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The role of satellite accounting within the national accounts

Satellite Accounts on Education and Training – Progress Report

Note by the UNECE Task Force on Satellite Accounts on Education and Training[1]

Summary

The *Guide on Measuring Human Capital* (2016) provides a first attempt to estimate and record human capital in a way that is aligned with the principles of national accounts and comparable among countries. The Guide recommended that as a next step, countries should develop a satellite account on education and training. In addition to providing estimate of the total expenditure on education and training and thus improved cost-based measures of human capital, the objective of such a satellite account is also to distinguish the various expenditures, including the identification of the financing arrangements for these expenditures. It extends the production boundary of the SNA only slightly by recognizing the output from the internal expenditures on education and training by employers. This paper provides information on the progress of work of the UNECE Task Force, which was established to coordinate the pilot testing of satellite accounts on education and training.

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I. Introduction

1. In his annual "spring statement" on the UK economy to the parliament, the UK Chancellor of the Exchequer (finance minister) stated "*And because we currently understand more about the economic pay-back from investing in our infrastructure than we do about investment in our people, I have asked the ONS (Office for National Statistics) to work with us on developing a more sophisticated measure of human capital, so that future investment can be better targeted*."

2. The idea of viewing human knowledge and abilities as an asset and to estimate its value is not new, but has gained bigger prominence in recent years. To respond to this need a UNECE Task Force developed and published *Guide on Measuring Human Capital* (UN, 2016). According to the Guide "*Understanding and quantifying human capital is becoming increasingly necessary for policymakers to better understand what drives economic growth and the functioning of labour markets, to assess the long-term sustainability of a country's development path, and to measure the output and productivity performance of the educational sector*."

3. The Guide discusses the concept of human capital, methodological and implementation issues, and challenges related to its valuation. It provides recommendations aimed at producing estimates that are as consistent as possible with national accounting concepts and comparable across economies. The Guide also proposes the setup of two satellite accounts: Satellite Account on Education and Training and an extended Human Capital Satellite Account. The latter goes beyond the current System of National Accounts (SNA) and treats expenditures on education and training (including compensation for own time spent) as costs incurred for the creation/production of human capital stock rather than current expenditure. From a theoretical point of view the preferred method for compiling such human capital measures is using the lifetime income approach.

4. Because of both data constraints and methodological issues, the Guide suggests, to first start developing a satellite account for education and training (SAE). This is a narrow approach to human capital accounting, namely to supplement the national accounts with further detail by using data that are already largely available in the core accounts of SNA. This account extends the production boundary of the SNA only slightly by recognizing own account production of training by enterprises. The purpose is to provide policy makers with more detailed data on the expenditures on education and training, and the financing of these expenditures. It also aims to present data on the production of education and training by different institutional sectors and the use of education and training as intermediate consumption by corporations and as final consumptions by households and governments. The SAE is thus measuring the asset of human capital using the cost-based approach, which is an alternative method to measuring human capital. The lifetime income approach and the cost-based approach start with the similar conceptual perspective, but generally result in estimates with quite different values.

5. In order to support the compilation of internationally comparable measures of human capital, in 2017 the CES Bureau established a Task Force to coordinate the pilot testing of satellite accounts for education and training. Based on the plot testing, a more detailed compilation guide for such satellite accounts should be prepared. The following section of this report presents the objectives and work programme of the Task Force. Section III will summarize the progress achieved so far and will highlight main results from the pilot testing in different countries. The methodological challenges identified by the Task Force will be discussed in section IV.

II. Objectives and work programme of the Task Force

6. According to the terms of reference (ECE/CES/BUR/2017/FEB/6) the Task Force is established under the Conference of European Statisticians (CES) for a period of two years (2017-2019). The Task Force should consult with the Inter-Secretariat Working Group on National Accounts (ISWGNA) and the Advisory Expert Group (AEG) on National Accounts and ensure coordination with corresponding work undertaken by UNESCO and Eurostat. In June 2019 the Task Force will present its final report for adoption to the CES Plenary.

7. The objective of the Task Force will be to develop a framework and coordinate the pilot testing of satellite accounts on education and training in countries with different economic circumstances and data availability. Based on the pilot testing, the Task Force will develop a compilation guide that will help countries construct internationally comparable satellite accounts on education and training which will lead to improved cost-based measurement of human capital. The results of the pilot testing will be discussed at the joint UNECE/Eurostat/OECD Group of Experts on National Accounts and other relevant groups.

8. More concretely the Task Force will undertake the following activities:

a. Develop a framework for constructing satellite accounts on education and training, including the breakdowns of the various expenditures on training and education;

b. Recommend a classification to be used for costs and products, and link to the classifications used in the national accounts;

c. Identify the key variables, and the main and supplementary tables in the satellite accounts;

d. Carry out pilot testing of the satellite accounts to test the methodology, data availability and quality;

e. Identify best practices, recommend improvements to methods and data sources for developing cost-based measures of human capital; and

f. Develop a compilation guide for satellite accounts for education and training.

9. Currently the Task Force includes the following members: Belarus, Canada, France, Germany, Israel, Italy, Norway (Chair), Russian Federation, United Kingdom, Eurostat, UNECE, UNESCO, UNSD and Wittgenstein Centre for Demography and Global Human Capital.

10. The Task Force developed a more detailed work programme and started its substantive work with a face to face meeting in May 2017. During the meeting the TF agreed that the pilot testing will follow the framework outlined in chapter 5 of the Guide on Measuring Human Capital. Starting point for developing the SAE should be the national accounts data and supply and use tables will be applied as a framework for ensuring consistency. The SAE data should be extended compared to the SNA core system to provide estimates of in-house training (own account production) by enterprises.

11. The Task Force highlighted the importance to keep the link and build on existing international work, namely UNESCO Methodology of National Education Accounts (NEA), UNESCO/OECD/Eurostat Manual on concepts, definitions and classifications (UOE Manual) and the respective data collections. The NEA framework and the UOE data collection provide a set of coherent and internationally comparable data that should be mapped and used for developing the SAE for the part on education. It is important to avoid duplication, improve consistency with national accounts and identify sources of differences with a view to ensuring coherence at the level of aggregates.

12. At the same time the link to national accounts and human capital measures should be maintained. The pilot testing of SAE should lead to further elaboration of the cost-based approach for valuing the stock of human capital.

13. After the first meeting the Task Force hold three videoconferences to coordinate the pilot testing of SAE.

III. Country pilots – main results

14. Currently the country pilots are well advanced in Canada, Norway, Israel and UK. In addition, France has compiled education account for 40 years, using the NEA framework. Based on inputs from France, Italy is mapping the NEA framework to SAE. On-going work in Belarus, Germany and Russia will provide further insights into the availability, detail and quality of different national data sources. The work is also benefitting from the reconciliation exercises of UOE data and national accounts that Eurostat is carrying out in six EU member countries.

15. Canada has launched the pilot testing of SAE for 2014. The pilot follows the recommended core and supplementary tables outlined in chapter 5 of the Guide on Measuring Human Capital. The main data source in Canada is from supply and use tables and institutional sector accounts. They are further broken down by education products according to the International Standard Classification of Education (ISCED), industries and institutions using data from education and trade in services statistics, and productivity accounts. On this basis a number of useful indicators on the production and use of education and training services, use of inputs, productivity measures, international trade in education and training services and incomes and expenditures of education institutions could be derived (see examples in figure 1 and tables 1-3 below). The main challenges include the update of the estimates for in-house training and the separation of education related products paid by households (e.g. meals, accommodation and books). Further work on developing supplementary tables, time series of the main indicators and improving the consistency with national accounts data is also foreseen.

Figure 1. Education Services in Canada, 2014, millions Canadian Dollars (CAD)

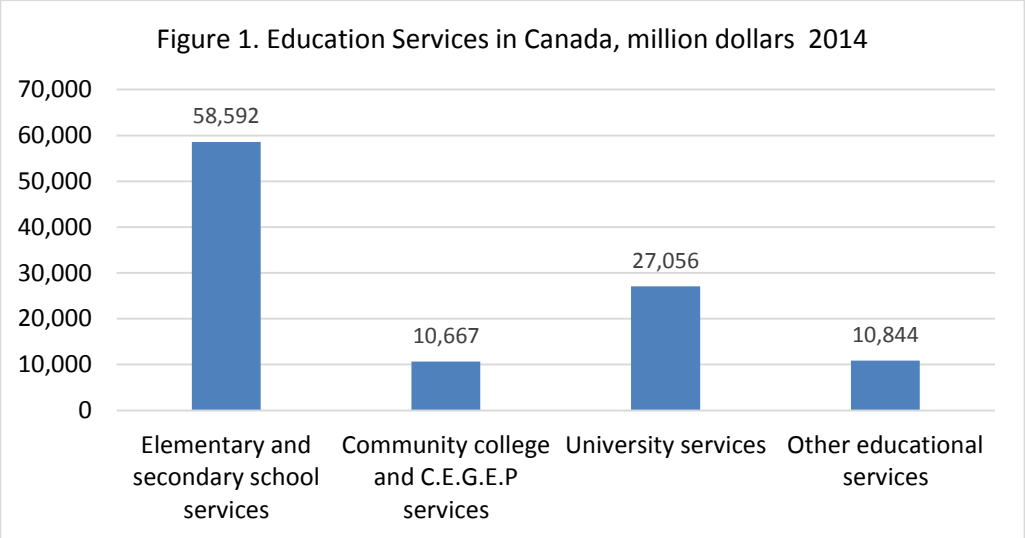


Table 1. Production of education and training by institutional sectors, millions CAD

ISCED	Corporations	NPISH	Government	Imports	All
Elementary and secondary school services	0	1,780	56,806	3	58,589
Community college and C.E.G.E.P services	0	0	10,547	107	10,653
University services	0	0	26,168	879	27,047
Other educational services	6,587	2,913	732	368	10,600
All	6,587	4,693	94,253	1,356	106,889

Table 2. Use of education and training by institutional sectors, 2014, millions CAD

	Intermediate Consumption by Corporations	Household Final Consumption	NPISH Final Consumption	Government Final Consumption	Exports	All
Elementary and secondary school services	647	2,635	0	55,309	1	58,592
Community college and C.E.G.E.P services	554	2,361	0	7,328	424	10,667
University services	310	8,213	0	17,474	1,059	27,056
Other educational services	3,493	3,404	2,609	502	835	10,844
All	5,004	16,613	2,609	80,612	2,320	107,158

Table 3. International trade in education and training services, 2014, millions CAD

	Imports	Exports
Elementary and secondary school services	3	1
Community college and C.E.G.E.P services	107	424
University services	879	1,059
Other educational services	368	835
Total	1,356	2,320

16. French education accounts are compiled for 40 years now and present all financial flows related to education in a coherent framework. They were built in order to provide data on questions for which national accounts have no answer. In line with the NEA methodology the French education accounts focus only on formal education. They cover three types of activities carried out within the production units (Teaching and research, Support services, Administration of the system) and two other activities outside the production units (Purchases of education related goods and services and Transfers between funding units). The accounts provide data in 5 dimensions (education levels, financing units, production units, activities and economic transactions) – tables 4 and 5 below and Annex III provide further illustration on the analytical tables that could be derived using the education account. The French satellite accounts for education use to a large extent the same data sources as national accounts, however, there are a number of small differences between the two data sets and the link between them needs to be further analysed.

Table 4. Education expenditures in France by type of education institution and financing institution, 2016 preliminary data, billions of Euro

	Production units: educational institutions				
Funding units	Public educational institutions	Private, state subsidized institutions	Other private	Organisation and administrative services	**Total**
Central government	69,635.7	8,105.9	217.3	3,717.0	**81,675.9**
Regional and local authorities	27,744.9	3,731.6	1,282.9	386.6	**33,146.1**
Other public administration	1,936.3	393.1	350.9	11.3	**2,691.6**
Firms and other legal entities	2,657.1	4,133.3	5,750.9	170.5	**12,711.8**
Households	4,533.2	4,251.4	3,317.5	681.7	**12,783.8**
Rest of the world	250.1	0.0	0.0	13.1	**263.2**
Total	**106,757.3**	**20,615.4**	**10,919.5**	**4,980.1**	**143,272.3**

Table 5. Expenditure per student in France by education level and initial source of funding, billion Euros, 2016

Level		Initial source of funding: Central government	Local Authorities	Other public adminis-tration	House-holds	Firms and other private	Rest of the world	**Total**
First level	Preelementary	3,101	2,913	30	453	1	0	**6,499**
	Elementary	3,744	1,868	221	342	2	0	**6,176**
Total first level		3,505	2,256	150	383	2	0	**6,296**
Secondary	Lower	5,888	1,772	224	668	29	3	**8,584**
	Special needs	10,790	1,885	390	230	125	2	**13,423**
	General upper	7,410	2,347	227	800	80	6	**10,871**
	Vocational upper	8,857	2,305	232	750	229	10	**12,382**
	Apprenticeship	450	3,694	201	618	2,809	5	**7,777**
Total secondary		6,514	2,080	228	704	193	5	**9,723**
Tertiary	Post secondary	2,923	3,872	100	598	595	22	**8,111**
	Short cycle tertiary	7,632	2,838	159	117	516	36	**11,297**
	Long cycle tertiary	8,486	462	485	1,318	970	117	**11,839**
	Apprenticeship tertiary	331	4,946	274	197	3,840	5	**9,594**
Total Tertiary		7,720	1,273	398	998	1,030	93	**11,511**
Total		**5,378**	**2,010**	**221**	**608**	**249**	**18**	**8,483**

17. Germany has conducted an internal feasibility study to analyse whether and how the concepts presented in the UNECE *Guide on Measuring Human Capital* – especially a SAE and a human capital satellite account following the cost-based approach – could be realized. This study gives an overview of the required and available data. Germany decided to follow in the next two years the work of the Task Force and a project financed by the Economic Affairs Ministry of Germany working on a satellite account for education and training. A particular concern of Germany is to assess the value added of a SAE compared to existing UOE data and to establish a precise reconciliation of UOE data and a possible SAE. The different definitions and concepts should be described clearly if a SAE should be compiled in the future.

18. Israel has well developed satellite accounts for education in line with the SNA, available since 1962. They include data on education expenditure by levels of education (according to ISCED2011) and by operating sector (central government, local authorities, governmental non-profit institutions (NPIs), non-profit institutions serving households (NPISH) and households) or by financing sector (general government, households and non-profit institutions serving households) – see tables 6 and 7 respectively. Therefore, the main efforts during the pilot focused on developing and integrating estimates for training by the expenditure approach. For the moment, only the non-profit institutions (NPI) sector is covered and there are plans to further elaborate the methods and data sources for the other sectors. The main data source are the annual financial reports of a sample of NPIs identifying training related expenditures (including in-house training, outsourcing of training, financing individual's external training, professional literature), which are then used as weights. The preliminary data for 2014 shows that the total expenditure on training

(use of training) in NPIs amounted to 52.2 Million $ (PPP), and comprised 0.15% of total current expenditures in NPIs – see table 8. The main challenges are related to possible instances of double counting or training expenditures, treatment of internships and military education and training.

Table 6. Expenditure on education in Israel by operating sector and level of education, current prices, million NIS

2014						
	Central government	Local authorities	Government NPIs	NPISH	Other	Grand total
GRAND TOTAL	**26,684**	**19,883**	**24,094**	**7,306**	**8,712**	**86,678**
Current expenditure - total	26,642	16,044	22,713	6,893	8,680	**80,972**
Level 1 (ISCED 0-1)	18,047	10,415	2,029	2,421	3,217	**36,130**
Level 2 (ISCED 2-3)	6,681	4,763	6,170	1,978	1,436	**21,029**
Level 3 (ISCED 4-8)	193	48	13,609	1,702	65	**15,617**
Level 4 (Non ISCED)	1,720	818	906	791	3,961	**8,196**
Fixed capital formation - total	42	3,838	1,381	413	33	**5,706**
Level 1 (ISCED 0-1)	37	2,757	112	134	33	**3,073**
Level 2 (ISCED 2-3)	4	1,011	285	144	0	**1,444**
Level 3 (ISCED 4-8)	1	70	984	135	0	**1,189**

Table 7. Financing of education expenditure in Israel by financing sector and level of education, current prices, million NIS

(EXCLUDING CONSUMPTION OF FIXED CAPITAL)

2014			
	General government	Households and NPISH	Grand total
GRAND TOTAL	**64,325**	**19,559**	**83,884**
Current expenditure - total	59,254	18,924	**78,178**
Level 1 (ISCED 0-1)	30,361	4,143	**34,505**
Level 2 (ISCED 2-3)	17,161	3,048	**20,209**
Level 3 (ISCED 4-8)	9,088	6,275	**15,363**
Level 4 (Non ISCED)	2,643	5,458	**8,101**
Capital formation and capital transfers	5,071	635	**5,706**

Table 8. Total expenditure on training (use of training) in NPIs in Israel, 2014 millions of USD in PPPs

	Expenditure on training, Million $ PPP	**Percentage of current expenditures in NPIs**
Total NPIs	**52.2**	**0.15%**
Governmental NPIs	26.3	0.12%
NPISH	25.9	0.26%

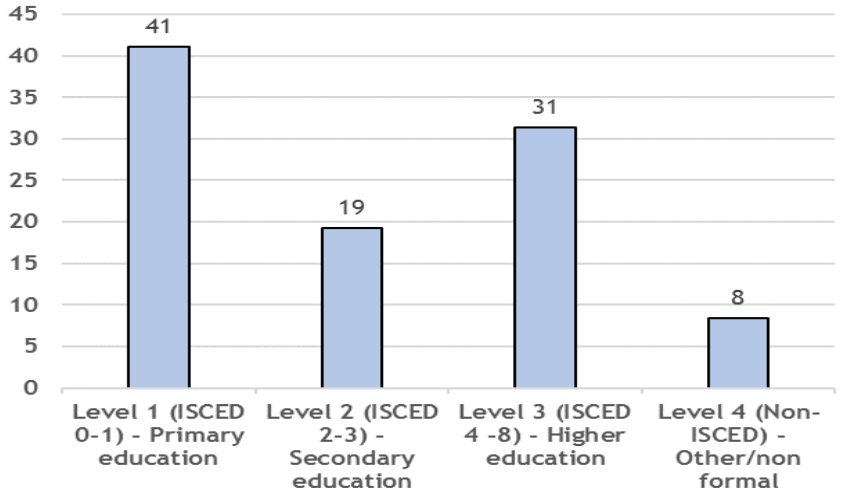
19. Norway has developed a supply and use table based on table 5.3 in the *Guide on Measuring Human Capital*. It takes national accounts as a starting point and provides further breakdown of expenditures by education product and producing unit. In order to achieve this, focus is also put on linking the data from the Eurostat questionnaire, based on UOE guidelines and government finance statistics, to national accounts figures. Supplementary tables present education attainment by age group and gender. The biggest challenges encountered are the lack of good data sources on households out of pocket money on education and deciding which ancillary services to include in the expenditures, as well as estimates for in-house training. Experimental results are presented in table 9 and figure 2 below.

Table 9. Supply and use table for Norway, NOK million, 2015

	Supply				
	Central government	Municipal government	NPISH	Other industries	Total
Level 1 (ISCED 0-1) - Primary education	547	71,493	2,899	44	**74,982**
Level 2 (ISCED 2-3) - Secondary education	846	27,934	3,218	2,638	**35,126**
Level 3 (ISCED 4 -8) - Higher education	51,890	543	1,083	1,534	**57,277**
Level 4 (Non-ISCED) - Other/non formal	-	7,356	575	-	**15,245**
Total	53,283	107,326	7,775	4,216	**182,630**

	Use					
	Intermedtiate consumption by corporations	Central government final consumption	Municipal government final consumption	NPISH final consumption	Private housholds final consumption	Total
Level 1 (ISCED 0-1) - Primary education	-	547	71,361	2,697	378	**74,982**
Level 2 (ISCED 2-3) - Secondary education	-	901	30,208	2,586	1,431	**35,126**
Level 3 (ISCED 4 -8) - Higher education	2,270	49,620	543	1,083	3,761	**57,277**
Level 4 (Non-ISCED) - Other/non formal	528	534	7,513	523	6,147	**15,245**
Total	2,798	51,602	109,625	6,889	11,716	**182,630**

Figure 2. Expenditure by education level in Norway, share in total expenditure (%)



20. UK has developed the experimental satellite account on education and training using mainly detailed monetary data already available for the compilation of national accounts and education statistics reported through the UOE questionnaire. The aim is to provide a more detailed description and assessment of the activities that contribute to the creation of human capital. Building relationship with the main stakeholders was important part of the work. In the UK these are various departments within the ONS (supply and use team, department for education, department on household surveys), the Educations Department and Agencies outside the statistical office. The experimental satellite account and the supplementary tables followed the recommendations of the *Guide on Measuring Human Capital*. One of the challenges faced is the risk to double count certain expenditures spend on rest of the world. More detailed description of the methodology and the obtained results is presented in the document *A Satellite Account for Education and Training* (ECE/CES/GE.20/2018/8).

IV. Methodological and measurements challenges

21. This section presents selected methodological and measurements challenges that the task force has identified so far. The meeting participants are invited to share their views on the presented issues as well as to raise any additional points that they find relevant to the work. Based on the feedback, the task force will further discuss and elaborate the compilation guidance.

22. It is important to investigate the **links between UOE data and SAE,** thus providing a set of coherent and internationally comparable data. As mentioned earlier efforts should be made to avoid duplication, improve consistency with national accounts and identify sources of differences with a view to ensuring coherence at the level of aggregates. The following issues were noted by the task force:

a. **Coverage**: In the UOE 2015 Manual ver. 0 on concepts, definitions and classification, the expenditure should be related to **formal** programmes provided by public and private school, colleges, polytechnics or universities within the

country. It should include all students, both citizens and non-citizens. Expenditures on education abroad should not be included. This is in contrast to the recommendation in the Human Capital Guide where the SAE should identify expenditures on education and training (**formal and non-formal**) both "produced" domestically and imported (domestic students abroad). Expenditure spent on foreign students should be recognized as exports.

b. In the SAE informal education expenditure should be included, however, the **coverage of training courses** should be defined more carefully. Should it include all kind of adult training or should part of it be excluded, i.e. hobby courses for adults. And what about driving schools? Discussions in the Technical Cooperation Group (TGC) for monitoring SDG 4 on education is moving in a direction of *including* hobbies and other courses pursued for personal reasons under non-formal education in the instrument for collecting data on Target 4.3. The proposed drill-down question is whether the non-formal education/training in question was 'technical-vocational'. Since the countries will be encouraged to adapt their Adult Education Surveys and/or Labour Force Surveys to align with the SDG monitoring framework, this is worth bearing in mind by the Task Force in formulating its recommendations. So far, the Task Force considered the following activities for inclusion in the scope of non-formal education:

CPC rev 2.1 code 92919 Other education and training services, n.e.c. including:

- training for car, bus, lorry and motorcycle driving licences
- training for flying certificates and ship licences
- computer training services
- management training services
- services provided by music camps, science camps, computer camps and other instructional camps, except for sports
- education services not definable by level

CPC rev 2.1 93411 Vocational rehabilitation services for persons with disabilities and

CPC rev 2.1 93412 Vocational rehabilitation services for unemployed persons

The Task Force is also reviewing category 9292 Educational support services, however further discussion on the inclusion of respective sub items is needed. The views of the meeting participants on these are welcome. Category CPC rev 2.1 9292 includes:

- non-instructional services that support educational processes or systems, such as:
- educational consulting
- educational guidance counselling services
- educational testing evaluation services
- educational testing services
- organization of student exchange programmes)

c. The UOE manual lists **subsidies to households, scholarships and other grants, and student loans** as part of education expenditure. The Task Force's view is that such expenditures on scholarships and other grants are part of the financing scheme and should not be included when summing up the total expenditures.

Regarding student loans, this is a special case and loans should not be treated as government expenditures on education unless the loans are written off. The treatment of these items contributes to the difference regarding expenditures on education in the UOE and in the SAE.

23. **Internships** raise both measurements and methodological challenges. In principle internships are part of continuous vocational training. During the discussions the Task Force came to the conclusion that only internships that are part of an education programme and are not paid should be included in training. Paid internships after the completing the education and which are related to a requirement to get authorization or license could be regarded as paid work. However, many institutional differences between countries may play a role e.g. in some countries there would be requirement for minimum payment for all internships. Furthermore, a significant measurement challenge is the lack of separate data on non-paid (or low paid) and paid internships. Thus, the Task Force suggests not to include expenditure on internship as part of education cost. The meeting participants are invited to share their views on the treatments of internships, and if they disagree with the Task Force to suggest ideas and methods for their measurement.

24. The Task Force on Human Capital recommended that **in-house training** in enterprises (own account) should be covered in the SAE. The challenge is to find good indicators and data sources to make such estimates. Currently only Israel has advanced in measuring these expenditures, see para 18 above. The meeting participants are invited to share their views and to suggest ideas for their measurement.

25. It is necessary to identify which expenditure should be recorded under **ancillary expenditures**. In the UOE 2015 Manual expenditure on ancillary services are defined to cover student welfare services (meals, school health services, transportation etc), services for the general public (museums, radio and television broadcasting, sports, and recreational or cultural programmes), school uniforms, books requested for instructions etc. Should SAE adapt the broad definition of ancillary expenditure from UOE, or should one apply a narrower approach limiting ancillary services only to these directly related to education services as proposed in the Guide on Measuring Human Capital? The recommendation of the Guide is to include for example textbooks and equipment directly used in education but exclude health services, school uniforms, services for the general public etc. A borderline case is expenditure on public school transportation, which was mentioned in the Guide as an ancillary expenditure. But the rationale for including public school transportation and not privately paid transport could be questioned.

26. Expenditure on the agreed scope of ancillary services should be included in the SAE, allocated to a relevant ISCED group. Data sources for estimating the **household's out of pocket payments** on textbooks and other relevant ancillary expenditures might be difficult to obtain and allocate. Thus, more investigation into COICOP groups need to be done in the future.

27. **Capital expenditure** in the education sectors represent expenditures on buildings, engineering, machinery and equipment, and software. Gross fixed capital formation in the SAE includes those capital expenditures plus research and development and own account software that are capitalized in the SNA. If the annual investment expenditure in education is included, then consumption of fixed capital (which in the national account is part of production cost for non-market producers and thus included in government/non-profit organization's final consumption expenditure) needs to be excluded to avoid double counting.

28. The treatment of **military expenditure and training** was also discussed by the Task Force. Services provided by the Ministry of Defense are included in the framework of the SNA and are one of the services provided by the government sector for collective public consumption. Professional personnel have to be trained for the production of defense

services. In most countries the professional training of military specialists is carried out mainly by the Ministry of Defense, through colleges and courses. It should be noted that training is conducted for both military (for pilots, tank personnel, etc.) and civilian professions (for drivers, programmers, etc.). After the end of their military service, former military personnel work in other sectors of the economy and use the professional skills acquired during their service with the Ministry of Defense. Accordingly, the Task Force has concluded that professional training within the Ministry of Defense system is an important component in the formation of human capital.

Annex I

Compilation Guide for Satellite Accounts on Education and Training

Provisional outline
(as of 10 April 2018)

Chapter 1: Why do we need this compilation guide?

Chapter 2: Purpose and principles of SAE – links to the national accounts system, to UOE and to NAE

Chapter 3: Concepts and definitions

Chapter 4: Classifications (products/purpose, providers financing)

Chapter 5: Data sources

Chapter 6: Methodology

Chapter 7: Test calculation (case studies)

Annex II

Satellite Accounts for Education and Training for Canada, 2014

Table 1. Supply table at basic price, with a transformation to purchaser price in millions of Canadian dollars in 2014 (continued on next page)

	Output of industries					
Products	Agriculture	Mining, Utilities and Construction	Manufacturing	Trade and transport	Other market services except education	Non-market services except education
Products of Agriculture	76,752	0	1,721	85	0	23
Products of Mining, Utilities and Construction	0	623,788	2,132	0	0	10,639
Products of Manufacturing	177	952	635,198	4,502	672	430
Trade and transport	753	49	9,408	429,027	9,612	1,644
Other market services except education	251	13,881	20,424	38,373	1,039,329	59,607
Non-market services except education	0	0	0	0	0	347,902
Elementary and secondary school services	0	0	0	0	0	0
Community college and C.E.G.E.P services	0	0	0	0	0	2
University services	0	0	0	0	0	0
Other educational services	0	0	0	0	603	25
School bus services	0	0	0	1,427	0	305
Rooming and boarding services	14	60	0	0	1,216	284
Prepared meals	58	0	61	1,187	56,542	1,179
Subsidies on products	0	0	0	0	0	0
Total	78,004	638,730	668,942	474,600	1,107,973	422,039

Table 1. Supply table at basic price with transformation to purchaser price in millions of dollars for 2014 (continued from previous page)

	Output of Industries										
Products	Market education services	NPISH education services	Elementary and secondary schools	Community colleges and C.E.G.E.P.s	Universities	Other educational services	Imports	Total supply at basic prices	Trade and transport margins	Taxes on products	Total supply at purchasers' prices
Products of Agriculture	0	0	0	0	0	0	13,389	91,969	17,759	439	110,166
Products of Mining, Utilities and Construction	0	0	0	0	25	0	42,115	678,699	17,160	21,088	716,946
Products of Manufacturing	0	0	0	0	23	0	486,293	1,128,247	295,480	74,788	1,498,515
Trade and transport	0	0	0	84	229	0	16,126	466,933	-334,937	5,031	137,026
Other market services except education	28	93	394	475	12,581	2	81,748	1,267,185	4,539	32,909	1,304,633
Non-market services except education	0	0	0	0	0	0	0	347,902	0	0	347,902
Elementary and secondary school services	0	1,780	56,806	0	0	0	3	58,589	0	3	58,592
Community college and C.E.G.E.P services	0	0	0	10,545	0	0	107	10,653	0	14	10,667
University services	0	0	0	0	26,168	0	879	27,047	0	9	27,056
Other educational services	5,984	2,913	206	0	0	502	368	10,600	0	243	10,844
School bus services	0	0	85	0	0	0	0	1,817	0	52	1,869
Rooming and boarding services	0	91	0	99	1,123	0	584	3,470	0	24	3,493
Prepared meals	0	29	54	44	560	0	5,611	65,324	0	4,923	70,247
Subsidies on products	0	0	0	0	0	0	0	0	0	0	0
Total	6,012	4,906	57,544	11,247	40,709	504	647,222	4,158,433	0	139,522	4,297,956

Table 2. Use table at purchaser price in millions of Canadian dollars in 2014 (continued on next page)

	Output of Industries												
Products	Agriculture	Mining, Utilities and Construction	Manufacturing	Trade and transport	Other market services except education	Non-market services except education	Market education services	NPISH education services	Elementary and secondary schools	Community colleges and C.E.G.E.P.s	Universities	Other educational services	Total
Products of Agriculture	16,272	1,918	45,069	99	2,307	409	0	3	1	1	13	0	66,091
Products of Mining, Utilities and Construction	3,157	52,855	103,089	11,919	31,968	12,689	174	260	1,712	528	1,142	24	219,518
Products of Manufacturing	23,314	141,713	278,028	48,353	75,569	41,199	376	558	1,408	574	2,886	31	614,008
Trade and transport	2,234	6,332	12,778	40,284	15,146	5,272	161	78	608	112	486	5	83,496
Other market services except education	6,269	92,756	41,273	107,384	286,005	114,759	1,752	635	2,992	1,070	3,193	61	658,150
Non-market services except education	0	0	0	0	0	0	0	0	0	0	0	0	0
Elementary and secondary school services	0	0	0	0	0	640	0	6	0	0	0	0	647
Community college and C.E.G.E.P services	0	0	0	0	9	463	0	0	0	82	0	0	554
University services	0	0	0	0	213	14	0	0	1	31	51	0	310
Other educational services	1	343	37	555	1,571	940	19	0	0	0	0	27	3,493
School bus services	0	0	0	0	0	49	0	31	1,604	8	91	0	1,783
Rooming and boarding services	0	0	0	0	0	61	0	0	0	0	0	0	61
Prepared meals	72	482	1,334	3,818	4,185	2,039	59	9	36	59	350	1	12,443
Subsidies on products	-763	-1,732	-686	-5,337	-3,842	0	-23	0	0	0	0	0	-12,383
Total	50,556	294,667	480,922	207,075	413,131	178,536	2,518	1,580	8,362	2,465	8,212	148	1,648,170
Compensation of employees	9,105	143,575	113,873	168,026	294,240	191,506	2,328	3,104	45,176	7,622	19,576	333	998,463
Net taxes on production	365	14,065	2,476	10,652	51,486	4,345	-10	40	602	79	218	4	84,322
GOS and mixed income	17,979	186,423	71,672	88,847	349,116	47,653	1,177	183	3,404	1,081	12,702	19	780,256
Value added at basic price	27,449	344,063	188,021	267,525	694,842	243,504	3,495	3,326	49,182	8,782	32,496	356	1,863,041
Output at basic price	78,004	638,730	668,942	474,600	1,107,973	422,039	6,012	4,906	57,544	11,247	40,709	504	3,511,211

Table 2. Use table at purchaser price in millions of Canadian dollars in 2014 (continued from previous page)

	Final Uses									
Products	Final Consumption by Households	Final Consumption by NPISH	Final Consumption by Governments	GFCF by Non-education Sectors	GFCF by Market Education Sectors	GFCF by Non-Market Education Sectors	Changes in Inventories	International exports	International re-exports	Total use
Products of Agriculture	18,230	0	0	0	0	0	-3,978	28,916	906	110,166
Products of Mining, Utilities and Construction	33,779	0	0	315,270	67	6,005	625	140,145	1,537	716,946
Products of Manufacturing	412,606	0	0	94,800	125	1,565	12,546	332,415	30,450	1,498,515
Trade and transport	43,065	0	0	-7,900	0	0	-252	18,290	327	137,026
Other market services except education	501,911	0	0	65,264	69	11,270	104	67,716	148	1,304,633
Non-market services except education	0	24,218	323,684	0	0	0	0	0	0	347,902
Elementary and secondary school services	2,635	0	55,309	0	0	0	0	1	0	58,592
Community college and C.E.G.E.P services	2,361	0	7,328	0	0	0	0	424	0	10,667
University services	8,213	0	17,474	0	0	0	0	1,059	0	27,056
Other educational services	3,404	2,609	502	0	0	0	0	835	0	10,844
School bus services	86	0	0	0	0	0	0	0	0	1,869
Rooming and boarding services	3,019	0	0	0	0	0	0	413	0	3,493
Prepared meals	53,747	0	0	0	0	0	0	4,056	0	70,247
Subsidies on products	0	0	0	0	0	0	0	0	0	-12,383
Total	1,083,056	26,827	404,297	467,435	262	18,839	9,046	594,272	33,368	4,285,572
Compensation of employees	0	0	0	0	0	0	0	0	0	998,463
Net taxes on production	0	0	0	0	0	0	0	0	0	84,322
GOS and mixed income	0	0	0	0	0	0	0	0	0	780,256
Value added at basic price	0	0	0	0	0	0	0	0	0	1,863,041
Output at basic price	1,083,056	26,827	404,297	467,435	262	18,839	9,046	594,272	33,368	6,148,613

Annex III

Education Accounts for France (2016 preliminary data) – examples of analytical tables

Table 1. Expenditure by education level and activity, billions of Euros

		Final funding											Total final funds	Transfers between funders			Total transfers between funders	Total initial funding
		Activities inside educationnal institutions					Total Activities inside educationnal institutions	Outside educational institutions :Purchase of related goods and services				Total oustside E.I. Purchase of related goods and services		Scholar-ships	Other transfers payments	Transfers recieved		
		Teaching	Educational attendance related activities			Administration		School transportation	Textbooks and supplies	Private lessons	Clothing and others							
Level			Meals Housing	Medical services	School guidance													
First level	Preprimary	13,762.5	1,969.2	120.6		412.6	16,264.8	200.9	120.5		22.2	343.6	**16,608.4**	7.7	266.6	-274.3	0.0	**16,608.4**
	Primary	21,683.3	3,223.9	196.9		724.6	25,828.7	330.4	448.2	7.4	106.3	892.2	**26,721.0**	844.1	422.3	-1,266.5	0.0	**26,721.0**
Total primary + preprimary		35,445.8	5,193.1	317.5		1,137.2	42,093.5	531.3	568.7	7.4	128.5	1,235.9	**43,329.4**	851.8	688.9	-1,540.8	0.0	**43,329.4**
Secondary	Lower	22,830.6	2,223.2	224.7	180.1	689.6	26,148.2	1,185.2	511.6	85.8	140.0	1,922.7	**28,070.9**	936.0	192.9	-1,129.0	0.0	**28,070.9**
	Special needs	1,467.5	87.3	7.0	10.2	136.7	1,708.7	32.8	16.2	2.6	4.5	56.1	**1,764.9**	49.8	6.0	-55.9	0.0	**1,764.9**
	General upper	14,417.7	1,218.9	105.1	85.8	527.9	16,355.4	609.5	293.3	116.3	54.0	1,073.0	**17,428.4**	609.3	159.1	-768.4	0.0	**17,428.4**
	Vocational upper	7,797.0	638.7	45.2	41.6	243.4	8,765.9	318.1	222.6	5.1	70.9	616.7	**9,382.6**	433.9	64.1	-497.9	0.0	**9,382.6**
	Apprenticeship	1,782.4	79.9			54.9	1,917.2	43.2	64.4	11.8	32.5	151.9	**2,069.1**	18.2	47.9	-66.1	0.0	**2,069.1**
Total secondary		48,295.3	4,248.0	382.0	317.8	1,652.5	54,895.5	2,188.9	1,108.0	221.6	301.8	3,820.3	**58,715.8**	2,047.2	470.0	-2,517.2	0.0	**58,715.8**
Tertiary	Post secondary	475.7	32.8	0.7	0.3	5.5	515.0	2.5	25.2		1.5	29.2	**544.2**	39.8	6.3	-46.1	0.0	**544.2**
	Short cycle	5,099.4	312.7	15.8	2.6	126.6	5,557.1	72.8	281.9	23.7	0.2	378.6	**5,935.8**	673.8	47.3	-721.1	0.0	**5,935.8**
	Long cycle	19,696.6	989.3	19.8	9.3	598.6	21,313.6	29.8	961.9	84.5	58.9	1,135.1	**22,448.7**	1,678.5	105.0	-1,783.6	0.0	**22,448.7**
	Apprenticeship	1,311.3	61.6			22.2	1,395.1		9.2		4.5	13.7	**1,408.8**	9.4	24.9	-34.3	0.0	**1,408.8**
Total Tertiary		26,583.0	1,396.4	36.3	12.2	752.8	28,780.8	105.1	1,278.2	108.2	65.1	1,556.6	**30,337.4**	2,401.6	183.5	-2,585.1	0.0	**30,337.4**
Out-of-school	Continuing vocational training	14,783.2	0.0			49.1	14,832.3						**14,832.3**	20.5	255.7	-276.2	0.0	**14,832.3**
	Other out of school training	2,670.2					2,670.2						**2,670.2**	0.1	2.0	-2.2	0.0	**2,670.2**
Total Out-of-school		17,453.4	0.0			49.1	17,502.5						**17,502.5**	20.6	257.7	-278.3	0.0	**17,502.5**
Total		**127,777.4**	**10,837.4**	**735.9**	**330.0**	**3,591.6**	**143,272.3**	**2,825.3**	**2,955.0**	**337.1**	**495.4**	**6,612.9**	**149,885.2**	**5,321.2**	**1,600.2**	**-6,921.4**	**0.0**	**149,885.2**

Table 2. Education expenditure by initial source of funding and education level

Initial source of funds	Level																
	First level		Total first level	Secondary					Total secondary	Tertiary				Total tertiary	Out-of-school		Total out-of-school	Total
	Pre primary	Primary		Lower	Special needs	General upper	Vocational upper	Apprenticeship		post secondary	Short cycle	Long cycle	Apprenticeship		Continuing vocational training	Other out-of-school training		
Central government	7,924.9	16,197.0	**24,121.9**	19,255.4	1,490.3	11,880.1	6,711.1	119.7	**39,456.6**	196.1	4,010.3	16,091.0	48.7	**20,346.0**	1,368.7	84.9	**1,453.6**	**85,378.1**
Regional and local authorities	7,444.0	8,082.1	**15,526.1**	5,793.1	196.6	3,762.6	1,746.4	982.8	**12,481.5**	259.8	1,491.0	877.0	726.2	**3,354.0**	2,695.5	1,493.4	**4,188.9**	**35,550.5**
Other public administration	76.4	954.8	**1,031.2**	734.0	40.7	363.9	175.6	53.4	**1,367.5**	6.7	83.4	919.7	40.3	**1,050.1**	872.0	6.1	**878.1**	**4,327.0**
Firms and other legal entities	3.8	7.3	**11.1**	95.1	13.1	128.9	173.2	747.4	**1,157.7**	39.9	270.9	1,839.0	563.9	**2,713.7**	8,643.5	63.1	**8,706.6**	**12,589.1**
Households	1,158.2	1,477.9	**2,636.1**	2,183.4	24.0	1,283.2	568.3	164.5	**4,223.4**	40.1	61.4	2,499.3	29.0	**2,629.8**	1,030.8	1,022.3	**2,053.1**	**11,542.4**
Rest of the world	1.1	1.8	**2.9**	9.9	0.2	9.7	7.9	1.4	**29.1**	1.5	18.8	222.8	0.7	**243.8**	221.9	0.4	**222.2**	**498.1**
Total	**16,608.4**	**26,721.0**	**43,329.4**	**28,070.9**	**1,764.9**	**17,428.4**	**9,382.6**	**2,069.1**	**58,715.8**	**544.2**	**5,935.8**	**22,448.7**	**1,408.8**	**30,337.4**	**14,832.3**	**2,670.2**	**17,502.5**	**149,885.2**

Table 3. Education expenditure by type of activity, education institution and transaction

Production units : educational institutions	Activity * economic opération	Teaching				Educational attendance related activities			Administration			Total
		Teaching staff	Non teaching staff	Other current	Capital	Non teaching staff	Other current	Capital	Non teaching staff	Other current	Capital	
Public institutions	Preprimary and primary schools	19,652.3	7,066.9	3,351.2	2,099.6	2,405.1	2,421.4	290.4				**37,287.0**
	Secondary schools	27,602.0	6,467.1	4,502.8	3,925.0	1,783.8	2,037.5					**46,318.1**
	Apprenticeship traning center	257.5	111.0	212.5	57.7		26.0					**664.6**
	Universities	5,654.5	4,960.3	2,291.5	1,119.4		16.1	9.8				**14,051.5**
	Other tertiary	2,180.2	1,609.0	940.5	425.1	2.2	11.1	0.3				**5,168.4**
	Art schools	812.2	279.3	261.2	123.8							**1,476.4**
	Special needs institutions	488.0	120.8	47.3	0.8	2.2	10.8					**669.9**
	Distance learning institutions	63.9	54.1	24.3	14.0							**156.3**
	Out-of-school training centers	759.2	366.1	387.2	92.0							**1,604.5**
Total public institutions		57,469.8	21,034.6	12,018.4	7,857.3	4,193.3	4,522.9	300.6				**107,396.8**
Private, state subsidized institutions	Preprimary and primary schools	1,732.3	659.9	389.7	228.9	176.2	183.0	21.7				**3,391.7**
	Secondary schools	4,967.4	1,021.5	1,504.3	542.3	508.1	463.5					**9,007.0**
	Apprenticeship traning center	335.3	160.4	386.2	108.0	21.9	24.9					**1,036.7**
	Tertiary institutions	806.5	302.0	341.9	140.0							**1,590.3**
	Out-of-school training centers	2,590.6	1,239.9	1,541.8	216.0							**5,588.3**
Ttotal state subsidized institutions		10,432.0	3,383.7	4,163.8	1,235.3	706.1	671.4	21.7				**20,613.9**
Other private institutions	Preprimary and primary schools	72.1	27.8	26.9	8.5		11.7					**147.0**
	Secondary schools	114.5	23.3	17.4	15.8		18.3					**189.4**
	Apprenticeship traning center	481.6	239.1	584.0	160.8	33.5	38.1					**1,537.2**
	Tertiary institutions	761.4	306.1	225.1	131.7							**1,424.4**
	Out-of-school training centers	3,429.1	1,412.9	1,620.2	231.2							**6,693.4**
Total other private		4,858.8	2,009.2	2,473.6	548.1	33.5	68.2					**9,991.4**
Organisation and administrative services						747.9	496.2	182.2	2,644.3	860.7	100.7	**5,032.1**
Total		**72,760.5**	**26,427.4**	**18,655.8**	**9,640.7**	**5,680.9**	**5,758.6**	**504.4**	**2,644.3**	**860.7**	**100.7**	**143,034.1**