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Revision of the Classification by Broad Economic Categories (BEC)

UNSD / OECD



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MEETING OF THE EXPERT GROUP ON INTERNATIONAL CLASSIFICATIONS
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Item 4 of the Provisional Agenda

Proposal by UNSD and OECD

1. The Classification by Broad Economic Categories (BEC) was developed in the late 1960s in relation to the economic situation at that time (which led to the specific identification of fuels and transport equipment) and was first issued in 1971. It was designed mainly to summarize data on international trade in goods. It also served to organize trade in three basic classes of goods in SNA, namely capital, intermediate and consumption goods.
2. Over the years the BEC was revised four times, most recently in 2002. However, in all cases the original structure of the BEC remained unchanged. The revisions were mainly aimed at correlating the BEC categories to the latest versions of the SITC and the Harmonized System commodity classification.
3. The 2002 BEC publication consists, as was the case for earlier revisions, of a relatively short conceptual part on BEC followed by the definition of BEC in terms of the goods classifications of SITC and the Harmonized System. The actual description of the BEC categories covers no more than 9 paragraphs and sets out the distinctions of primary and processed goods, of capital, intermediate and consumption goods, and of durable, semi-durable and non-durable consumer goods.
4. The current BEC has two focuses. The main one is a classification that identifies major economic categories, from which is derived a second (SNA) distinction between intermediate, consumption and capital goods (see Table 1). In practice this distinction is very much used in national accounting, and is in particular useful for the SUT (Supply and Use Table) compilation.

Table 1
Current BEC and SNA classes of goods

Classification by Broad Economic Categories	Basic classes of goods in SNA
1 Food and beverages	
11 Primary	
111 <i>Mainly</i> for industry	Intermediate
112 <i>Mainly</i> for household consumption	Consumption
12 – Processed	
121 <i>Mainly</i> for industry	Intermediate
122 <i>Mainly</i> for household consumption	Consumption
2 Industrial supplies not elsewhere specified	
21 Primary	Intermediate
22 Processed	Intermediate
3 Fuels and lubricants	
31 Primary	Intermediate
32 Processed	
321 Motor spirit	<i>Not classified</i>
322 Other	Intermediate
4 Capital goods (except transport equipment), and parts and accessories thereof	
41 Capital goods (except transport equipment)	Capital
42 Parts and accessories	Intermediate
5 - Transport equipment and parts and accessories thereof	
51 Passenger motor cars	<i>Not classified</i>
52 Other	
521 Industrial	Capital
522 Non-industrial	Consumption
53 Parts and accessories	Intermediate
6 Consumer goods not elsewhere specified	
61 Durable	Consumption
62 Semi-durable	Consumption
63 Non-durable	Consumption
7 - Goods not elsewhere specified	<i>Not classified</i>

5. UNSD and OECD in consultation with statisticians, researchers and users of international trade statistics request the Expert Group to review and revise the BEC. The proposed areas for revision are (1) updating the broad economic categories to current economic relevance, (2) including services as well as goods in the definition of the BEC categories, (3) giving a more thorough and more complete description of the BEC categories and dimensions with classification guidelines; and (4) moving the durable, semi-durable and non-durable distinction out of the main categories and present it only as an alternative grouping.
6. The current use of BEC is described by OECD in Annex 1. Researchers at OECD and other institutions have been using BEC in an attempt to get the best possible estimates of

international trade in intermediate goods by industry to analyze the socio-economic impact of globalization with use of I-O tables. In fact, since BEC categorizes cannot perfectly identify intermediates, I-O tables themselves with their intermediate input structures can help re-calibrate estimates of trade in intermediate goods and take account of the import content of exports and the contribution of factor inputs (by country) in final products. This is an issue of great policy interest.

7. As a starting point for the revision, UNSD and OECD offer a proposal which is set out in Table 2 below. In this proposal BEC contains both goods and services, and the broad economic categories are Food and beverages products, Energy products, Transport products and Electronic products. Instead of forcing a classification of each product into one of the end-use categories, this proposal adds multi-purpose subcategories as a possibility. For study of dynamics and dependencies in the global value chain research, a further distinction of generic and customized intermediate goods is very useful, and is therefore proposed as a further sub-division. The distinction 'generic' versus 'customized' is mostly meant in the context of manufacturing industries as a distinction between intermediates which can be used as inputs in various industries (generic) versus intermediates which are very specific for one line of products (customized); for instance, steel plates (generic) versus mufflers (customized). For the purpose of overall aggregation, primary intermediates would correspond to generic intermediates and processed to customized intermediates.
8. BEC is best expressed in terms of HS for the goods and in terms of CPC for services categories. CPC further offers the possibility to get an overall correspondence of BEC to CPC including both goods and services.
9. In conclusion, we request the Expert Group to review and revise the BEC by (1) updating the broad economic categories to current economic relevance, (2) including services as well as goods in the definition of the BEC categories, (3) giving a more thorough and more complete description of the BEC categories and its dimensions including classification guidelines, and (4) providing the correspondence of BEC to the basic categories of HS and CPC.

Table 2
Proposed BEC and SNA classes of products

Classification by Broad Economic Categories	Basic classes in SNA
1 Food and beverages products	
11 Primary	
111 <i>Mainly</i> for industry	Intermediate
112 <i>Mainly</i> for household consumption	Consumption
113 Multi-purpose goods	Not classified
12 – Processed	
121 <i>Mainly</i> for industry	Intermediate
122 <i>Mainly</i> for household consumption	Consumption
123 Multi-purpose goods	Not classified
13 – Services	
131 <i>Mainly</i> for industry	Intermediate

132	Mainly for household consumption	Consumption
133	Multi-purpose services	Not classified
2 Energy products		
21	Primary	
211	Mainly for industry	Intermediate
212	Mainly for household consumption	Consumption
213	Multi-purpose goods	Not classified
22	– Processed	
221	Mainly for industry	Intermediate
222	Mainly for household consumption	Consumption
223	Multi-purpose goods	Not classified
23	– Services	
231	Mainly for industry	Intermediate
232	Mainly for household consumption	Consumption
233	Multi-purpose services	Not classified
3 – Transport products		
31	Goods	
311	Mainly for gross fixed capital formation	Capital
312	Mainly for industry	Intermediate
312a	<i>Generic</i>	
312b	<i>Customized</i>	
313	Mainly for household consumption	Consumption
314	Multi-purpose goods	Not classified
32	Services	
321	Mainly for gross fixed capital formation	Capital
322	Mainly for industry	Intermediate
323	Mainly for household consumption	Consumption
324	Multi-purpose services	Not classified
4 – Electronic products		
41	Goods	
411	Mainly for gross fixed capital formation	Capital
412	Mainly for industry	Intermediate
412a	<i>Generic</i>	
412b	<i>Customized</i>	
413	Mainly for household consumption	Consumption
414	Multi-purpose goods	Not classified
42	Services	
421	Mainly for gross fixed capital formation	Capital
422	Mainly for industry	Intermediate
423	Mainly for household consumption	Consumption
424	Multi-purpose services	Not classified
5 – Products not elsewhere classified		
51	Goods	
511	Mainly for gross fixed capital formation	Capital
512	Mainly for industry	Intermediate
512a	<i>Generic</i>	
512b	<i>Customized</i>	
513	Mainly for household consumption	Consumption
514	Multi-purpose goods	Not classified
52	Services	
521	Mainly for gross fixed capital formation	Capital
522	Mainly for industry	Intermediate
523	Mainly for household consumption	Consumption
524	Multi-purpose services	Not classified

ANNEX 1

Current uses of the Classification by Broad Economic Categories (BEC)

Note by OECD

At the September 2009 EGM there was general support for reviewing BEC particularly as it seemed to be implicated in a range of economic analyses – often beyond its original purpose. Participants agreed that the review could involve considerations on whether to expand BEC to include services and decided that a first step in the process should be an assessment of the current use of BEC to determine the approaches to be taken i.e. what type of review/revision should be carried out, if any.

Below, is a brief overview of current uses of BEC with an emphasis on recent analytical uses. To complete the assessment, views on the use of BEC from a variety of national statistical agencies and international organizations were sought. In particular valuable feedback was provided by participants at the March 2010 meeting of the Task Force for Statistics in International Trade in Services (TFSITS) – notably from Italy, Germany, Japan, and USA (Annex 2). Input was also provided by Brazil and New Zealand. A discussion on updating BEC and its correspondences to CPC and COICOP was provided to UNSD by Jan van Tongeren (Annex 3)

Many institutions use BEC for the general purposes that it was designed for. That is

- as a convenient way to aggregate current price international trade into large economic classes of commodities for analytical and presentational purposes;
- similarly, as a framework for calculating aggregate export and import volumes; and
- to allow international trade data to be aggregated into end-use categories that are meaningful within the framework of the System of National Accounts (SNA) in particular, categories approximating the three basic classes of goods in the SNA: capital goods, intermediate goods and consumption goods¹. See Table 1.

Some statistical offices, such as IGBE Brazil (Box 1), have BEC integrated into their statistical systems with some developing their own versions, derivatives of BEC, that may have more detail, for example, New Zealand's NZBEC (Box 1) and Australia's BEC for Balance of Payments. Other countries, such as Canada and USA, present trade statistics according to their own national end-use classifications. However, In European countries, use of BEC does not seem to be common although Eurostat publishes monthly trade statistics for EU area(s) according to BEC².

In recent years, researchers at OECD and other institutions have been using BEC in an attempt to get the best possible estimates of international trade in intermediate goods by industry in order to link national, 'harmonized', industry x industry Input-Output (I-O) tables to analyse the socio-economic

¹ For example, *Asia Beyond the Crisis: Visions from International Input-Output Analyses*, IDE-JETRO, December 2009, www.ide.go.jp/English/Publish/Download/Spot/31.html, where Chapter 1. "The Triangular Trade – The Shock Transmission Mechanism in the Asia-Pacific Region" uses BEC in order to analyse trade by main end-use between China, Japan/Korea and ASEAN countries; and between Asia, USA and EU. Another example comes from the ECB: www.ecb.int/pub/pdf/scpwps/ecbwp993.pdf.

² http://epp.eurostat.ec.europa.eu/portal/page/portal/external_trade/data/database

and environmental impact of increasing globalization³. In fact, since BEC categorizes 'main uses' and does not and cannot perfectly identify intermediates, I-O tables themselves with their intermediate input structures can help re-calibrate estimates of trade in intermediate goods. Many analysts are also concerned that the current 'gross' trade in goods figures published in UNSD's COMTRADE database (and OECD's equivalent, ITCS) are not providing a realistic picture of how trade really works. Outsourcing and international fragmentation of production should be taken into account in order to measure bilateral trade flows in terms of value added. In other words, take account of the import content of exports and the contribution of factor inputs (by country) in final products. This is an issue of great policy interest to analysts at OECD and the World Trade Organisation (WTO) as well as other agencies such as EC (World Input-Output Database or WIOD project), US International Trade Commission (USITC) and IDE-Jetro, Japan.

Box 1.

Comments from Brazil (Julia Gontijo Vale, IBGE)

We use the BEC as a parameter to classify the NCMs (Common Mercosur Classification, 8 digits - HS). As BEC is more limited than NCM (8 digits), some codes have a specific treatment, due to their main use in Brazil, other than the use category classified in BEC. That accounts for about 30% of the total NCM codes. There is a department responsible for assessing all correspondences in IBGE, and there is an internal group that discusses the main use of some HS codes. So, when this group understands that the BEC proposal is not suitable for Brazil, we classify the product according to our industries demands.

Situation in New Zealand (courtesy of Andrew Hancock)

To coincide with the adoption of the international Harmonised System in January 1988, a New Zealand BEC was created to serve as a means of converting data compiled on the SITC Rev 3. Statistics New Zealand has not reviewed NZBEC since its inception in 1988

Currently Statistics New Zealand produce the following high level outputs based on [NZBEC](#) :

- National Accounts output imports in the Quarterly GDP using overseas trade data. Outputs are classified into : consumption; intermediate goods; capital goods and motor vehicles;
- Overseas Trade outputs are classified into: capital goods, consumption; intermediate goods and other (which is split into passenger motor cars, petrol, aviation gas, military and other);
- Merchandise Trade and Overseas Trade Index (Prices) outputs are classified into: capital goods; intermediate goods and consumption.

Statistics New Zealand is currently considering some form of review of NZBEC based either on any future development work on an international BEC or by updating to at least reflect SITC Rev 4.

Since the last EGM, the use of BEC in conjunction with bilateral trade and I-O tables has been expanding. For example, in December 2009 OECD hosted a meeting of the WIOD project (www.wiod.org) and it was clear that the use of BEC was the main option for making estimates of trade in intermediate goods for linking 'harmonised' Supply-Use tables (before conversion to inter-linked symmetric I-O tables). In

³ For example www.oecd.org/dataoecd/52/8/44056524.pdf which allocates end-uses to SITC Rev. 3 bilateral trade data via the BEC-SITC Rev.3 correspondence key before mapping the data to ISIC Rev.3.

this case, starting with 6-digit HS bilateral trade data and applying the BEC – HS correspondence key(s) before aggregating to product groups.

More applications have become evident - notably in the light of the sustained drive, led by WTO, to measure trade in terms of value added, or factor inputs, and thus better understand international trade flows and global value chains. The use of BEC was discussed at an OECD technical workshop in September 2010 *“New Metrics for GVCs”* where the latest results from the WIOD project and USITC work on trade in value added (www.nber.org/papers/w16426) were presented.

In October 2010, a technical meeting *“Globalisation of Industrial Production Chains and Measuring Trade in Terms of Value-added”* (including BECs role therein) was hosted and chaired by the French Senat with WTO’s DG Lamy giving the keynote speech – illustrating the importance of this issue to policy makers. The past year has seen increasing interest by other international organizations. At the February 2011 meeting of the Global Forum on Trade Statistics in Geneva, *“Measuring Global Trade – Do we have the right numbers?”*, jointly organised by UNSD and Eurostat with the collaboration of WTO and UNCTAD, the issue was addressed, and in June 2011 the World Bank will host a Workshop *“The Fragmentation of Global Production and Trade in Value Added – Developing New Measures of Cross Border Trade”* where WTO, OECD, WIOD, USITC, IDE-JETRO, UNSD, EC, IMF and leading academics will be present.

ANNEX 2

TFSITS meeting, March 2010, on the revision of BEC and its possible extension to services

The Chair explained that UNSD Expert group on International Economic and Social Classifications is planning to review the classification by Broad Economic Categories (BEC) which groups transportable goods according their main end use and supports many applications beyond its original narrow purpose. BEC was initially designed only for goods but its extension to services is being examined [...]. The aim of the presentation was to let the Task Force discuss current uses of BEC and express its view on the possible extension to services. Information on national practices regarding BEC had been kindly made available by USA, Japan, Germany, Italy and Lebanon.

The Bundesbank representative confirmed that BEC was not widely used in Europe and Eurostat noted that the trade data it published following BEC categories is the result of its own aggregations. It was also noted that in Eurostat there was an increasing demand to enhance consistency between trade in goods and trade in services but that this could be achieved more effectively by bringing EBOPS closer to product classifications than by working on the extension of BEC to services. UNCTAD emphasized the interest of the extension of BEC to services for analytical purposes. There was the suggestion that the extension could be done in order to relate trade to Input output and not necessarily at country level. The Bundesbank noted that in the case of services, identifying what is investment, intermediate and final consumption is quite complex.

The Banca d'Italia representative recognized both the challenge and the analytical need for the extension of BEC to services. Some services would be fairly easy to identify as intermediate consumption, business travel and other business services were cited, on the other hand, personal travel would qualify as final consumption. Estimates could then be built for more difficult items like insurance. It was noted that product classifications do not help in identifying intermediate consumption. WTO stressed that the extension of BEC to services is interesting in the current context of increased efforts to link trade in goods and services. WTO also called attention to the interest of BEC in the context of increased importance of research on trade in value added and trade in intermediates. UNSD made a short report on internal discussions with classification colleagues on this matter. OECD Trade Directorate and IMF agreed about the interest of extending BEC to services for analytical purposes and linking trade to Input/output tables.

The Task Force recognized the analytical interest of extending BEC to services which would also contribute in improving the link between trade data and National Accounts. The Task Force however felt that the priority would be to develop correspondence between EBOPS and CPC.

ANNEX 3

Updating BEC and its correspondences to CPC and COICOP

Note by Jan W. van Tongeren, June 16, 2010

Instead of focusing on an update of the BEC only, a wider updating is suggested of classifications and correspondences related to the BEC, i.e.

1. Extending the present BEC correspondences for goods with HS, SITC and CPC, to include also correspondences to CPC categories of services and other goods generally not traded internationally (such as construction).
2. The additional correspondences for services (and some non-tradable goods) should identify at the most detailed level of the CPC, services destined for Intermediate consumption (I), HH final consumption (C), and gross fixed capital formation (K). Also CPC services categories should be identified for NPI and GOV final consumption.
3. COICOP correspondences should be revised and expanded, i.e.
 - a. Present COICOP-CPC 1.0 categories should be updated to COICOP-CPC2
 - b. Detailed BEC categories beyond the I, C, K distinction (see next para.) should be revised in order to arrive at analytically meaningful SNA breakdowns of Intermediate consumption, HH final consumption and Gross Fixed Capital Formation. In particular efforts should be made to link detailed BEC breakdowns to major COICOP categories for HH final consumption and GOV and NPI individual final consumption.

The present BEC has two focuses: The main one is a classification that identifies as major categories: foods and beverages, industrial supplies n.e.c., fuels and lubricants, capital goods and parts and accessories thereof, transport equipment and parts and accessories thereof. From this classification and its further breakdown, is derived a second (SNA) distinction between I, C, and K categories, by identifying the building blocks in the first classification. In practice the I, C, K distinction is very much used in national accounting, and is in particular useful for the SUT (Supply and Use Table) compilation. The BEC may therefore be restructured in the future, by making the I, C, K distinction the prominent one. A breakdown of these three categories may aim at identifying in the breakdown of C the major COICOP categories, in the breakdown of K the major SNA categories of capital formation based on the classification of produced assets in the SNA (see 1993 SNA page 588⁴), and in the breakdown of I the major (output) categories of ISIC that do not end up in HH final consumption or gross fixed capital formation.

By updating not only the BEC and introducing the breakdown of I, C and K as suggested above, and also updating COICOP-CPC, BEC-CPC and COICOP-BEC correspondences, the BEC would become an essential and useful intermediary classification between the classifications of supply and use data.

Through the use of COICOP and its correspondences to the CPC (updated, see above), it is possible to identify the CPC service and non-tradable goods categories that are destined for HH final consumption. Similarly, COICOP categories on individual final consumption can be used to identify GOV and NPI individual final consumption items. CPC services and non-tradable goods categories destined for gross fixed capital formation (GFCF) are very few and easily identifiable in CPC, including services related to software development, mineral exploration and development of entertainment, literary and artistic originals (see 1993 SNA para. 10.34). After thus having identified the CPC services categories destined

⁴ Reference is made in this note to paragraphs and pages of the 1993 SNA. These references may need to be amended, reflecting revisions in the 2008 SNA.

for HH, GOV and NPI final consumption and those destined for GFCF, it may be possible to assign the remaining categories of services in the CPC to intermediate consumption.

Please note that

1. intermediate consumption also includes intermediate consumption for the production of GOV and NPI services
2. the distribution in kind by GOV and NPI of goods and services are treated as part of HH final consumption

The correspondences between CPC and COICOP through the BEC as intermediary, referred to above, are very important for the development of Supply and Use Tables (SUT) in national accounting. In the SUT compilation, data on output and imports obtained from economic surveys, import statistics and BOP and classified by CPC, are confronted and reconciled with data in particular on HH final consumption by COICOP categories, obtained from HH surveys. By using the BEC classification of I, C and K and its further breakdown as suggested above, as an intermediary between the CPC and COICOP, it is possible to reconcile SUT data between supply and use at a breakdown that is meaningful for economic analysis.