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Measuring International Trade in Services and New Demands on the Family  
of Classifications

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**Abstract**

The new Manual on Statistics of International Trade in Services has broadened the statistical view of trade in services from a subset of the balance of payments to reflect the modes by which services are supplied in practice.

This and associated development work has highlighted the need for adequate classifications of services in balance of payments, products and activities as well as for stronger links between them. As service provision frequently requires physical proximity between supplier and consumer, both establishment of foreign affiliates as service providers and the (temporary) movement of people as service providers or employees have become trade issues. In order to get a more complete picture of trade in services, analysts are seeking links between balance of payments trade in services, foreign affiliates trade in services, FDI, total domestic output by activity and product and export/import data sets and their respective classifications. Developing appropriate statistics on the trade related movement of people, as service suppliers or employees of service suppliers, will almost certainly involve a new use for classifications of occupation, levels of education and types of migrants.

In particular the paper advocates that EBOPS links to CPC and ISIC should be strengthened, but warns that a complete product basis for EBOPS may be counter productive. A high priority for trade analysts is the successful outcome of convergence exercises regarding ISIC and regional/national industry classifications. A common aggregation for professional, scientific and technical services in EBOPS, CPC and ISIC(2 digit level) and a harmonisation of descriptions concerning environmental services is proposed. A suggested improved delineation of health services is described.

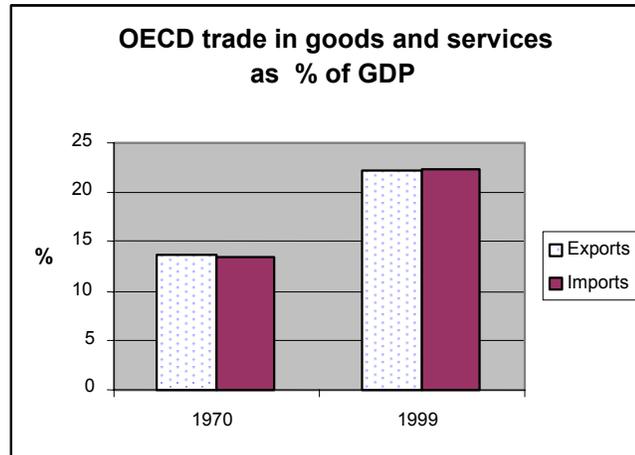
The commodity *software* should be more clearly recognised in trade and product classifications. The software component of royalties and license fees should be separately identified in EBOPS and CPC as a priority.

N.B. The opinions expressed in this paper reflect those of the author and not necessarily those of the OECD nor its Member countries.

# Measuring International Trade in Services and New Demands on the Family of Classifications

## Introduction

1. This paper explores some classification needs and problems arising from development work on trade in services and in certain cases proposes ‘improvements’ to contribute to the debate concerning the planned 2007 revisions of the International Standard Industrial Classification of All Economic Activities (ISIC) /Central Product Classification and the next revision of the Fifth edition of IMF’s Balance of Payments Manual (BPM5), the Extended Balance of Payments Services (EBOPS) classification and certain social classifications related to employment and migration.
2. Section 1 addresses trade measurement issues related to services trade, product and activity classifications and improvement of the linkages between them, with a special sub-section on a case study on trade in software. Section 2 deals with the trade-related movement of people and the potential new demand from trade analysts to use social and employment classifications.
3. Technological advances in telecommunications, computing and transport, including developments such as the Internet and e-commerce have resulted in many firms using more distant production facilities and serving wider markets. These together with supportive trade agreements and economic liberalisation measures have contributed to trade in goods and services growing faster than GDP over the past three decades.
4. While trade in goods is subject to well established international rules developed over decades trade in services has not been so well served. The first General Agreement on Trade in Services (GATS) came into force in January 1995. Even though it is very partial and discretionary in nature and many regulatory and other obstacles exist, the agreement and the current GATS 2000 negotiations have driven a much increased demand for statistics on such trade.
5. Partly in response to this demand a new Manual on Statistics of International Trade in Services (MSITS), which has been jointly developed by six agencies<sup>1</sup>, through the UN Interagency Task Force on Statistics of International Trade in Services, and which is currently being prepared for publication by the UN, sets out detailed frameworks for measuring trade in services based mainly on Balance of Payments statistics, the System of National Accounts (SNA) and Foreign Affiliate Trade in Services (FATS) Statistics. It has broadened the statistical view of trade in services from a subset of the balance of payments to



<sup>1</sup> European Commission, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, United Nations Conference on Trade and Development, and the World Trade Organization.

reflect the modes by which services are supplied in practice and which are of special interest in trade agreements.

6. This development work has highlighted the need for adequate classifications of services in balance of payments, products and activities as well as for stronger links between them. As service provision frequently requires suppliers to be close to their customers, both establishment of foreign affiliates as service providers and the (temporary) movement of people as service providers or employees have become trade issues. In order to get a more complete picture of trade in services analysts are seeking links between balance of payments trade in services, foreign affiliates trade in services, FDI, total domestic output by activity and product and export/import data sets and their respective classifications. Developing appropriate statistics on the trade related movement of people, as service suppliers or employees of service suppliers, will almost certainly involve a new use for classifications of occupation, levels of education and types of migrants.

#### **A broader and more detailed view of trade in services**

7. What is international trade in services? To economic statisticians the conventional meaning of *international trade in services* prior to MSITS was that described in BPM5 and may be broadly described as service transactions between residents and non-residents of an economy. This also corresponds to the concept of trade in services in the “rest of the world account” of the 1993 SNA.
8. Services<sup>2</sup> differ from goods in a number of ways, and commonly in the immediacy of the relationship between supplier and consumer (as soon as it is supplied the service is consumed). In addition many but not all services are non-transportable i.e. such services normally require a physical proximity of supplier and consumer - for example hotel and restaurant services, building security services and sports clubs. Without the possibility of physical proximity no service could be provided in such cases.

#### **Broader**

9. It is for this reason that trade agreements for services have considered the physical location of supplier and consumer in the so-called *modes of supply*. In summary these are:-
  - Mode 1 cross-border trade
  - Mode 2 consumption abroad
  - Mode 3 commercial presence
  - Mode 4 presence of natural persons
10. BPM5 trade in services broadly covers modes 1, 2, a significant part of 4 and a small part of 3. To cover mode 3 more fully we need also to consider the activity of foreign controlled enterprises in providing services. To cover mode 4 well we would need to include individuals moving abroad as employees of service enterprises on a non-permanent basis.

#### **More detailed**

11. To address the need for more detailed information on trade by types of service MSITS:-

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<sup>2</sup> For further discussion of the economic concept of a *service* see MSITS chapter 1 and SNA 1993 para 6.8 - 6.13

*i) for services trade between residents and non-residents,*

builds on the BPM5 framework by elaborating its classification of transactions by type of service to form the EBOPS classification. MSITS Annex III provides tables showing the correspondence between the EBOPS classification, the CPC, and the “GNS/W/120” list of services identified within the scope of the GATS.

*ii) for services delivered through subsidiaries and branches abroad (commercial presence trade)*

proposes a framework for statistics on firms in which a foreign investor has a majority interest. MSITS states “They should be classified as a first priority on an activity basis (i.e., by industry of the producer rather than by type of service produced). Industry groupings drawn from the ISIC revision 3, are provided for use in reporting these statistics to international organisations. These groupings, known as the ISIC Categories for Foreign Affiliates (ICFA), allow the activities of services enterprises to be viewed in the context of the activities of all enterprises. Although detail by product for foreign-owned firms is encouraged to enable comparability between FATS statistics and services trade between residents and non-residents, compilation on a product basis will remain a longer-term goal for most countries because of current limitations on data collection.” MSITS Annex IV provides a correspondence between EBOPS and ICFA.

*iii) in general*

promotes an analysis of trade in services by mode of supply.

12. The implications of i) and ii) in summary are that there is a new need to link in some sense services trade data in the balance of payments with these FATS data in order to gain a more comprehensive picture of trade in services. Thus EBOPS, CPC and ISIC and its alternative grouping ICFA need further scrutiny to see if their links can be strengthened.
13. Part of the implication of iii) is that mode 4 (presence of natural persons), or more simply, movement of people internationally as service suppliers or employees of service suppliers is relevant in trade in services and, in particular, the better measurement of these movements.

## **Section 1 Trade measurement issues related to EBOPS, CPC and ISIC classifications and the links between them?**

14. How well do trade-in-services ‘products’ as expressed in EBOPS align with output products as described in the CPC and activities as described in ISIC? What about the trade negotiating list of services used in the Uruguay round and the GATS negotiations (GNS/W/120)? A broad overview of service groupings in these four classifications is shown in annex 1.
15. There are some difficulties with matching **activities** with **trade products** in principle for goods and services. Firstly the notion of activity in an industry classification when used to classify enterprise units, is implemented in practice by considering the principal products of the enterprise units. Secondary and tertiary products may be produced by these units but are often ignored and particularly so in services. Business statistics are largely based on this kind

of classification by activity. Matching export products to a particular industry can be further confused by the presence of intermediaries such as agents, freight forwarders, wholesalers, brokers etc. Matching import products to the industry must avoid the confusion of the imports of that class of industry's enterprise units, which are in effect their inputs and likely to be different to their outputs.

16. Taking a product approach e.g. for goods one may wish to consider in the same picture the national car industry, and consider output of cars, import of cars and export of cars, output of (inward) foreign-owned affiliates classified to car manufacturing and ditto for outward foreign owned affiliates. For services one may wish to compare output of computer services, imports of computer services, exports of computer services and output of (inward) foreign-owned affiliates classified to computer services and ditto for outward.
17. The BPM5 is the agreed standard for compiling balance of payments transactions between residents and non-residents of a country. The new MSITS elaborates the BPM5 treatment for trade in services. EBOPS as with the BPM5 classification is a services classification mainly based on products, but there are important trade in services categories that are not based on the concept of products at all but alternative concepts.
18. Although trade analysts might ideally prefer a fully product based system for EBOPS, it must be recognised that as with many international classifications, there are many stakeholders, with different needs. Measuring trade in services accurately is more difficult than measuring trade in goods, for which there is a wealth of data, and there are strong reasons for pragmatism in data collection methods for certain types of service/expenditure which may prevent a fully product based system.
19. The main trade in services (EBOPS) categories that are not conceptually based on products are *travel*, *government services* and *services trade between related enterprises n.i.e.* The following definitions are taken from MSITS:-

- i. ***travel***, based on the physical location of individual consumers of services (and goods). The consumer or traveller moves temporarily<sup>3</sup> to another economy to obtain services (and goods). Their expenditure constitutes the ***travel*** component of trade in services. It is rather similar to but not identical with the GATS concept of mode 2 delivery of services - known as *consumption abroad*.

***Travel*** in EBOPS is further split into:

*Business travel:-*

*Expenditure of seasonal and border workers*

*Other*

*Personal Travel:-*

*Health-related expenditure*

*Education-related expenditure*

*Other*

None of these sub-categories are based solely on the concept of product traded.

- ii. ***government services, not included elsewhere***, based on the services (and some goods) transactions of *institutions* namely government, their embassies and consulates, their military operations and other agencies with non-residents. It also includes the international services transactions of international organisations.

- iii. ***services trade between related enterprises not include*** is a residual category. It covers payments between related enterprises for services that cannot be specifically classified to any other component

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<sup>3</sup> Normally for less than one year except for students and those seeking medical treatment

of EBOPS. It includes payments from branches, subsidiaries and associates to their parent enterprise or other related enterprises that represent contributions to the general management costs of the branches, subsidiaries and associates (for planning, organising and controlling) and also reimbursements of expenses settled directly by parent enterprises. Also included are transactions between parent enterprises and their branches, subsidiaries and associates to cover overhead expenses.

Some other EBOPS categories sit uneasily with the activity groupings namely *royalties and license fees* and *merchandising*. These are defined as:-

iv. ***royalties and license fees*** in EBOPS are split into “*franchises and similar rights* and *other royalties and license fees*. *Franchises and similar rights* comprise international payments and receipts of franchising fees and the royalties paid for the use of registered trademarks. *Other royalties and license fees* includes international payments and receipts for the authorised use of intangible, non-produced, non-financial assets and proprietary rights (such as patents, copyrights, and industrial processes and designs) and with the use, through licensing agreements, of produced originals or prototypes (such as manuscripts, computer programs, and cinematographic works and sound recordings). Payments and receipts for the outright purchase or sale of these assets and rights are excluded (following BPM5, these are recorded as capital account transactions, not as services). Excluded also are distributive rights for audiovisual products for a limited period or a limited area; these are included in *audiovisual and related services*.”

20. These EBOPS royalties components correspond well to CPC product categories 7331 to 7339, which were recently introduced in 2000. However these do not fit well with any activities. For example a license to produce patented drugs, which might be associated with pharmaceutical industry may be grouped with licences to drill oil or use/distribute software.
21. This can be very inconvenient analytically, as for example a significant part of pharmaceutical or software production is ‘exported’ through the mechanism of royalties and license fees. Any attempt to measure trade in such important commodities is rendered more difficult if there are no product codes that represent them. The special case of trade in software is further discussed on page 8. A draft proposal to separately identify software royalties and license fees in trade in services has been put forward. If accepted then the pressure would increase to identify such software trade in EBOPS and as a product in CPC.
  - v. ***Merchandising*** is defined as the purchase of a good by a resident of the compiling economy from a non-resident and the subsequent resale of the good to another non-resident; during the process, the good does not enter or leave the compiling economy. While this activity is associated with wholesale distribution, conditions on location of goods and suppliers are added. Further it is a service that can only be exported as importing would be done in the form of a good with no knowledge of the service margin.
22. Items i) ii) iii) may be broadly related to trade in certain typical service products, but conceptually that is not the basis of compilation. Royalties and license fees now correspond to certain CPC categories since 2000, but these do not correspond well to any service activities. Merchandising is odd in that it is a product that in the balance of payments can be exported but not imported.
23. These five categories cover more than 45% of G7 trade in services, with the travel category alone accounting for about 30% of G7 trade in services. The cause of moving to a firmer product basis and a closer link to service activities would be advanced most if i) the travel category could be split by at least one major product group<sup>4</sup> and ii) royalties and license fees

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<sup>4</sup> EBOPS currently has a three product group split for travel as memorandum items only, but not in the main classification, these are i) goods ii) expenditure on accommodation and food and beverage serving services iii) other travel expenditure

were further split by major licensed products especially software and perhaps audiovisual products. This has to be weighed against the difficulty of data collection, but where some countries have demonstrated they can and do so collect, as is the case, for example, with software licenses (see case study), then the arguments grow stronger. Another counter argument in the case of travel would be the considerable policy interest in the purpose of travel rather than the precise products purchased.

24. Although MSITS gives an EBOPS-CPC correspondence, no formal link exists between these two classifications and changes to either classification system do not require changes to the other. In this correspondence a relatively small number of CPC codes are split between EBOPS codes or only a part of the CPC code is relevant for services trade and the other part may be considered as goods trade.
25. These split CPC codes are often minor items but include maintenance and repair services to various types of machinery and equipment, rental services of transport equipment with operator, packaging services, electricity transmission and distribution services, portfolio management services, other management services, financial intermediation services, education services, health services, other food serving services.
26. Beyond the split CPC codes some correspondences are curious e.g. the small part of travel agency services in other business services. And why are packaging services partly included in financial services?
27. Other specific reinforcement suggestions include making a closer link between inland waterway transport and sea transport and between space transport with air transport in EBOPS could help strengthen links to CPC and ISIC.
28. To summarise the links between service products in BOP on the one hand and CPC and activity classifications ISIC and ICFA than on the other are more fuzzy than solid, with no formalised link. Although MSITS Annex III shows EBOPS correspondence to CPC and MSITS Annex IV shows EBOPS correspondence to ICFA, and despite CPC's normally have an ISIC pointer the relationships are not always transitive. There would seem to be many advantages of consistency if the links were strengthened, but there would be disadvantages in data collection possibilities if a fully product based system for EBOPS was created. Strengthening the links between EBOPS and CPC and ISIC should be pursued, while recognising that improvements are likely to be worthwhile but modest.

### **Other classification issues**

29. A number of other classification issues have arisen from the work on trade in services.
30. The increased trade-in-services interest in output data quickly runs up against the obstacle of regional variations in Standard Industry Classifications and their very varied ability to map to ISIC. This variability is strongest in the services domain, perhaps because many services have been relatively little traded. These regional and national variations put severe limitations on international comparisons of output by activity. A very high priority and a most important advance for analysts from the trade-in-services perspective would be a successful outcome to ISIC convergence exercises not just the well publicised one of the Europe Union and North America but also encompassing Japan and Australia/New Zealand as well as other countries that use industry classifications different from ISIC.
31. In the GATS list one of the main groupings is *environmental services*. This is represented in EBOPS by *waste treatment and depollution* and in ISIC approximately by *sewage and refuse disposal, sanitation and similar activities*. There is increasing interest in the

environmental services area, including with regard to its classification, and the guardians of all three classifications might consider using more similar descriptions and tightening the links between them.

32. Other business services is one of the fastest expanding components of EBOPS and would normally need to be reviewed for updating and if possible split. A particular absence is *recruitment and employment services*. These are services that are actively traded internationally. It would help analysis to identify them in EBOPS and to upgrade their level (perhaps to a 3 digit industry in ISIC) in ISIC. They are also a potential source of data for mode 4 activity that could merit some research.
33. Regarding the split of business services, in EBOPS there is a grouping *Miscellaneous business, professional and technical services*. In CPC section 82-83 is described as *Professional, scientific and technical services*, which is narrower than the EBOPS. In the GNS list a subsector of *business services* is *professional services*, which covers most of CPC 82-83, excluding management consultancy and advertising but including some medical services (which looks anomalous). In ISIC the closest comparison is 74.1 to 74.3, which corresponds closely to CPC 82-83. There would, in my view, be an attraction in harmonising these definitions across EBOPS, CPC, ISIC and in considering this grouping, using the CPC terminology, as a candidate for two digit status in ISIC. There may also be an opportunity to improve the links to the NAICS, which has a two digit class 54 *Professional, scientific and technical services*. However the NAICS class includes *Scientific research and development services* (part of ISIC 73) and *Computer systems design and related services* (part of ISIC 72).
34. An added advantage of this suggested new 2 digit ISIC division would be that important activities such as legal services and accounting services could each achieve three digit status in ISIC. There are currently very few data for four digit service industries. The professional, scientific and technical services are fairly well defined and distinct from the other business services which are most often support services, and in many cases using less well qualified labour.
35. There is increased policy interest in health services, which is a huge and growing industry in the developed economies. OECD have developed a system of health accounting, as a satellite account. The World Health Organization is seeking to measure trade in health services and their impact on health services generally. Here the classification need relates to identifying separately the main health services separately from social work currently both in ISIC 85 - health could be a strong candidate for a 2 digit ISIC code - and separately identifying health insurance, currently in non-life insurance ISIC 6603, as well as in EBOPS.
36. There are two OECD national accounts working groups currently looking at definition of output of financial services and non-life insurance services. Their work is more conceptually rather than classification based. The outputs of these activities remain very difficult to measure, but a high usage of IT and liberalisation of markets has encouraged new product development. The revision process will have to revisit these services.
37. E-commerce or sales that involve goods or services being **ordered** over computer-mediated networks (or in a narrower sense the Internet) has generated some measurement and coverage concerns amongst trade statisticians as well as ICT specialists. Regarding classifications the focus has been more on the set of products that may be, and increasingly are, **delivered** online. These include the digitized products such as software, audiovisual products, text and data. Here one recurring discussion which weighs on trade statisticians more than most is whether these digitized products are goods or services or both or neither. Industry

statisticians in some countries at least are side-stepping this argument by setting up information or IC or ICT sectors. For trade statisticians some work remains to be done in classifying these 'information' products more explicitly. If an 'information sector' or some variant is established in ISIC then consideration should be given at least to some kind of corresponding division in EBOPS, with relevant rules for dealing with information goods and royalties.

38. A recent OECD study on the measurement of international trade in software has clarified some issues and made recommendations regarding improvements to classifications. This is summarised in the following case study.

### **A case study - trade in software**

39. This section summarises the outcome of a recent study by a task force of OECD-Eurostat National Accountants into the measurement of international trade in software, which was a part of a wider OECD-Eurostat study on the measurement of software in the national accounts. The study was conducted between October 2001 and April 2002, with the help of 15 volunteer countries from Asia-Pacific, Europe, North America, and Middle-East.

### **What is special about software?**

40. Measuring international trade flows of software presents many difficulties. Software may be traded on a variety of media, both tangible and intangible, as simple goods on a CD-ROM and by a large variety of other means. Software sales may take the form of licenses to use or reproduce software, which may or may not be accompanied by a physical supply of software. Software is often bundled with hardware or other computer or consultancy services. Computer software is only one of a number of so called digitized products along with, for example music, film, data, TV programs, news and, literature that may be regarded as presenting analogous measurement problems regarding international trade.
41. International trade is for practical reasons, e.g., the administrative apparatus associated with customs tax authorities' interest in imports, partitioned into goods and services more rigidly than production. Eight examples of ways in which software can be traded as goods or services internationally are distinguished (there may be more):-
- i. The most straightforward case is where packaged software is traded with manuals on a physical disk e.g., a CD-ROM- although valuation is sometimes a problem here;
  - ii. Software may be installed on equipment or machinery when it would be counted simply as trade in that type of equipment. Both these cases are treated as trade in goods.
  - iii. A single (physical or online) copy of some software may be sold to a foreign firm, which pays a license fee to make further use of it. The license payments are counted in trade in services, but will not be separately identified as software in the current international classifications.
    - It is not uncommon for large firms/organisations to renegotiate the license to use agreements and ensuing payments can be divorced from any physical supply of software.

iv. A single (physical or online) copy of some software may be sold to a foreign firm, possibly an affiliated firm, under license to reproduce/sell further copies within certain (geographical/numerical) limits or bundle the software with hardware or software for resale. The royalty payments are counted in trade in services, but again will not be identified as software in the current international classifications.

v. Custom designed software, which is traded, if sold in physical format, is likely to be counted as trade in goods in the Customs reports, but may transferred to trade in computer services, following BPM5 guidelines, or possibly purchase of assets depending on the nature of the transaction.

vi. Software may be traded internationally online (i.e. it is delivered online) and in such a case it will by default not be counted in customs returns, however there is as yet no international agreement on how such trade should be classified, whether as goods or services and if services which one. One OECD country counts these sales as royalties, another as computer services, and a third as a mixture of the two, but two more report that if software is purchased online by credit card from abroad it may be counted in travel expenditure. No countries are as yet able to separately identify these sales.

vii. Customers can subscribe to software services, where the software is frequently updated e.g. anti-virus software or databases and access updates online (possibly downloading all or part).

viii. Finally software may be sold internationally from one firm to an affiliated firm within the same multinational. This is likely to form a significant part of trade in software. Here there is no guarantee of uniform treatment and although this may be treated as in the cases above another possibility is that such transactions maybe treated as internal computer services, royalties, classified as miscellaneous management charges, trade in services with related enterprises, goods trade, or in extremis not recorded at all. There is also no guarantee of a market price valuation.

### **Concepts, Definitions and Classification issues:**

#### **Where can software transactions be found in classifications of trade and in the balance of payments**

42. The product ‘computer software’ is not well identified in current international trade codes or balance of payments (BOP) items, but a number of items in the goods and services classification are relevant to software.

43. The international standard for recording merchandise trade is set out in the “International Merchandise Trade Statistics: Concepts and Definitions”<sup>5</sup> (IMTS) and trade is classified into detailed products based on the Harmonized System (HS) 1996<sup>6</sup>. For trade in services the international standard is the BPM5 which also sets out a classification of services. In certain countries the BPM5 categories are further disaggregated according to the Joint (OECD-Eurostat) classification. The new MSITS has introduced the EBOPS classification, which is a disaggregation of the Joint classification. Annex 1 lists relevant trade and balance of payments services classification categories, in current use, that most directly relate to software.

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<sup>5</sup> United Nations 1998

<sup>6</sup> Harmonized Commodity Description and Coding System of the World Customs Union

44. For merchandise trade there are a number of categories of HS products which may approximately relate to trade in software goods. The IMTS in its paragraph 27 sets out guidelines for the recording of software goods in international trade. It describes goods that are carriers of software within HS heading 85.24. "This category includes, for example, ... packaged sets containing diskettes or CD-ROMs with stored computer software and/or data developed for general or commercial use (not to order), with or without a users' manual. .... However ... diskettes or CD-ROMs with stored computer software and/or data developed to order .... are to be excluded from international merchandise trade statistics." IMTS goes on to add that where these goods are carrying software and/or data developed to order they should be treated as part of trade in services. It should be noted that the HS codes do not distinguish media carrying customised software from packaged software.
45. On valuation of trade in software goods IMTS para 123(b) states "Goods used as carriers of information and software, such as packaged sets containing diskettes or CD-ROMS with stored computer software and/or data developed for general or commercial use (not to order) be valued at their full transaction value (not at the value of the empty diskettes or CD-ROMS, paper or other materials)".
46. IMTS para 48 (c) says that software goods purchased by travellers, including non-resident workers, or by foreign governments through their embassies or foreign military or other installations located in the host country are to be recorded as trade in services ( such transactions would not normally separately identify software).
47. For online delivery of standard (not customised) software or databases no clear classification guidance currently exists as is the case for some other digitized products. Statisticians have hesitated because of sensitivities in the 'goods or services' debate about digitized products in trade negotiations in the World Trade Organization. If they are counted as goods market access agreements are much more comprehensive. Statisticians are not however necessarily bound to take the same view as trade negotiators.
48. For software related royalty payments, which are counted in trade in services these are not at present separately identifiable from other royalty and license fee payments in the international classifications. Key questions for the study were whether these software royalties and license fees could be identified and, if so, were they sufficiently large to justify separate identification.

### **Results of the Survey of National Practices in the Measurement of Software in the National Accounts**

49. Five of the 15 participating countries, were able to provide estimates of trade in software goods, in computer services and software royalties and license fees. The estimates from these five countries are set out in table 1.

### **Trade in Software Goods**

50. The questionnaire identified a set of five HS codes commonly regarded as mainly software, for full definitions see annex 2. All but one country provided estimates of trade in software goods by HS code.
51. Five countries further estimated the 'software content' of the software goods traded. All five countries discount entirely or partially the software content of HS 852439, while four discount entirely the software content of HS 852499.

52. It is proposed that a revised standard set of HS codes be taken to approximate to software goods i.e. 852431, 852440, 852491 and 852499 (852439 should be excluded)

**table 1 Analysis of software trade**

Trade summary	Australia		Canada		Denmark		Greece		US	
	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export
Software in:	1998-99	US\$m	1998	US\$m	1997	US\$m	1998	US\$m	1992	US\$m
SoftwareGoods	518	68	290	47	131	78	157	64	100	2000
Computer services	250	421	212	493	74	63	209	173	200	1400
Software Royalties	218	185	N/A	884	289	33	218	15	100	1100
<b>Total software</b>	<b>986</b>	<b>674</b>	<b>501</b>	<b>1423</b>	<b>493</b>	<b>174</b>	<b>584</b>	<b>252</b>	<b>400</b>	<b>4500</b>
Royalties as percentage of total trade in software	22	27	N/A	62	59	19	37	6	25	24

53. The problem of undervaluation of software exports and the need to make BOP adjustments for customised software was raised. The question of valuation of software at the customs frontier may relate to whether it is valued as the value of the materials (disks etc), whether the value of a single user licence is included or if it is specifically traded with a 50(say) user license, should that multiple use license be included in the value of the goods. The valuation issue is further discussed in “The Treatment of E-commerce and Software in German Foreign Trade Statistics”<sup>7</sup>. This raises the question of coordination of software measurement (valuation) in goods and services to ensure correct and uniform allocation but also to ensure full coverage and avoid double counting. This could be an issue for future follow up work.

### International Trade in Software Services

54. The questionnaire identified balance of payments services components and their codes from the IMF BPM5 and OECD/Eurostat joint classifications that were most relevant to software transactions. These components are defined in annex 2.
55. Fourteen countries provided at least some of the components in their response. Countries only considered software trade as being contained in BOP codes 262 (computer and information services), of which 263 (computer services) was generally considered the most relevant part, where it could be separately identified, although some hardware services are contained in 263, and 266 (royalties and license fees). Seven countries provided some data or estimates on the software content of trade in services components. Of these five provided data or estimates on software royalties. The software royalties ranged from 6% to 62% of the total software trade with a typical (median) figure of about 25% (see table 1). At least four of these five countries used business survey data to identify software royalties.
56. Of those identifying BOP code 264 information services, which contains database services, most excluded this code from the software estimate.
57. It was concluded that identification of trade in computer services (263) is important and that software royalties are possible to identify and that in combination these would mark an important step forward in measuring effectively software trade.

<sup>7</sup> STD/NA/ITS(2001)8 Andreas Kuhn - German Federal Statistics Office

### **Software delivered online**

58. At present there are no agreed international guidelines for recording international transactions in online delivered (or use online of software) in the balance of payments.
59. Those countries who responded that they had some national guidelines on recording of online delivery of software made the following points:
- i) this would not be separately identified;
  - ii) this would be included in trade in services or BOP 262, 263 or 266 or in two cases 236 'travel', if payment was made on an individual's credit card;
  - iii) that mode of delivery should not necessarily determine the BOP allocation, the product itself should be a determinant and who the transaction was with.
  - iv) identification of Internet transactions and online delivery could be done within the context of e-commerce surveys
60. It was concluded that there remains a need for online sale/purchase and delivery of software to/from other countries to be further investigated through Internet use and e-commerce surveys with a view to bringing forward recommendations on BOP treatment before the next revision of the IMF's Balance of Payments Manual.

### **Software Originals**

61. It is not clear that the transfer of intellectual property rights is treated consistently across countries. Is the trade recorded as a sale of a software asset original (exports). Are purchases treated as imports of an asset or are royalty payments recorded (as intermediate use of services)?
62. Twelve countries responded. The question of the sale of a software original and the transfer of associated intellectual property rights led to a variety of responses and some apparent confusion.
63. Most (seven) countries responded that this was in principle a capital account transaction and should be treated as such. The suggestion by three countries that it should be treated as a sale of a **non-produced** asset appears odd. Of these one country said that this would only be treated as capital account if it was a large transaction. The rest (five) indicated that it would be treated as a service (current account transaction), but there is an element of doubt whether the question was sufficiently clear and unambiguous.

### **The Study's conclusions and recommendations<sup>8</sup> include:**

64. Current international trade and balance of payments classifications and statistics are not as helpful as they could be in identifying international trade in computer software. Only a minority of responding countries appear to have access to a satisfactory set of data concerning trade in software. National accounts supply-use tables should be made more consistent with trade flows in software. Indeed it is not clear how countries treat trade and especially imports of software in supply-use tables.

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<sup>8</sup> The software report and recommendations will be presented to OECD National accountants in October 2002 for approval.

65. National accountants, trade and balance of payments statisticians will need to cooperate further in this respect.

*Recommendations:*

(1) In order to clarify trade flows of software and increase international comparability, the product 'computer software' in international trade statistics and in national accounts should be regarded as having broadly three main trade components:-

- i) software goods;
- ii) computer services
- iii) software royalty and license fee payments.

(2) *not relevant to classification revisions ....* .....

(3) The separate identification of software royalty and license fee payments in the balance of payments services classification (part of EBOPS code 266 at present) and in country reporting is recommended.

(4) A standard international grouping of Harmonized System (HS) codes that represents trade in software goods to improve international comparability is desirable and the following are proposed: HS 852431, 852440, 852491, 852499 (852439 is excluded).

66. Combined the realisation of these measures in trade and balance of payments would mark an important advance in effectively assessing international trade in computer software and their incorporation in the product balances of the national accounts in a more internationally comparable way.

67. Two main areas for follow up work are identified, where questions are unanswered and it appears premature to make any specific recommendation:-

(5) Research into how software goods are valued and whether and how countries coordinate software measurement (valuation) in trade in goods and services to ensure a standard allocation, full coverage and avoid double counting.

(6) For treatment of online delivery of software in the balance of payments, it appears to be too early to make a consensus. The online sale/purchase and delivery of software to/ from other countries needs to be further investigated, probably through Internet use and e-commerce surveys, with a view to bringing forward recommendations on the balance of payments treatment before the next revision of the IMF's Balance of Payments Manual expected in 2007.

## **Section 2 Trade in services and new demands on social classifications**

68. This section outlines a developing, but not yet well-defined, interest in social classifications from the perspective of international trade analysis and in particular international trade in services.

69. There is one area of trade in services as described in GATS and some other regional trade agreements, which MSITS identifies as not fully covered in existing statistical frameworks and national statistical programmes, and concludes that it could only set out the measurement

issues and propose some partial indicators at present without any precise solutions. This area might broadly be described as the trade-related international movement of people in order to supply services. Annex 1 of MSITS addresses this area and discusses the statistics that might be relevant for assessing the so called Mode 4 delivery of services through the presence in an economy of foreign natural persons.

70. What is the scope of Mode 4? It is still the subject of considerable debate but Mode 4 can be taken to include the following cases:

- i. services delivered through **independent service suppliers** abroad;
- ii. **employees** employed abroad on a non-permanent basis by service companies that are:
  - resident in the host economy that are foreign owned;
  - resident in the host economy that are domestically owned;
  - non-resident in the host economy i.e. that have no lasting presence in the host economy.

71. The General Agreement on Trade in Services (GATS) also emphasises the **temporary or non-permanent** nature of this movement of people. Mode 4 concerns people who move to provide a service or for employment by service providers and when that provision is finished they leave. Even though the movement is not permanent it might last a number of years. No time cut off is specified. The GATS leaves it to the countries to specify in their commitments on mode 4 the type of people, e.g., in terms of service to be provided, skills, occupations, level of qualifications, they are prepared to admit under mode 4; how many such persons; and how long they can stay.<sup>9</sup>

72. MSITS sets out a number of partially relevant statistics and classifications to be explored in the measurement of mode 4 delivery of services. These include:

the Balance of Payments subcomponents:

*Trade in services*

income subcomponent: *Compensation of employees*

current transfer subcomponent: *Workers remittances*

Other items:

*Migration statistics*

*Work permits, where available: number, type, duration and occupation*

*Statistics on arrivals and departures monitored by immigration and tourism authorities on: origin/destination, length of stay, purpose of visit etc*

*Population censuses and household surveys, including particularly labour force surveys: where nationality of worker, occupation, industry of work, and level of education would be relevant.*

Relevant Classifications:

*Trade in Services -EBOPS & GNSW120*

*Activity- ISIC*

*Product - CPC*

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<sup>9</sup> In practice, few countries have specified the number of persons, nor the actual length of stay permitted, preferring to maintain full flexibility to change these as and when they wish.

*Occupation - ISCO*

*Level of education - ISCED*

*Migration - UN categories of types of migrant/non-migrant*

73. MSITS Annex 1 considers the UN *Recommendations on Statistics of International Migration* and their possible relevance to the trade-related movement of persons. It states: “No existing statistical system satisfactorily captures the temporary presence of natural persons abroad from the trade perspective. The UN framework for the characterisation of different categories of international migration refers to categories of international migrants and non-migrants, some of which may be relevant to GATS Mode 4 **if in each case the period of stay is restricted—that is, non-permanent and related to the supply of service products.** A part of this migration framework is set out below.

***Non-migrant categories:***

*Foreign border workers:* Foreigners granted the permission to be employed on a continuous basis in the receiving country provided they depart at regular and short intervals (daily or weekly) from that country.

*Visitors (from abroad to the country):* Foreigners admitted for short stays for purposes of leisure, recreation, holidays; visits to friends and relatives; business or professional activities not remunerated from within the receiving country; health treatment; and religious pilgrimages.

*Foreign business travellers:* Foreign persons on short visits related to business or professional activities not remunerated from within the country of arrival, whose length of stay is restricted and cannot surpass 12 months.

***Foreigners admitted for employment:***

*Migrant workers:* Persons admitted by a country other than their own for the explicit purpose of exercising an economic activity remunerated from within the receiving country. Some countries distinguish several categories of migrant workers, including (i) seasonal migrant workers, (ii) contract workers, (iii) project-tied workers, and (iv) temporary migrant workers.

*Migrants having the right to free establishment or movement:* Foreigners who have the right to enter, stay, and work within the territory of a state other than their own by virtue of an agreement or treaty concluded between their state of citizenship and the state they enter.

*Migrants for settlement:* Foreigners who are granted permission to stay for a lengthy or unlimited period and who are subject to virtually no limitations regarding the exercise of an economic activity.

*Employment-based:* Foreigners who are selected for long-term settlement because of their qualifications and prospects in the receiving country’s labour market, but who are not admitted expressly to exercise a particular economic activity.

*Entrepreneurs and investors:* Foreigners who are granted the right to long-term settlement in a country on condition that they invest a minimum sum of money or create new productive activities in the receiving country.”

74. The correspondence between mode 4 and the above categories can be difficult to map. Some categories - such as migrants for settlement and possibly migrants having the right to free establishment or movement - clearly go beyond mode 4 in including permanent residence and establishment. Other categories may encompass some groups going beyond mode 4 - e.g., visitors includes both business visitors (partly falling under mode 4) and tourists (which do not). Some categories - such as foreign business visitors or migrant workers - are a closer fit

to mode 4, but may include persons working in non-service activities which would not fall under the GATS <sup>10</sup>.

### **Relevance of the International Standard Classification of Occupations (ISCO 88)**

75. Several countries have made their mode 4 commitments in GATS in terms of the occupation of people that they would be prepared to admit in the context of trade in services. Examples of these occupations include: lawyers or attorneys; accountants; auditors; medical doctors and dentists; fashion models and speciality occupations; tax accountant; foreign legal consultant; urban planner; senior computer specialists; computer scientists; systems analysts; programmers; software document analysts; field engineers; and travel tour managers.
76. There are advantages in using a common system of definition of occupations in this regard. A number of WTO Member countries have suggested drawing on existing classification instruments such as ISCO88; others have queried how useful this would be (e.g. for defining non-occupation based categories used in mode 4 commitments such as “specialists”. Whether or not ISCO88 is used by trade negotiators it is likely that statisticians who seek to measure the international movement of certain categories of occupation would turn to using the International Standard Classification of Occupations to identify these movements in a standard and comparable way.
77. Measurement of mode 4 trade in services is still at the early development stage. The UN Interagency Task Force on Trade in Services is seeking opportunities to develop the conceptual framework for mode 4 and cooperate with others working in similar fields. A number of initiatives are being undertaken for example:-
- a) UNCTAD is developing some pilot studies with volunteer countries on mode 4 trade in services.
  - b) OECD has a programme of work on measuring international movement of highly skilled workers in relation to its impact on innovation and economic growth. In this context, the recording of occupation through ISCO and level of qualification through ISCED in migration statistics is a pre-requisite as these classifications are commonly used to identify the highly skilled in other data sources. Some other occupations, not directly available from ISCO (e.g. researchers) are also of interest.
  - c) WHO is planning a project to measure trade in health services including movement of health professionals and the impact on health care. From the health perspective, WHO are also interested in permanent migration of health professionals not just temporary movement. WHO is also considering other possible data sources such as:-
    - institutional data e.g. from hospitals;
    - recruitment agencies;
    - migrant associations;
    - professional registers;
    - Ministry of Health statistics;
    - Union statistics where a profession is unionized;
    - industry surveys.

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<sup>10</sup> There is some debate about the scope of service activities for the purposes of GATS mode 4. For example while some would exclude temporary agricultural workers, others would argue that they are suppliers of fruit-picking services and therefore fall under the GATS.

## Conclusions

78. Development work on measuring trade in services has highlighted the need for improvements to a range of economic classifications, with stronger links between them and potential new demands and trade uses for some social classifications.
79. In particular EBOPS links to CPC and ISIC should be strengthened, but a complete product basis for EBOPS may be counterproductive. A high priority for trade analysts is the successful outcome of convergence exercises regarding ISIC and regional/national industry classifications. A common aggregation for professional, scientific and technical services in EBOPS, CPC and ISIC(2 digit level) is advocated with a harmonisation of descriptions regarding environmental services. Health services should be more clearly identified in ISIC, and EBOPS.
80. The product *software* has three main components in trade classifications:- software goods, computer services and royalties and license fees. The software component of royalties and license fees should be separately identified in EBOPS and CPC. A corresponding extension to other important licensed products should be considered. A general review of trade and product classifications to identify the product *software* more clearly is needed.
81. Development work to measure mode 4 trade in services, the presence of natural persons, is making use of a number of social, as well as economic, classifications, including classifications of types of migrant, occupation, and level of education and may lead to demands for their revision.

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## Annex 1

### Main service groupings in four services classifications

BPM5/EBOPS main categories	CPC groupings (CPC categories numbers)	ICFA services (ISIC numbers) main categories	GNS/W/120 main categories
Transportation	Construction services (54)	Construction (45)	Business services
Travel	Distributive trade services (61-62)	Distributive trades and repair(50-52)	Communication services
Communication services	Lodging food and beverage serving services (63)	Hotels and restaurants ( 55)	Construction and related engineering services
Construction services	Transport and postal services (64-68)	Transport storage and communications (60-64)	Distribution services
Insurance services	Electricity, gas and water distribution services (69)	Financial intermediation (65-67)	Educational services
Financial services	Financial and insurance services (71)	Real Estate Activities (70)	Environmental services
Computer and information services	Real estate services (72)	Renting of machinery and equipment (71)	Financial services
Royalties and license fees	Leasing or rental services without operator (73)	Computer and related activities (72)	Health related and social services
Other business services	Research and development (81)	Research and development (73)	Tourism and travel related services
Personal cultural and recreational	Professional scientific and technical services (82-83)	Other business activities (74)	Recreational cultural and sporting services
Government services not included elsewhere	Telecommunications and information retrieval (84)	Education (80)	Transport services
	Support services (85)	Health and social work (85)	Other services not included elsewhere
	Production services on a fee or contract basis (86)		
	Maintenance and repair services (87)	Sewage and refuse disposal (90)	
	Public administration (91)	Activities of membership organizations n.e.c. (91)	
	Education (92)	Recreational, cultural and sporting activities (92)	
	Health and social work (93)	Other service activities (93)	
	Sanitation and other environmental services (94)		
	Recreational cultural and sporting activities (95)		

## Annex 2

### International Trade Codes for Computer Software

#### Merchandise Software Trade Codes

##### HS 1996 and 2002

8524: Records, tapes and other recorded media for sound or other similarly recorded phenomena, including matrices and masters for the production of records but excluding products of chapter 37

852431 discs for laser reading systems for reproducing phenomena other than sound or image

852439 discs for laser reading systems other [exclude?]

852440 magnetic tapes for reproducing phenomena other than sound or image

852491 other for reproducing phenomena other than sound or image

852499 other - other

#### Joint OECD-Eurostat Classification of International Trade in Services

##### International BOP code

##### 262 Computer and information services

##### 263 Computer services

a. EBOPS Description: *Computer services* consists of hardware and software related services and data processing services. Included are hardware and software consultancy and implementation services; maintenance and repair of computers and peripheral equipment; disaster recovery services, provision of advice, and assistance on matters related to the management of computer resources; analysis, design and programming of systems ready to use (including web page development and design), and technical consultancy related to software; development, production, supply and documentation of customised software, including operating systems made on order for specific users; systems maintenance and other support services such as training provided as part of consultancy; data processing services such as data entry, tabulation, and processing on a time-sharing basis; web page hosting services (i.e., the provision of server space on the Internet to host clients' web pages); and computer facilities management.

b. Excluded from *computer services* are the provision of packaged (non-customised) software (classified as goods and therefore not included in EBOPS<sup>11</sup>) and non-specific computer training courses (included in *other personal, cultural, and recreational services*).

**264 information services** includes news agency and other information provision services includes: (EBOPS description:)

a) *News agency services* include the provision of news, photographs, and feature articles to the media. In the GNS/W/120 list of services that was a basis for the GATS commitments in the Uruguay Round, these services are a part of "recreational, cultural and sporting services" rather than *computer and information services* in the case of BPM5. These services are therefore separately identified in the EBOPS classification, thus facilitating a linkage with GNS/W/120.

b) *Other information provision services* includes database services—database conception, data storage, and the dissemination of data and databases (including directories and mailing lists), both online and through magnetic, optical, or printed media; and web search portals (search engine services that find Internet addresses for clients who input keyword queries). Also included are direct, non-bulk subscriptions to newspapers and periodicals, whether by mail, electronic transmission or other means.

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<sup>11</sup> At the time of finalisation of this *Manual*, the classification of the provision of software that is downloaded through the Internet was still under discussion.

### **266 royalties and license fees**

**EBOPS description:** This *Manual* recommends a disaggregation of the BPM5 component into **franchises and similar rights** and **other royalties and license fees**. *Franchises and similar rights* comprise international payments and receipts of franchising fees and the royalties paid for the use of registered trademarks. *Other royalties and license fees* includes international payments and receipts for the authorised use of intangible, non-produced, non-financial assets and proprietary rights (such as patents, copyrights, and industrial processes and designs) and with the use, through licensing agreements, of produced originals or prototypes (such as manuscripts, computer programs, and cinematographic works and sound recordings). Payments and receipts for the outright purchase or sale of these assets and rights are excluded (following BPM5, these are recorded as capital account transactions, not as services). Excluded also are distributive rights for audiovisual products for a limited period or a limited area; these are included in *audiovisual and related services*

### **285 services between affiliated enterprises n.i.e.**

**EBOPS description:** *Services between related enterprises, n.i.e.*, is a residual category. It covers payments between related enterprises for services that cannot be specifically classified to any other component of EBOPS. It includes payments from branches, subsidiaries and associates to their parent enterprise or other related enterprises that represent contributions to the general management costs of the branches, subsidiaries and associates (for planning, organising and controlling) and also reimbursements of expenses settled directly by parent enterprises. Also included are transactions between parent enterprises and their branches, subsidiaries and associates to cover overhead expenses.

**N.B. There is as yet no comprehensive and clear guidance for the treatment of online delivery of digitized products including software.**