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### Economic Commission for Europe

#### Conference of European Statisticians

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Item 6 (b) of the provisional agenda

##### **A stock-taking report on measuring human capital**

### **Results of the consultation of the stock-taking report on measuring human capital**

#### **Note by the secretariat**

##### *Summary*

This note summarizes the comments by members of the Conference of European Statisticians on the stock-taking report on measuring human capital. The secretariat carried out the electronic consultation of the report in March-April 2013.

A total of 27 countries replied to the request for comments. There was general support for the endorsement of the report and for the proposal for future work. Furthermore, the countries brought forth views about priority areas in future work. Several countries volunteered to participate in the future work.

In view of the support received, the stock-taking report on measuring human capital will be submitted to the Conference for endorsement as document ECE/CES/2013/5.

## I. Introduction

1. This note summarizes comments by members of the Conference of European Statisticians (CES) on the stock-taking report on measuring human capital. The secretariat carried out an electronic consultation of the report in March-April 2013.
2. The secretariat asked CES members to structure their comments around the following questions:
  - (a) General comments;
  - (b) Do you agree on the recommendations for future work given in paragraph 98 of the report?
  - (c) Which areas of measuring human capital should be considered first priority in future work? Would your office be interested in participating in the work?

## II. Summary and general comments

3. The following 27 countries to the request for comments on the report: Armenia, Australia, Belarus, Canada, Czech Republic, Georgia, Germany, Hungary, Israel, Italy, Latvia, Lithuania, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Sweden, Switzerland, Turkey, Ukraine, United Kingdom and United States.
4. All responding countries supported the endorsement of the report by the CES, and acknowledged its value for further work. Several countries commended the report for the concise and comprehensive overview it provides on the concept of human capital and the efforts in measuring it both nationally and internationally. Some of the general comments included:
  - (a) Australia: The report provides a convincing case for national statistical offices to step up their efforts in turning research outputs produced so far into official statistics in the foreseeable future. The report recommends that the System of National Accounts (SNA) be used as the central framework for measuring human capital. This implies going beyond education indicators towards measuring knowledge and skills produced through education and training activities as 'produced assets'. This is a significant step forward;
  - (b) Canada: The main issues and measurement challenges are consistent with those identified by Statistics Canada. Our research and analysis on human capital measurement serves the purposes mentioned in the report: to better understand economic growth and sustainable development, and to improve measuring the output of education;
  - (c) Czech Republic: The report has required some ambitious work, especially considering the complexity of the concept and the current limits to objective measurement;
  - (d) Germany: We appreciate the huge amount of work incorporated in the stock-taking report;
  - (e) Hungary: The comprehensive reviews provided by the report may contribute to the further development and harmonisation of the theoretical frameworks and methodologies for measuring human capital;
  - (f) Mexico: The report is well written and describes clearly the related concepts and definitions;

(g) The Netherlands: The overview of research initiatives facilitates development of a harmonized approach to human capital measurement, including definitions, methodology and links to national accounts;

(h) Portugal: We welcome the results reached and recognize the importance of measuring human capital and would like to congratulate the expert group on the quality of the document.

### III. Recommendations for future work

5. The stock-taking report on measuring human capital suggests areas for future work in paragraph 98, as follows:

(a) Studies be carried out to investigate in more detail the discrepancies between the estimates of the stock of human capital built on the cost-based and the income-based approach;

(b) Initiatives be undertaken to influence the type of data that are collected internationally, so as to improve the quality of these monetary estimates of the stock of human capital;

(c) A group be established to construct experimental satellite accounts for human capital, based on common methodologies and on agreement on the ambition of such accounts;

(d) Work be pursued to estimate non-economic returns to human capital, with the objective of incorporating these estimates in more sophisticated types of satellite accounts in the future.

6. Countries expressed support for the recommendations for future work and noted that the research tasks are pragmatic and worth pursuing. However, several countries (including Canada, Netherlands, Poland and United Kingdom) considered that estimating non-economic returns to human capital (task (d)) should be seen as a longer term goal. In general, the consultation indicated wide support for future work with the following remarks about the research agenda:

(a) Armenia: Agrees with the suggested future work agenda and emphasises that to support measurement of human capital in practice, a detailed description of indicators and expert advice will be needed;

(b) Australia: Supports the areas for future work with some qualification. More benefit would be gained from further investigation and maturity of the income-based approach before substantial work is undertaken on the cost-based approach. The work for laying the foundation for developing more consistent quality-adjusted measures of labour input should be pursued using the Jorgenson-Fraumeni (JF) approach;

(c) Canada: The data collection issues and estimating the non-economic return to human capital should be considered long-term objectives;

(d) Germany: Initiatives to influence the type of data collected are useful (task (b)), although it is likely that Germany can only transmit data already calculated in the statistical system. A group to investigate experimental satellite accounts (task (c)) should be established, even though it may not be feasible to construct satellite accounts for Germany due to limited resources. Non-economic returns to human capital are important (task (d)), but their measurability and thus inclusion in satellite accounts is doubtful;

(e) Mexico: Carrying out studies on other measurement approaches and analysis methodologies (e.g. clustering) might provide complementary information for developing international comparisons;

(f) The Netherlands: The focus should be on research tasks (a) to (c). Economic-social scientists and policy makers have for a long time requested satellite accounts for human capital. An initial satellite account on human capital should be restricted to 'education and training' and the economic returns to these types of investments in human capital. Only then will an extension to non-economic returns be possible (task (d));

(g) Poland: Tasks (c) and (d) may be difficult to accomplish and they should not be attempted before an agreement on the method of human capital measurement;

(h) Portugal: A broad international consensus should be reached in task (b), involving also the Organisation for Economic Co-operation and Development (OECD) and Eurostat, in order to balance with available human and financial resources. Otherwise, the initiative to measure human capital could be refused by governments;

(i) Switzerland: The studies to compare the cost-based and income-based approach (task (a)) should also explore ways to improve these two approaches in order to overcome major weaknesses;

(j) The United Kingdom: Reconciling the two measurement approaches (task (a)) and influencing the data collected (task (b)) are a priority for developing the measurement of human capital. Incorporating human capital measures into SNA through satellite accounts should be explored (as part of task (c)). Estimating non-economic returns is a longer term development requirement (task (d));

(k) Ukraine: Fully supports the research tasks and finds it particularly important to establish a group to construct experimental satellite accounts for human capital.

#### **IV. Priorities for future work**

7. Based on the frequency with which each task was mentioned as a priority by the countries, the following order of priority can be identified for the suggested research tasks:

(a) Establish a group to construct experimental satellite accounts for human capital and education (task (c));

(b) Investigate discrepancies between the income and cost-based estimates of human capital (task (a)). This task should be accompanied by work on the international comparability of the data;

(c) Determine and influence the type of data that are collected (task (b)).

8. The countries also mentioned additional topics as priorities that should be considered in future work:

(a) Reach an international agreement on the methodology for the measurement of human capital as part of official statistics. Develop harmonized, monetary measures of human capital;

(b) Explore how human capital measures can be incorporated into the SNA through satellite accounts or through labour input measures used in the productivity measurement framework which has been integrated with the SNA;

(c) Now that a number of countries have stock measures of human capital, a natural extension is to develop flow measures to understand underlying forces causing changes in the stock of human capital over time;

- (d) Select and define indicators or indicator sets for assessing human capital;
- (e) Consider alternatives to the summary measures of human capital based on cluster analysis;
- (f) Measure informal education in the longer term, namely the investments made in human capital accumulation through training offered by firms and public financing. This information could be more valuable for policy-makers than estimates of the non-economic return of human capital;
- (g) Revise the measurement of expenditure in formal education.

9. In addition to commenting on the priorities for future work internationally, several countries shared some information about their national plans for further development of human capital measurement.

(a) The next step in the Australian Bureau of Statistics is to expand the current human capital measures based on the five-year-interval census data into annual series. This requires integration of various data, including census, population projection, labour force, labour earnings and prices, education and training as well as immigration;

(b) The Economic Analysis Division of Statistics Canada will be undertaking research to examine potential implications of treating human capital expenditures as investment on key national accounts variables such as gross domestic product (GDP), investment and total wealth;

(c) Israel informs that their census data which was used as the major data source for the human capital estimation is now collected using a different method. As a result they cannot calculate the human capital as before. They are exploring the option to use a different data source in order to continue to provide these data;

(d) The Netherlands is currently considering how to calculate their experimental human capital statistics in an alternative way that would require less staff capacity. Currently, their experimental human capital statistics are based on the income method. For instance, they consider how to apply these statistics in growth and productivity analyses. The report also mentions this type of analyses (in section II.A, p.4);

(e) The estimation of satellite accounts of education is expected to be published by official statistics in Poland in 2015;

(f) The United Kingdom has plans to annually update their measure of human capital which is estimated using the lifetime labour income approach.

10. Some countries explained that regardless of the high importance of the topic for productivity measurement, they cannot invest in the area at the moment due to the lack of resources and articulated demand for human capital measures in their country.

## **V. Substantive comments on issues discussed in the report**

11. Some countries also provided comments on substantive issues discussed in the stock-taking report. These comments are reflected below.

12. In principle, expenses on education and other types of human capital should be measured as investment in the national accounts. However, the two major implementation issues include: first, within the investments that occur as market-based transactions, there are discrepancies in estimates based on the income versus cost-based approaches that need to be reconciled and better understood. Second, there are well-known problems in trying to measure the value of investments that occur outside the market.

13. Only a clear definition can help to meaningfully separate the drivers and the effects of human capital. It can also help to decide what kinds of measurement methods are most appropriate. The concept of human capital should be tied to its very core, namely to the knowledge, skills and capacities that are embodied in individuals.

14. In the effort to find a summary measure of human capital, emphasis is placed on three monetary approaches to measuring human capital: residual, income-based and cost-based. It seems that the idea of “comprehensive comparisons of the total stock of human capital across countries and over time”, and of a single suitable composite index built to this end, is behind such emphasis.

15. The current practice in measuring human capital seems to be biased towards satellite accounts at the cost of indicator-based approaches. This is reflected in the report, including the challenges with data availability, prediction of future cohorts’ earnings, selection of key parameters, etc.

16. Compiling satellite accounts (task (c)) that include measures based on both the cost and income methods is only possible after investigating the large discrepancies between these measures (as suggested in task (a)). The satellite account could be restricted to ‘education and training’ taking into account ‘working experience’. Furthermore, one should consider how to deal with types of education, namely vocational versus general education.

17. As mentioned in the report, the concept of human capital satellite accounts goes beyond the scope of SNA and can be difficult to measure, because the definition of human capital (in paragraph 26 of the report) incorporates almost all aspects of societal development. Therefore, the future work could focus on satellite accounts limited to the formal education and training system.

18. Certainly, the construction of human capital satellite accounts, as suggested in the report, is a sensible and feasible option in the future, but its timing and components are subject to further investigation. It would be desirable to do a brief exposition of human capital theory and its implications for measurement.

19. Istat will publish an e-book entitled “Il valore dello stock di capitale umano in Italia”, whose estimates have already been presented at the Conference “Misurare il capitale umano. Esperienze e prospettive” on 18 January 2013, in Rome. Consequently, they would appreciate it if the Italian attempt to measure the human capital stock according to the JF approach be reflected in Table 1 (p.18) of the report:

Table 1

**Suggested addition to the stock-taking report**

<i>National studies</i>	<i>Country</i>	<i>Motivation</i>	<i>Time range</i>	<i>Main sources</i>	<i>Population covered</i>	<i>Market/non Market</i>
Istat	Italy	Measuring HC stock	2008	Various surveys	15-64	Both

## VI. Proposal

20. The comments and views expressed during the electronic consultation will provide a basis for planning future work on measuring human capital, and will be taken into account in the work plans.

21. The following countries expressed their interest in taking part in future work on human capital measurement: Armenia, Australia, Belarus, Canada, Mexico, Italy, Netherlands, New Zealand, Norway, Poland, Romania, Slovenia, Sweden, United Kingdom and Ukraine.

22. In addition, Hungary and Portugal would like to be informed of the progress of work although they cannot commit to participating in the work at this stage.

23. As requested by the CES Bureau, New Zealand drafted terms of reference for further work on measuring human capital, with inputs from Canada, Norway and the United States. The objective of the work is to further pursue the conceptual development of human capital measurement, with priority on developing experimental human capital satellite accounts. Canada, New Zealand, Norway, United States, OECD, UNECE and the independent expert Barbara Fraumeni have expressed interest in participating in the work of the Task Force. Membership is open to additional countries and organizations to join the Task Force. The proposed Terms of reference are available as document ECE/CES/2013/5/Add.3.

24. In view of the wide support expressed by countries and organizations, **the Conference is invited to:**

- (a) Endorse the stock-taking report on measuring human capital;**
  - (b) Support the proposal for the creation of a Task Force on measuring human capital.**
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