ROMA TRE
UNIVERSITÀ DEGLI STUDI DI ROMA TRE
DIPARTIMENTO DI ECONOMIA

MEASURING HUMAN AND SUSTAINABLE DEVELOPMENT
An Integrated Approach for European Countries

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Working paper n. 41
2004

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Per ciascuna pubblicazione vengono soddisfatti gli obblighi previsti dall'art.1 del D.L.L. 31.8.1945, n. 660 e successive modifiche.
Copie della presente pubblicazione possono essere richieste alla Redazione

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ISBN 88–7999–873–0

I edizione: ottobre 2004

Measuring Human and Sustainable Development: An Integrated Approach for European Countries

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Abstract
During the last few years, sustainable development has represented one of the most important policy goals at global level and how to design specific policy actions, measuring performance and results continues to present a challenge. Scientific research has explored different analysis directions in order to identify a synthetic indicator to evaluate policy planning and achievements that goes beyond traditional income indicators such as Gross Domestic Product (GDP). In consideration of the social dimension of sustainable development, including health, education and employment, the Human Development Index (HDI) of the United Nations Development Programme represents a widely accepted methodology to be used as a starting point for building a more sustainable-oriented development index. The aim of this paper is to identify a numerical measure of what Amartya Sen defined as "sustainable human development" using a human development framework and adapt it taking into account more specific environmental aspects. For this purpose, building a complex Sustainable Human Development Index (SHDI) may be a difficult task because of data availability and the European countries – especially the European Union - could be a useful pilot area for testing the methodology. The most recent efforts of the EU to standardize statistical information at country level enable us to build more complex indicators, including those with economic, social and environmental dimensions. Long-term sustainability requires the maintenance of capital stock to guarantee constant or growing welfare levels. In a human development perspective, the sustainability condition has been directly analysed on the well-being side, assuming that a constant or growing SHDI could be the result of constant growing capital assets. An SHDI represents the core element of a comparative analysis to assess the effectiveness and the distributional effects of European policies, including environmental actions. Finally, a sensitivity analysis of the results will enable us to underline the key factors of effective sustainable human development and, at the same time test the real meaning of such a modified composite index compared with the existing GDP and HDI.

Key words: human development, sustainable development, sustainability indicators

The authors are grateful to Mariano D'Antonio, Fabrizio De Filippis and Pasquale De Muro for helpful comments on earlier drafts. The usual disclaimer applies.

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1. Introduction

The main objective of human development, as stated in the Human Development Report (HDR) of the United Nations Development Programme (UNDP), is to create an enabling environment for people to enjoy long, healthy, and creative lives. In this context, income and economic growth are a means and not an end to development. People's well-being depends on how income is used to achieve higher quality of life standards.

This first approach to human development has changed over the last ten years due to an increasing focus on the environmental aspects of daily life. The Earth Summit in Rio de Janeiro in 1992 and the World Summit in Johannesburg in 2002 marked the development path of the UN that reached the new and wider concept of Sustainable Human Development.

Human Development as a participatory and dynamic process is a definition that fits the description of Sustainable Development in the well-known Brundtland Report perfectly. Sustainable Development was defined as "[…] development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987, p. 43). In the word "ability" there is the conceptual link to the human development approach.

The first international environmentally-oriented development strategy was formally expressed in the World Development Report (WDR) of the World Bank in 1992, *Development and Environment* and underlined a classical growth-oriented policy description. After this pioneering report, UNDP has followed up this approach by widening the theoretical framework of human development and capabilities in order to represent a much more comprehensive development strategy.

More generally speaking, links between poverty, natural environment and social capital have been analysed from a different perspective. In the 1992 WDR, poverty was interpreted as a major cause of environmental degradation while the protection of natural resources was still considered a constraint on economic growth and not an opportunity to achieve a higher level of well-being. From the mid-nineties onwards, a direction of integration through a new paradigm was adopted within the UNDP's Human Development Report (HDR, 1994, 1996; Anand and Sen, 1996; Sen, 2000). In this

paradigm, natural resources and environment were considered as a means of achieving well-being such as education or health. This approach to development does not oppose but rather complements the primary objective of monetary stability and economic growth recommended by the World Bank and looks at new growth factors such as social and natural capital, environmental protection, participation of local communities, governance, etc. (Dubois et al., 2002). Bilateral relationships among poverty and environment are useful for understanding the real meaning of a sustainable human development approach. It is true that poverty can be a cause of environmental degradation, especially in the fragile rural areas of the Least Developing Countries (LDCs) due to lack of investments and overexploitation of finite resources, but it is also true that poor people are often forced to live in places where the standard of living (including environmental conditions) is very low (i.e., slums and shantytowns). In this context, policy options to interrupt this vicious circle can be geared both towards reducing poverty and improving living (environmental) conditions.[1]

The object of this work is to analyse the policy implications of a wider concept of human development including environmental protection and long term sustainability by building a composite index on the basis of Human Development Index (HDI) methodology in order to evaluate two different aspects: on the one hand, whether a Sustainable Human Development Index (SHDI) could be a feasible task and a more representative measure of effective capabilities and on the other hand, with regard to European countries, if a different development path exists from a sustainability point of view. Section 2 describes the main theoretical literature on the concept of human development and measurement. Section 3 analyses the main criticisms of lack of environmental factors in the HDI methodology, and the possibilities of integrating sustainable income in the HDI. Section 4 suggests some methodological issues for representing an empirical SHDI adapted to the European context, with specific reference to the green Net National Product (green NNP) developed in economic literature and the Genuine Saving (GS) indicator produced by the

[1] The debate on relationships between poverty and environment goes beyond the scope of this paper. For further details see Duraiappah (1998), Ekbom and Bojo (1999), Reardon and Vosti (1995).

World Bank, and other social aspects of development. Finally, section 5 underlines the main results of a descriptive analysis of sustainable human development and is focused on European countries.

2. From Income to Human Development approach: a literature review

The origin of criticism to the use of the Gross Domestic Product (GDP) per capita for measuring the level of development in different countries can probably be traced back to the pioneering United Nations Reports in which specific recommendations were made against the use of this indicator as a measure of the level of living (Noorbakhsh, 1996). As a result, the academic world, especially from the 70s onwards, started to look for other kinds of indicators to explain economic development. We can probably regard the 70s as the decade of socio-economic indicators for measuring development. This was the time when we started to conceptualize such ideas as Basic Needs which were mainly geared towards human development.[2]

According to Amartya Sen another important step is to criticise the idea that development means growth. He underlined that the principal ethic theories of social assets, from Utilitarianism to liberalism and from rights theories to Rawls justice theory (Rawls, 1972) gave a partial answer to the problem of equity. These theories, in fact, have reduced the problem of equity to "equality of income" or "equality of well-being". Equality for one variable can be different in respect to another variable. Sen has substituted the traditional idea of utility with the idea of functioning and capabilities where "functions" are

[2] This approach is characterised by the need to give a clear explanation of the problem of the satisfaction of Basic Needs. It attempts to condition the choice of national policy actions in order to resolve this problem. The specific policies that directly face the problems of the Basic Needs of all populations, especially their poorest elements, can be illustrated in four points:
1) Increasing the poorest people's chance to produce income
2) Strengthening the production and the distribution of public services so they can effectively reach whoever is most in need
3) Improving the production of commodities or services that can directly satisfy the needs of all the members of the "household" found in the traditional sector
4) Increasing the participation of populations in the decision on the nature of their Basic Needs and how they can be met.

indicated as *attainments of different attributes* and capability as *the ability to attain* (Sen, 1985, 1987).

Furthermore, the Sen approach pointed out the importance of the sociological aspect in economic analysis: poverty can be defined as the lack of capability because *capabilities* are intensely relevant for well-being whereas income is simply a means of obtaining it.

Finally, according to the Sen approach, not only low income determines a lack of *capabilities and* therefore, simply concentrating on an increase in income to reduce poverty might be an inefficient policy. The relationship between income and *capabilities* changes according to the reference point for society, households and individuals.

By the mid-80s however, the subject of the socio-economic indicators became rather "unfashionable". There may be many reasons for this, ranging from the debt crisis to the rise of monetarism in the Western economies and their effects on policy changes, particularly in some of the relevant international organizations such as the International Monetary Found (IMF) and the World Bank. The increase in the literature in the 70s, however, resulted in the regular collection and publication of data on an array of socio-economic indicators and for a large number of countries, which has proved very useful. With the availability of cross national data a number of attempts were made to construct composite indices that aimed at reflecting the level of development more comprehensively than GDP per capita alone could do.

In 1980, the *World Development Report* started to integrate the measurement of poverty by means of indicators like nutrition, life expectancy, infant mortality and the schooling rate. The first Human Development Report of the UNDP, released in 1990, was the natural consequence of the debate and represents a milestone in the renaissance of the interest in how to measure the development level. It distilled various concepts raised in earlier development discussions into a comprehensive framework of human development that was defined as "a process of enlarging people's choices, the most critical ones are to lead a long and healthy life, to be educated and to enjoy a decent standard of living" (UNDP, 1990, pp. 10).

As a result of this definition, the Human Development Report in 1990 proposed a composite index that reflects three major dimensions of human development: the Human Development Index (HDI). The

HDI is a composite index of three dimensions, access to resources, knowledge and longevity, derived from human *capabilities* proposed by Sen that are regarded as the essential requirements for enlarging human choices (Desai, 1991). Even though there are other dimensions which could enhance well-being, the three dimensions in the HDI represent the minimum set of indicators for representing living standards at an aggregate level (Dasgupta and Weale, 1992).[3]

2.1 Criticism to Human Development Index

During the last decade, the literature has paid a great deal of attention to the HDI, both on the policy side and the methodology adopted. This second aspect presents some controversies as underlined by many scholars (Desai, 1991, 1995; Hicks, 1997; McGillivray, 1991; Noorbakhsh, 1998a, 1998b).

On the one hand, there are economists who believe that economic growth is the most important means for economic development and, consequently, growth is a guarantee for development economics. According to these authors, the benefits of growth would be shared among all people (*trickle-down* effect), and enhancing growth would create development and improve the quality of life. Therefore, it is not necessary to measure human and economic development separately because they are strictly correlated.

On the other hand, there are economists who focus more on human development and acknowledge that human development and economic growth are only partially related. However, they have highlighted some problems related to the methodology adopted.

First of all, using a value between 0 and 1 as the HDI, we have arbitrarily lost some degree of freedom (Streeten, 1981).

Secondly, when we have to choose the appropriate value of minimum and maximum, we have to choose between a linear and a non-linear scale. Another problem is therefore definition of the exact weight of the index component that should be based on a generally accepted function of welfare that does not yet exist.

Income values entering the index represent another source of great debate especially because of unequal treatment and comparison in

[3] The methodology for building HDI has changed during the years in order to respond to some criticisms from many scholars. A chronological description of these changes has been described in Appendix I.

different countries. Hicks (1997) proposed estimating an Inequality-Adjusted HDI (IAHDI) in order to represent inequality issues in all three dimensions considered in the HDI - income, education, and health/longevity. The calculation of Gini coefficients for income distribution, educational distribution, and longevity distribution has been used to elaborate an IAHDI for 20 countries. Comparing country rankings by HDI and IAHDI, the author found that those countries with medium development presented wider (negative) changes in ranks underlining a positive correlation between inequality and the development process.[4]

Furthermore, there are some critical positions where statistical analyses suggest that the HDI generally reveals little more than any one of the pre-existing development indicators. The HDI's contribution to the assessment of inter-country development levels is therefore questioned (McGillivray, 1991).

At the same time, the main outcome of building an indicator such as HDI has been the representation of the capabilities concept that has changed the previous development framework based on basic needs. Sen is critical of the use of both wealth (income, or commodity possession) and utility as measures of well-being where such dimensions are shown to be deficient in dealing with achievements, freedoms and capabilities (Sen, 1970). The HDR takes a rather different view of what development is about and is broadly consistent with the capabilities approach advocated by Sen.

The path through which income growth effectively influences human development is what is important. Economic growth not only involves an increase in private income but can also contribute to generating resources for enhancing public services. Indeed, one of the most important factors that affect human development has been represented by the way national income is spent on public services. HDI, in conjunction with data on public social expenditures, represents a useful instrument for assessing the elasticity of the development process linked to public spending, as for example in the

[4] These results are consistent with previous results from Simon Kuznets (1955) where income growth and equity distribution are correlated with an inverted *U*-shaped curve (the Kuznets curve). During the first stages of development, economic growth corresponds to an increasing distributional inequality. After a threshold point, equity and income result positively correlated.

health sector where two-thirds of elasticity of life expectancy depend on public expenditure for health services (Anand and Ravallion, 1993; Ranis et al., 2000).

At the same time, quality of growth matters. If economic development goes hand in hand with increasing inequality in income distribution or with degrading environmental quality, then growing income produces a reduction in levels of well-being. The concept of human development therefore goes beyond the utilitarian approach (Desai, 1991). Insofar as growth of the GDP promotes better living conditions, its greatest achievement is the enlargement of individual capabilities and hence human development (Anand and Sen, 2000b).

3. Natural resources and Human Development: a sustainability approach

A lively debate on the Human Development Index and how to improve it first emerged in the years immediately following the 1990 report and involved, above all, the meaning and interpretation of the index, the role of inequality, and computation issues. In recent years, new attention to the HDI has been based on a specific sustainability interpretation with various critiques and proposals for implementing a "green HDI" (Atkinson et al., 1997; Dasgupta and Weale, 1992; Desai, 1995; Hinterberger et al., 1999; Sagar and Najam, 1998) or constructive framework with HDI compared to sustainability measures (Anand and Sen, 2000a; Dasgupta and Mäler, 2001; Jha and Murthy, 2003, 2004; Neumayer, 2001).

The World Development Report of the World Bank in 1992 (*Development and the Environment*) was the first international development approach based on environmental resources where a neoclassical position on income growth as an end of the development process remained the main task of World Bank policies. The vision of environment and natural resources as a means to achieving a higher income growth level was adopted for years while poverty has been analysed as one of the major causes of environmental degradation within least developing countries. Such a framework was far from the Brundtland Report sustainable development definition where basic needs of poor people were placed at the centre of debate. The UNDP reports of 1994 and 1996 have implemented a widely notion of human