

## **Household Production and Other Individual Non Market Activities in the Estimation of Human Capital in Italy**

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Investment in human capital is generally considered an important determinant of economic growth and recently the measurement of human capital has generated interest in OECD countries because of its importance for providing a full set of wealth accounts and a better understanding of sustainability. In fact, if sustainable growth is to be attained in the medium to long term it is necessary for any given country that its overall human capital does not decrease over time (UNECE, 2009).

Human capital accounting provides a unique definition and measurement framework that allows to make consistent all the information actually used to measure the role of knowledge in economic growth. In this perspective, Jorgenson and Fraumeni (1989, 1992) have proposed an accounting system which includes market as well as non-market activities for assessing human capital in the U.S. economy according to an income based approach. Activities to be accounted for in the assessment of lifetime income (the value of human capital) include not only formal work, but also non market work within the household, like e.g. time spent in nurturing or caring for others or in health activities.

For many years economists have argued that ignoring income and wealth generated by housework introduces a bias in various areas of economic analysis (Chadeau, 1992). Kuznets (1944) and Clark (1958) have pointed out that national income is significantly underestimated by not taking into account income in kind provided by productive household activities. Nordhaus and Tobin (1972) argued that the production of non-market services by household members contributes to economic welfare, which is not properly measured by conventional GNP. Walker and Gauger (1973) argued that the economic contribution of women to production is grossly understated by conventional statistics because women perform about two thirds of overall housework. More recently, to deeply examine the role of households also as a producers of non-market activities has become part of the perspective of broadening the measurement of well-being proposed by the Stiglitz-Sen-Fitoussi Report (2009) as well as the European Commission (2009).

Starting from these considerations, studies have been promoted in several OECD countries to develop measurement methods and provide monetary estimates of value added by productive activities of households outside the market (OECD, 1992; Ironmonger, 1996). Most importantly, attention has been drawn to the need to develop satellite accounts of household production, including non-SNA production, according to a harmonised methodology suitable for international comparisons (Eurostat, 2003).

In principle, there are synergies in producing satellite accounts of household production and income based estimates of human capital, but of course among the activities taken into account in the distinct calculations there are a number which do not overlap; this is the case e.g. with time spent in leisure and volunteer activities (Fraumeni, 2008), which are not part of household production. Istat is involved in both types of calculation. The aim of this paper is to investigate the extent to which data and methods used for the estimation of household production are suitable for human capital calculations as well. Other aspects specifically connected to the needs of the human capital account are also discussed. In particular, sensitivity analyses are carried out concerning the use of data related to certain variables like e.g. labour price, gender, age, marital status, education level, employed/unemployed.

**Keywords:** national account, household satellite account, human capital, unpaid domestic work.

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