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For information

Item 4(d) of the Provisional
Agenda

**FOLLOW-UP TO THE CES 2011 SEMINAR ON MEASURING HUMAN
CAPITAL: EXTENDED OUTLINE OF THE STOCK-TAKING REPORT**

Prepared by OECD and Statistics New Zealand

I. INTRODUCTION

1. Following discussions at its June 2011 seminar on measuring human capital, the Conference of European Statisticians (CES) decided to prepare a stock-take report, reviewing what has hitherto been done in the field of human capital measurement.

2. To facilitate the preparation of the stock-take report, Statistics New Zealand proposed the establishment of a small expert group. This group is chaired by Geoff Bascand (Government Statistician of New Zealand). The OECD will provide technical leadership and draft the in-depth review report in consultation with other members of the expert group (ECE/CES/BUR/2011/NOV/16). The CES Bureau approved the proposal at its meeting in November 2011 (ECE/CES/BUR/2011/NOV/24).

3. The stock-take report will follow the approach used for other in-depth reviews undertaken by the CES Bureau. It will:

(a) Summarise country experiences and international initiatives in the area of measuring human capital.

(b) Discuss the main issues and challenges identified by member countries.

(c) Make recommendations to address the identified problems.

4. Below is an extended outline of the report, updated after the CES Bureau meeting in November 2011.

II. MEASURING HUMAN CAPITAL

5. Human capital measures are important to better understand the drivers of economic growth and to assess the long term sustainability of a country's development path. Further, the education sector plays a crucial role in human capital investment. Better measures of the output of this sector, and of its productivity performance, are therefore needed. These measures will inform education-related policy interventions. But public policies also need to take into account the fact that the benefits generated from human capital investment are not restricted to economic returns but extend to individual's quality of life and spill over to

society at large; a comprehensive measure of the stock of human capital should, in theory, reflect the broad range of returns.

A. Growth accounting and productivity analysis

6. The modern concept of human capital has its origin in efforts by economists to explain the ‘puzzle’ of economic growth based on conventional production functions, i.e. the large size of the residual not explained by either physical capital or labour inputs. Incorporating human capital into an expanded production function may affect the measures of multifactor productivity conventionally used in economic analysis. To be extended.

B. Sustainability assessment

7. Maximizing current income and consumption in a context of limited resources will not assure the sustainability of a country’s development path. Sustainable development, in its inter-generational dimension, is usually understood as requiring at least an unchanged stock of total capital per capita (including human capital) over time. To produce a meaningful measure of the total capital stock of each country, measures of each of its components, expressed in common metric, are therefore needed. Devising a robust methodology for the monetary valuation of the stock of human capital is especially important as a number of studies suggest that human capital is by far the most important component of the total capital stock (e.g. World Bank, 2006, 2011). Understanding movements in the stock of human capital requires decomposing investments from demographic changes. To be extended.

C. Measuring the production and productivity performance of the education sector

8. The production (value added) of the education sector is conventionally evaluated as the value of market inputs into this sector; these include household expenditures for education, teachers’ wages and salaries, consumption of fixed capital (due to use of buildings), etc. This input-based approach is inadequate since it does not take into account changes in this sector’s productivity. Monetary measures of the total stock of human capital may be used to derive output-based estimates of the volume of production in the education sector. Further, if the production of the educational sector is operationalised as the annual addition to the human capital stock, a productivity measure for the sector could be established by comparing inputs and outputs. To be extended.

D. Measuring well-being and social progress

9. Investment in human capital can generate not only economic returns, but also other benefits that will improve individuals’ well-being. These benefits are not restricted to individual persons, but extend to the society at large. While some of these non-economic benefits of education may be captured through existing measures of the monetary stock of human capital (e.g. the longer life-expectancy of more educated individuals), this remains challenging in most other cases. Moreover, human capital itself may be impacted by activities that enhance health and family and community well-being, which has implications for human capital measurement. To be extended.

III. CONCEPT AND METHODOLOGY

A. Concept and definition of human capital

10. Schultz (1961) defined human capital as acquired skills and knowledge, to distinguish raw (unskilled) labour from skilled labour, while the World Bank (2006) defined it as the productive capacity embodied in individuals, with special focus on its contribution to economic production. The Penguin Dictionary of Economics (1984) defines human capital as “the skills, capacities and abilities possessed by an individual which permit him to earn income”, a definition which emphasises the improvement of people’s economic situation due to human capital investment.

11. A more comprehensive definition of human capital is that proposed by the OECD as “the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being” (OECD, 2001). To be extended.

B. Measuring methodology

12. Different approaches to measuring human capital currently exist. A broad distinction is that between direct and indirect (or residual) methods (e.g. World Bank, 2006). Among the former, there are three basic approaches, i.e. cost-based (e.g. Kendrick, 1976), income-based (e.g. Jorgenson and Fraumeni, 1989, 1992a, 1992b) and indicators-based approaches (e.g. Education at a Glance, OECD publication series).

13. The above typology is not the only way to classify the various approaches. For instance, estimates based on the residual approach, as well as the direct estimates based on either the cost-based or the income-based approaches are all monetary estimates. Measures based on the indicators-based approach are physical estimates; the latter might be further divided into quantity estimates (e.g. measures of educational attainment, average years of schooling) and quality estimates (e.g. class size, test scores). While monetary measures aim to combine the different aspects of human capital through a single metric (money), physical estimates generally lead to a multiplicity of measures, which cannot easily be combined into an overall measure of the total stock of human capital.

14. There are pros and cons of different methodologies. To be extended.

IV. OVERVIEW OF THE LEADING INITIATIVES AND ACTIVITIES

A. Country experiences

15. Acknowledging the importance of human capital, many countries have conducted national studies trying to measure it. Most of these studies are or have been undertaken by individual researchers. While, in some cases, these studies have been conducted by statisticians working within national statistical offices, they generally have the status of research outputs rather than official statistics.

16. This section will provide an overview of studies conducted as part of the research activities of national statistical offices. The focus will be on issues related to the concept, methodology, and data sources used, trying to draw some lessons and recommendations

from these experiences, as well as from the results of a questionnaire to be sent to countries. Some of the experiences to be reviewed will include Australia, Canada, the United States, Norway, the United Kingdom, Sweden, Argentina, New Zealand, China and Finland. To be extended.

B. International initiatives

17. The OECD has a long tradition of work in this field (OECD, 1998, 2001). Most of the OECD statistical work has focused on different physical measures of the quantity (e.g. Education at a Glance) and quality of human capital (PISA, IALS, PIAAC). More recently, the OECD has launched a comparative project, in cooperation with national statistical agencies of some countries, to build monetary estimates of the stock of human capita, with first results presented in Liu (2011). Other relevant streams of recent OECD work relating to human capital are the OECD Skills Strategy (<http://www.oecd.org/dataoecd/58/28/47769132.pdf>); work on intangible assets undertaken as part of the OECD work on New Sources of Growth (<http://www.oecd.org/dataoecd/60/40/46349020.pdf>); and the OECD Better Life Initiative, (http://www.oecd.org/document/0/0,3746,en_2649_201185_47837376_1_1_1_1,00.html)

18. Beyond OECD work, this section will also describe work undertaken in the context of the UNECE/OECD/Eurostat Working Group on Statistics for Sustainable Development (and the Task force that followed it), of EUKLEMS, and the World Bank efforts to develop a comprehensive ‘national wealth accounting’.

C. Knowledge drawn from national and international initiatives and activities

19. This section will draw lessons from this review, trying to identify evidence of converging trends. To be extended.

V. MAIN ISSUES AND CHALLENGES

20. Many of the issues pertaining to the measurement of human capital were discussed at the CES seminar organised in June 2011, and are mentioned in the Conference’s final report (ECE/CES/81). For example, the large differences between the monetary estimates of the stock of human capital obtained by the cost-based and income-based methods should be better understood and reconciled.

21. In light of the results from an increasing number of national studies applying the income-based methodology, this section will discuss the limits of the methodology first proposed by Jorgenson and Fraumeni and possible improvements to it. Some of these limits relate, for instance, to the exclusive use of cross-sectional data and to the difficulties in choosing the two key exogenous parameters in this approach (the annual real income growth rate, and the annual real discount rate). To be extended.

22. This section will also assess some of the potential implications that would be followed from recognising expenditures into human capital formation as ‘investments’ rather than ‘consumption’.

23. To construct the education satellite accounts would require both stock and flow measures. But, at least up to now, there are more estimates of the human capital stock than of the related flows. Some gaps also exist between data needed for estimation of human capital and those that are currently available from NSOs. To be extended.

24. This section will conclude by suggesting possible ways forward. It should cover the implications for the data that are collected by NSOs and the derived databases. It should also discuss the issues related to the long-term goal of incorporating human capital into the SNA. To be extended.

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