoint, CA in these examples 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, CA can complement 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, and 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 shows 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 individuals.

Conclusion

The fundamental role of education, and the need to invest in HC accumulation in order to foster development and promote equity and social cohesion, are broadly acknowledged in modern societies. However, the main focus of human capital theory, which dominates the theoretical and empirical debate in this area, is on how education can be transformed into labour market outcomes. It 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).

Moreover, the mainstream approach disregards the fact that education is not only an instrument for producing higher employment outcomes, but can also be an outcome per se. It is both an important resource for business and science for accumulating intellectual capital.
and boosting technological progress and an intrinsic generator of satisfaction for individuals, due to the ways in which it can nourish and enrich their internal worlds and enhance their esteem for themselves and for others. 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 importance of education, for the way in which it directly contributes to individual well-being and to societal progress. As we have tried to argue in this paper, it is crucial to improve the ability of the traditional approach to estimate and evaluate the gains derived from HC, by bringing the discussion into the empirical dimension, extending the range of variables beyond a mere "economistic" measurement and moving towards a broader vision of personal well-being. Integrating HCT and CA conceptually and methodologically could be a feasible solution. This, in turn, could bring valuable new understandings for public action and the design of policies aimed at enhancing individual well-being in all its multidimensionality.

Table 1  
Education as an intrinsic value (for the 34/35 years old UK residents)

<table>
<thead>
<tr>
<th>education group, %</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>%</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>exercises regularly</td>
<td>68.4</td>
<td>74.9</td>
<td>77.5</td>
<td>82.3</td>
<td>84.7</td>
<td>85.2</td>
<td>79.6</td>
<td>6,066</td>
</tr>
<tr>
<td>ever been a regular smoker</td>
<td>31.6</td>
<td>22.0</td>
<td>21.7</td>
<td>20.6</td>
<td>20.9</td>
<td>18.6</td>
<td>21.0</td>
<td>1,604</td>
</tr>
<tr>
<td>ever done a course for interest or leisure</td>
<td>9.2</td>
<td>11.8</td>
<td>12.8</td>
<td>19.6</td>
<td>21.7</td>
<td>28.3</td>
<td>16.7</td>
<td>1,269</td>
</tr>
<tr>
<td>involved in politics, human rights, religious groups (last 5 years)</td>
<td>1.6</td>
<td>1.0</td>
<td>2.6</td>
<td>5.2</td>
<td>7.6</td>
<td>11.8</td>
<td>4.6</td>
<td>351</td>
</tr>
<tr>
<td>has environment or animal concerns</td>
<td>1.6</td>
<td>2.1</td>
<td>2.8</td>
<td>4.6</td>
<td>5.0</td>
<td>9.6</td>
<td>3.9</td>
<td>294</td>
</tr>
<tr>
<td>part of voluntary or charity groups</td>
<td>8.0</td>
<td>7.8</td>
<td>9.6</td>
<td>13.0</td>
<td>15.8</td>
<td>16.7</td>
<td>11.8</td>
<td>898</td>
</tr>
<tr>
<td>voted in the last general election</td>
<td>47.9</td>
<td>54.4</td>
<td>60.3</td>
<td>70.2</td>
<td>72.1</td>
<td>76.5</td>
<td>64.0</td>
<td>4,873</td>
</tr>
<tr>
<td>Total, %</td>
<td>7.6</td>
<td>14.5</td>
<td>32.7</td>
<td>9.5</td>
<td>28.7</td>
<td>7.0</td>
<td>100.0</td>
<td>X</td>
</tr>
<tr>
<td>Total, persons</td>
<td>576</td>
<td>1,108</td>
<td>2,492</td>
<td>725</td>
<td>2183</td>
<td>533</td>
<td>X</td>
<td>7,617</td>
</tr>
</tbody>
</table>

Source: BCS70
Table 2: HC versus human capabilities: a comparison and some recurrent surveys variables for measuring the two concepts

<table>
<thead>
<tr>
<th>Focus of Analysis</th>
<th>Education as a Means</th>
<th>Education as an End</th>
<th>Education as a Conversion Factor (e.g., political and social participation, health)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capabilities</td>
<td>&quot;being able to work or to undertake work projects&quot;</td>
<td>&quot;being able to be educated and to use and produce knowledge&quot;</td>
<td>&quot;being able to participate effectively in social and political life&quot;</td>
</tr>
<tr>
<td>Measured by</td>
<td>Opportunities on the labor market</td>
<td>Educational opportunities</td>
<td>Opportunities to participate in political and social life; to have a healthy life, etc.;</td>
</tr>
<tr>
<td>Functionings</td>
<td>Work status and conditions, wages</td>
<td>- acquired skills and knowledge</td>
<td>a) Active and effective political participation (to be a member of or active in a political party)</td>
</tr>
<tr>
<td></td>
<td>- type of employment (permanent, temporary, full-time, part-time)</td>
<td>- educational attainment - abilities - is your degree a required qualification for your job?</td>
<td>b) Frequency or intensity of social relations, participation in social networks</td>
</tr>
<tr>
<td></td>
<td>- pension arrangements</td>
<td></td>
<td>c) Marginal effect of education in self-reported political interest</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>d) Health</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>e) Employment well-being</td>
</tr>
<tr>
<td>Measured by</td>
<td>- type of employment (permanent, temporary, full-time, part-time)</td>
<td>- educational attainment - abilities - is your degree a required qualification for your job?</td>
<td>- involvement in politics, human rights, religious groups;</td>
</tr>
<tr>
<td></td>
<td>- pension arrangements</td>
<td></td>
<td>- being part of voluntary or charity groups;</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>- voting in the past general elections</td>
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<td>- does regular exercise</td>
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<td>- ever been a regular smoker</td>
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<td>- satisfaction at work</td>
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<tr>
<td>Agency and Autonomy</td>
<td>(Only implicitly considered in terms of command over economic resources)</td>
<td>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</td>
<td></td>
</tr>
<tr>
<td>Means to achieve</td>
<td>Level of education achieved by subject and grade, years of experience, professional skills and competencies, active labor market policies</td>
<td>a) Free access to school, quality indicators of schools, other resources (libraries, computers, etc); students grants, etc.</td>
<td>a) number of political parties and organizations; access to communication technologies (proxy for access to information)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b) newspapers and books read, media, cultural resources, etc.</td>
<td>b) number of social networks; access to communication technologies (proxy for access to information)</td>
</tr>
<tr>
<td>Conversion factors</td>
<td>a) nationality, age, gender, race, ability and disabilities</td>
<td>a) nationality, age, gender, race, ability and disabilities</td>
<td>a) age, gender, level of education</td>
</tr>
<tr>
<td></td>
<td>b) social background (father#/father# education, poor/non-poor family)</td>
<td>b) social background (mother#/father# education, poor/non-poor family)</td>
<td>b) social background (mother#/father# education, poor/non-poor family)</td>
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<td>c) trends with regard to specific unemployment rates, involuntary part-time workers, labor market characteristics, regional dummies (for regional disparities)</td>
<td>c) average educational attainment; student/teacher ratio</td>
<td>c) number of media, newspapers and access to information;</td>
</tr>
</tbody>
</table>
References


Le, T., Gibson, J. and L. Oxley. (2003), Cost- and income-based measures of human capital,


Contribution to the volume on "The Capability Approach: From Theory to Practice" edited by Meera Tiwari and Solava Ibrahim, Palgrave Macmillan (forthcoming)
Revised Version 20/07/2012


Young M. (2009a), Basic capabilities, basic learning outcomes and thresholds of learning, in Journal of Human Development, 10, 2, pp.259-277.