MAIN ECONOMIC INDICATORS

COMPARATIVE METHODOLOGICAL ANALYSIS

Volume One

INDUSTRY, RETAIL AND CONSTRUCTION INDICATORS

2001

FOREWORD

This publication provides comparisons of methodologies used to compile some of the short-term economic indicators published by the OECD for its Member countries. It is the first in a series of such publications. The indicators covered are published in the monthly OECD publication, *Main Economic Indicators* (MEI).

The primary purpose of this publication and the companion publication, *Main Economic Indicators: Sources and Definitions* published in July 2000, is to provide users with methodological information underlying the short-term indicators published in MEI. Such information is essential to ensure their appropriate use in an international context by analysts. The information will also enable national statistical institutes and other agencies responsible for compiling short-term economic indicators to compare their methodology and data sources with those used in other countries. Finally, it will provide a range of options for countries in the process of creating their own indicators, or overhauling existing indicators.

The companion publication, *Main Economic Indicators: Sources and Definitions*, provides summary descriptions of individual country methodologies used in the compilation of short-term economic indicators for Member countries and for non-member countries within the program of activities of the Centre for Co-operation with Non-Members (CCNM). The current publication differs from the sources and definitions publication in that it contains more extensive analysis of the methodologies countries use to compile short-term economic indicators published in MEI. This analysis focuses on issues of data comparability in the context of existing international statistical guidelines and recommendations published by the OECD and other international agencies such as the United Nations Statistical Division (UNSD), the International Monetary Fund (IMF) and the International Labour Organisation (ILO).

It is not intended that the information in this publication should be as detailed as that provided by national institutes responsible for compiling the indicators. Insofar as possible, the publication contains information enabling the user to access more detailed methodological information available from the national compiler, particularly where such information can be accessed from websites. Nevertheless, it has not been possible to cover all methodological aspects relating to the indicators for every OECD Member country. Indeed, a secondary purpose of the publication is to highlight important areas where, for certain countries, gaps remain so that the national agencies responsible may take action to disseminate the required information with reference to what is available for other Member countries.

International data comparability is but one aspect of the broader issue of “data quality”. Another important dimension of data quality given even more prominence for short-term indicators in recent years is timeliness. In particular, the growing importance of financial markets and the government and non-government institutions that operate within those markets has meant even more pressure on agencies compiling and disseminating indicators to provide reliable data, on time, and as soon as possible after the reference period.

In recent years, national statistical institutes and international organisations have devoted much attention to the quality of the data they compile and/or disseminate. More often than not, the meaning of the term “quality” is taken as given, together with how the “quality” of a statistic can be described, either to the statistics specialist or, more importantly, to the non-statistical specialist user primarily interested in the ability of the data to adequately reflect the phenomena it purports to measure. Varied

approaches are applied to measuring statistical quality. These range from the identification of a set of very specific quantitative measures, to the provision of qualitative descriptions of the methodologies used in the collection and compilation of the statistics. These and other issues have been the subjects of numerous conferences organised by national and international agencies.

The seemingly simple label "quality" encompasses a myriad of issues and trade-offs underlying the statistics compiled by various organisations, the complexity of which precludes any one approach being completely adequate for all statistical series, for all uses of a specific series and for all users of the data. The approach adopted in this publication is to narrow the focus to data comparability. However, even this approach is not without difficulty, for example, what specific aspects of data collection and compilation does one actually compare across countries and what impact do any differences identified really have in terms of the use of the data?

As mentioned above, the comparability of the statistical series published in MEI is undertaken in the context of existing international statistical "standards". Even this term raises the issue of what exactly is an "international statistical standard". Related issues that came to light in the process of identifying statistical standards for use in this publication were: statistical subjects (for short-term economic indicators) where international standards were either non-existent or out of date; the degree of acceptance of a set of guidelines and recommendations as constituting a "standard"; and the often general/broad terms in which the recommendations embodied in the standards are expressed. The authors acknowledge that there is no unique answer to these and other issues raised above and emphasise that the approach adopted here is an initial one.

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The OECD Secretariat gratefully acknowledges the contribution of the national statistical institutes and the various other national authorities responsible for short-term economic indicators, and thanks them for their co-operation. Without this assistance it would not have been possible to produce this publication.

Acknowledgement is also given to the United Nations Statistical Division, the International Labour Organisation, the International Monetary Fund and the Statistical Office of the European Communities (Eurostat) for the country methodological information used to supplement and clarify the methodological information provided directly by national statistical agencies.

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1. INTRODUCTION

1.1 Necessity for metadata in interpreting data

The OECD collects an extensive range of statistics from both Member and non-member countries within the programme of activities of the Centre for Co-operation with Non-Members (CCNM). The primary purpose for collecting such information is to provide the various Directorates in the Organisation with a statistical base for their economic studies of Member countries. Such studies include economic surveys and economic analyses and policy recommendations to Member governments in current areas of OECD activity. However, the statistics collected are of similar use to external agencies and institutions (government, private, academic, international, etc.). In recognition of this, the OECD also disseminates most of the information gathered via an extensive range of paper and electronic publications.

The OECD's monthly publication, *Main Economic Indicators* (MEI), provides an overall view of short-term economic developments through presentation of an extensive range of specific short-term economic indicators within each of the following subjects:

- national accounts
- production
- business and consumer opinions
- composite leading indicators
- manufacturing
- construction
- domestic demand
- labour market indicators
- prices
- finance
- foreign trade
- balance of payments

These indicators are important instruments for the formulation of economic policy at the national level and for use by international organisations such as the OECD, IMF, Eurostat and the European Central Bank (ECB). They are well known, widely collected and used extensively by countries and international organisations.

In addition, the methods for their collection and compilation are usually well established and documented within each country and in statistical methodological information compiled by international organisations such as the IMF for their Special Data Dissemination Standard (SDDS). Even so, the methodologies used are not always transparent for a large number of users. In some cases, this may lead to misinterpretation of statistical data and a misunderstanding of economic phenomena, especially when making international comparisons. Undertaking such comparison requires access to statistical methodological information (also commonly referred to as "metadata") that outlines definitions, sources and methods of compilation, etc., of the indicators in question so that cross-country comparability (or rather limitations to it) can be understood.

1.2 Aim of this publication

This publication is the first in a series presenting comparisons of methodology used in the compilation of key short-term economic indicators published in MEI. In this edition, the comparisons are restricted to industrial production indices, retail trade and construction indicators. Subsequent editions will provide similar comparisons for price indices; labour force (employment, unemployment

and earnings); business and consumer opinions; composite leading indicators; foreign trade; and finance.

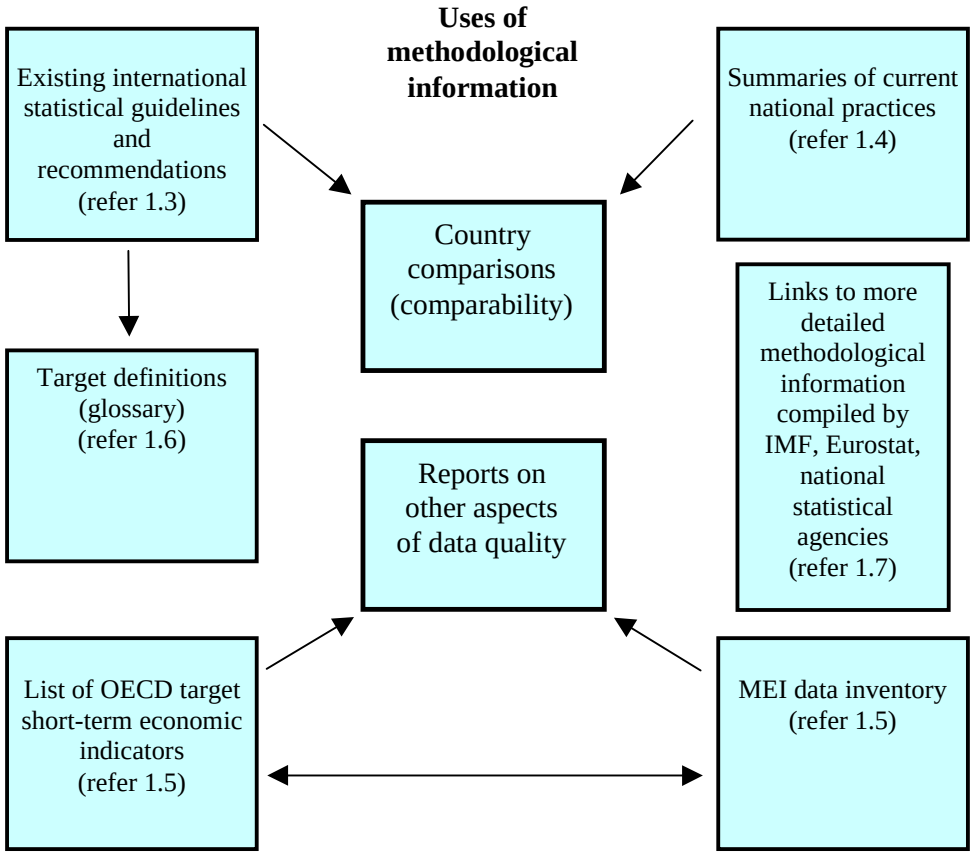
The main elements used in the comparison of national practices for key indicators published in MEI covered in this publication are:

- existing international statistical guidelines and recommendations for short-term economic indicators;
- target definitions derived from those international standards;
- summaries of statistical methodological information outlining current national practices in individual countries;
- the list of MEI target short-term economic indicators (*i.e.* what the OECD would like to collect for each country); and
- the MEI data inventory that outlines what the OECD actually collects and disseminates.

These elements are used in comparisons of current national statistical practices such as those presented in this publication and in reports and assessments on other aspects of data quality.

The relationship between these elements is illustrated in Diagram 1.

Diagram 1: Elements in the comparison of MEI short-term economic indicators



Existing international statistical guidelines and recommendations are the source of the definitions for the MEI target short-term indicators, *i.e.* the short-term economic indicators that the OECD would like to publish for each Member country. The MEI data inventory provides a detailed list of what the OECD actually publishes for those countries, either directly or via other international organisations. Current national practices regarding the compilation of each short-term economic indicator are provided by national agencies (again either directly or via other international organisations) in the form of statistical methodological information.

All five components in the above diagram are used in the comparisons provided in the subsequent parts of this publication. These comparisons comprise:

- a description of the indicator, and background information on the context and use(s). Such information often provides an insight into areas and issues that impact on the comparability of the indicator, an indication to users on how data may be used, limitations to the use of the data, etc.;
- reference to specific existing international statistical guidelines and recommendations;
- relevant data specifications and definitions and other information on the indicators actually collected from Member countries;
- summary comparison tables outlining key methodological aspects of current national practice for each of the indicators in this publication (*i.e.* industrial production indices, retail trade and construction indicators);
- the Internet address of detailed methodological information provided on websites by national agencies and other international organisations (most notably the IMF on their Dissemination Standards Bulletin Board (DSBB) and Eurostat).

Resource constraints preclude comparisons of all the methodological issues involved in the collection, compilation and presentation of the indicators compared in this publication. Those included in the comparison tables are (subjectively) thought to have the greatest impact on data comparability. They vary for each MEI series.

1.3 International guidelines for short-term economic indicators

Over the last two or three decades an extensive range of guidelines and recommendations for most of the short-term economic indicators published in MEI have been prepared by international organisations working with national statistical institutes and other agencies responsible for their compilation and dissemination. The main objective of such guidelines and recommendations is the development of best practice in the collection, compilation and presentation of the indicators. The use of best practice also contributes towards making the indicators more comparable. The content of the guidelines varies although they normally include a number of dimensions such as definitions of key terms, classifications and recommendations on best practice for the collection, compilation and presentation of statistics.

Where they exist, key methodological items within existing international statistical guidelines (generally those developed by the United Nations Statistical Division (UNSD) and the International Monetary Fund (IMF)) have been used as the basis for across-country comparisons in this publication.

A comprehensive list of current international guidelines and recommendations is maintained by UNSD on their website, *Methodological Publications in Statistics* (http://esa.un.org/unsd/progwork).[1] The list includes international guidelines relevant for almost all of the short-term indicators published in MEI. The list is useful in its own right as it provides ready access to what commentators generally refer to as "international statistical standards". It also helps identify areas where standards are non-existent or out of date. Finally, it provides a reference for those wishing to know whether existing standards are currently being developed or modified. Reference in this publication has also been made, where appropriate, to recommendations of the Statistical Office of the European Communities (Eurostat).[2] These are also included on the UNSD site.

The majority of indicators published in MEI have been prepared by national agencies primarily to meet the requirements of policy departments within their own country. In most instances, the indicators have been developed within international guidelines and recommendations. However, because of resource constraints or specific national requirements, national practices sometimes depart from these guidelines. These departures may impact on the comparability of statistics compiled by different countries. The operative word is "may", as some departures from international guidelines could, in fact, have little actual impact on comparability, particularly at the broad aggregate level. It should also be emphasised that national departure from international guidelines and recommendations is not necessarily an indication of diminished data quality as a whole, especially from the perspective of national users.

Examination of the comparison tables in this publication, and in subsequent publications in this series, will show that methodologies used for compiling most of the statistical series presented in MEI are not completely comparable across countries. The extent of comparability varies from series to series. For some series (*e.g.* PPIs, hourly earnings) the differences are significant, for others less so. The tables illustrate the point that international statistical comparability, whilst a desirable goal for cross-country analysis, is seldom achieved. In many instances, the most that can be achieved is for countries to compile series within the broad boundaries of existing international statistical guidelines and recommendations, and provide sufficient methodological information to enable the user to assess whether differences in methodology have any significance in relation to the analysis on hand.

1.4 Statistical methodological information for international comparisons

Much of the discussion on the reliability of statistics centres on issues of "data quality". Without going into too much detail on what is meant by the term, it is sufficient to say that it embodies a number of dimensions including accuracy, timeliness, relevance, accessibility and, in the international context, comparability.[3]

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[1] Existing international classifications are also listed on a Eurostat site - http://europa.eu.int/comm/eurostat/ramon

[2] Eurostat guidelines, delivered in the form of "Council Regulations", are binding for European Union member countries and are therefore normally more specific with regard to the statistical characteristics of data than recommendations issued by other international organisations. These Regulations are also being adopted by many eastern and southern European countries as part of the process for gaining membership to the European Union.

[3] Issues relating to data quality and international comparisons are described in detail in the paper, *International Comparability and Quality of Statistics*, Raoul Depoutot and Philippe Arondel, published September 1998 in the proceedings of an international conference on Analysis of Economic (Micro) Data 1997 (CAED97) held at Bergamo, Italy, on 15-17 December 1997. This paper outlines a number of approaches to the issue of international statistical comparability. These comprise the:

- "uniform approach" which entails attempting to define exactly the same concepts and the same measurement process to produce output as though it were produced in the same country;

In recent years greater emphasis has been given to the importance of ensuring that statistics published by international organisations, national statistical institutes and other agencies are accompanied by adequate methodological information. The provision of such methodological information arises from a desire to lend transparency to the data so that the typical end-user can make an informed assessment of their usefulness and relevance to his or her purpose. However, the notion of the end-user referring to detailed methodological information is somewhat idealistic and seldom occurs in reality. In recognition of this, the approach for presenting methodological information for MEI is similar to one described by Eurostat[4] in that such information is best presented as layers within a pyramid.

In the model presented in Diagram 2, for any specific statistical series (*e.g.* CPI, PPI, industrial production index, unemployment rate, etc.) methodological information describing the data becomes more detailed as one moves down from the apex of the pyramid. A brief description of each layer in the pyramid in the context of MEI is provided below:

- Table headings and footnotes – Are an integral part of each statistical table published in MEI. The aim is to make table headings clear and as brief as possible. Footnotes are also kept to a minimum and are restricted to those essential for an understanding of the data.
- Explanatory notes – Are provided at the back of the MEI paper publication. They provide a brief general description of the indicator and an outline of key issues that can impact on the use of the data. In the main, the explanatory notes in MEI do not provide much detail on individual country methodology/practices.
- Sources and definitions – Provide a brief outline of current national practices for each country summarised under four broad headings (definition, coverage, collection and calculation). Sources and definitions metadata are published in a paper publication, on the OECD website at http://www.oecd.org/std/mei (see supporting information) and in the MEI CD-ROM where it is updated monthly. Sources used for updating the methodological information are national publications and national statistical agency websites, other international organisations and, in relatively few instances, direct contact with national data providers. The latest paper edition of the OECD publication, *Main Economic Indicators: Sources and Definitions*, was released in July 2000.[5]
- Sources and methods – Contains more detailed methodological information on individual country practices collected and disseminated on the basis of a detailed model, template or prompt points. Such models consist of a standard list of methodological items that can be used to describe a statistical series. These encompass the whole range of methodologies involved in describing the source, concepts and coverage, data collection, data manipulation, etc., for the compilation of a short-term economic indicator. There are a finite number of methodological elements that describe a statistical series, from design of the collection frame, actual collection, processing, manipulation,

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- "subsidiarity approach" which relies on national statistical institutes producing data using national methodologies and producing reports on the dimensions of quality including comparability;
- "modelling approach" for which international organisations produce more comparable estimates using econometric techniques;
- "metadata approach" which entails using extensive methodological information collected from national sources to highlight the comparability or lack of comparability of a statistical series.

The current publication relies on the metadata approach.

[4] In the paper, *The Metadata Problem in a European Context*, written by Steven Vale and Marco Pellegrino for the Eurostat Workshop on Statistical Metadata, Luxembourg, 14-15 February 2000.

[5] This publication also outlines the conceptual basis of a range of methodological issues relevant to the presentation of statistics in MEI, *e.g.* seasonal adjustment, zone aggregation, index linking, etc.

to presentation. Unfortunately, the combination and permutations of such methodological elements have yielded an almost infinite number of methodological templates developed by different international organisations and national agencies. Examples of widely used methodological templates are those developed by the IMF for the Dissemination Standards Bulletin Board at http://dsbb.imf.org/.[6]

Examples of sources and methods publications are the various methodological publications produced by the OECD for CPI, PPI, construction price indices, labour and wage statistics and domestic finance statistics. These are located on the OECD website at http://www.oecd.org/std/mei (see national methodological practices). The IMF, ILO and Eurostat have also published sources and methods methodological information on short-term indicators.[7]

A subset of methodological items is used in the presentation of methodological information for MEI short-term indicators for individual countries in the companion publication, *Main Economic Indicators: Sources and Definitions*, referred to above.

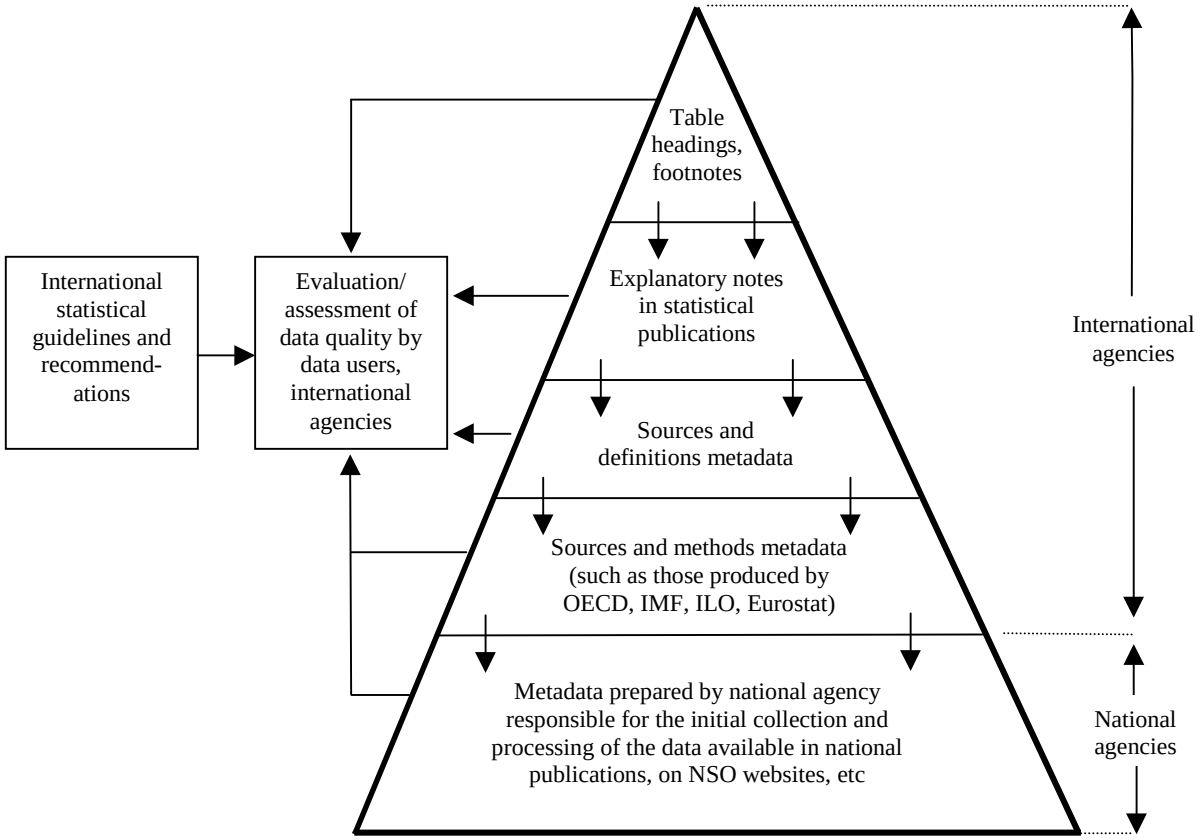
- Methodological information disseminated by national statistical institutes in publications and/or on websites. These are potentially the source of the most detailed methodological information available. Some (though not all) OECD Member countries publish very detailed concepts, sources and methods for a number of their key economic indicators. The need for provision of more extensive methodological information, and its accessibility to users through dissemination on the web, is now receiving greater recognition.[8] However, the national practices of OECD Member countries in this area vary considerably with regard to the amount of methodological detail provided on their websites (even in the national language), frequency of updating, its proximity to the statistics it describes and ease of access by users.

[6] The DSBB provides templates (or prompt points) for: quarterly national accounts; industrial production indices; employment; unemployment; wages/earnings; consumer prices; producer prices/wholesale prices; general government operations; central government operations; central government debt; analytical accounts of banking sector; analytical accounts of central bank; interest rates; stock market share index; balance of payments; international reserves; merchandise trade; population, fertility and mortality statistics.

[7] For example, the IMF provides detailed methodological summaries on its Dissemination Standards Bulletin Board (DSBB) website at http://dsbb.imf.org. Examples of detailed metadata published by the ILO includes the *Statistical Sources and Methods* series published for CPI; employment, wages and hours of work (establishment surveys); economically active population, employment, unemployment and hours of work (household surveys). Eurostat has also published an extensive range of detailed methodological publications for industry statistics, services statistics and household labour force surveys.

[8] Examples of such publications include: concepts, sources and methods publications produced by the Australian Bureau of Statistics for CPI, balance of payments, PPI; metadata publications produced by Statistics Canada for CPI, labour force surveys; Statistics New Zealand for PPI, CPI, balance of payments, quarterly national accounts; US Bureau of Labour Statistics in its *Handbook of Methods* for PPI, CPI, household labour force surveys, and compensation surveys. This list is by no means exhaustive.

Diagram 2: Metadata dissemination model



Most users of methodological information disseminated by the OECD and other international agencies in the context of the dissemination model outlined above (in Diagram 2), merely access the top layer. If they require more detailed information on specific methodological aspects to determine the relevance of the data to their requirements, they may have to search through succeeding layers where more detailed methodological information is provided. They may ultimately need to refer to methodological information disseminated by national agencies.

The normal role of the statistician, in relation to statistical methodological information, primarily entails its collection, verification and dissemination. To this should be added the task of giving it structure and providing a clear path that enables users to dig as deeply as necessary without being buried in enormous amounts of text. In addition to helping others make use of statistical methodological information, statisticians in international organisations (and elsewhere), also use it in evaluations and assessments of data quality and comparability.

1.5 Target indicators for *Main Economic Indicators*

Over the last two decades there has been a trend towards greater convergence in national practice as a result of (i) the development of international statistical standards and their implementation by national agencies, and (ii) improved and more extensive communication between national and international agencies. The emergence of greater economic interdependence between countries and trading blocs, and the resulting demand by users for more comparable statistics and improved methodological transparency, has provided a significant catalyst for this trend.

As will be shown in the comparison tables presented below in subsequent Parts of this publication, there is no such thing as complete data comparability between countries owing to methodological differences in national practice arising out of a combination of historical and cultural factors. As mentioned earlier, the real impact and significance of differences in methodological practice between countries is dependent to a large extent on the use of the data. However, it is fair to say that many of the main "headline" short-term indicators are sufficiently comparable to enable broad comparisons of changes in level between countries.

Ideally, the indicators provided by Member countries should be as comparable as possible between countries to facilitate comparison of economic phenomena. In this regard, the series presented in Part One of MEI, *Indicators by subject*, facilitate broad comparisons across countries. However, in many cases, "comparable" series are not available and practicality demands that the OECD often has to accept the next best solution, namely "common" series with associated methodological information. "Common" series are presented in Part Two of MEI, *Indicators for OECD Member countries*. These series can differ significantly in scope, coverage, definition, etc., and comparisons are meaningless unless methodological information is available and understood. Facilitating more transparent comparability through the use of methodological information provided by the national agencies responsible for the initial collection and compilation of the indicators is one of the main aims of this publication.

MEI includes a wide range of specific short-term indicators within each of the subjects listed in Part 1.1. Table 1 below contains a list of "target" indicators sought by the OECD for inclusion in the monthly publication. No one Member country compiles all the indicators in the list to meet the requirements of its main national users. The main objective of the list is to provide focus for OECD requests to Member country agencies and other international organisations for MEI data and methodological information. Such focus is necessary to ensure the collection of a range of indicators "common" to as many Member countries as possible. Obviously, the list needs to be revised at regular intervals as priorities change and new topics of interest to users emerge.

The target indicators in Table 1 are a draft list of what the OECD would like to collect for inclusion in MEI, in either Part One or Part Two. Another list of what the OECD actually collects and disseminates in both paper and electronic media is provided in the MEI Inventory available on the OECD website at http://www.oecd.org/std/mei (see supporting information).

Table 1: List of target short-term economic indicators for *Main Economic Indicators*[1]

National accounts
1. GDP (value)
2. GDP (volume)
3. Implicit price level

Production
4. Industry excluding construction
5. Manufacturing
6. – Consumer goods: total
7. – Consumer non-durable goods
8. – Consumer durable goods
9. – Investment goods
10. – Intermediate goods including energy
11. – Intermediate goods excluding energy
12. – Energy
13. Construction
14. Services
15. Rate of capacity utilisation

Commodity output
16. Cement
17. Crude steel
18. Crude petroleum
19. Natural gas
20. Commercial vehicles
21. Passenger cars

Manufacturing - sales (volume)
22. Total
23. – Domestic
24. – Export
25. Consumer goods: total
26. – Consumer non-durable goods
27. – Consumer durable goods
28. Investment goods
29. Intermediate goods including energy

Manufacturing - new orders (volume)
30. Total
31. – Domestic
32. – Export
33. Consumer goods: total
34. – Consumer non-durable goods
35. – Consumer durable goods
36. Investment goods
37. Intermediate goods including energy

Manufacturing - stocks (volume)
38. Total
39. Finished goods
40. Work in progress
41. Intermediate goods

OECD composite leading indicator
42. Trend restored
43. 6-month rate of change (annual rate)

Construction
44. Orders/Permits: total construction
45. Orders/Permits: residential
46. Work put in place: total construction
47. Work put in place: residential

Business tendency surveys
48. Industrial business climate
49. Industrial production: future tendency
50. Industrial orders inflow: tendency
51. Industrial order books: level
52. Industrial finished goods stocks: level
53. Industrial export order books or demand: level
54. Industrial rate of capacity utilisation
55. Industrial employment: future tendency
56. Industrial selling prices: future tendency
57. Construction orders inflow: future tendency
58. Construction employment: future tendency
59. Retail/wholesale: present business situation
60. Retail/wholesale business situation: future tendency
61. Retail/wholesale stocks: level
62. Other services: present business situation
63. Other services business situation: future tendency
64. Other services employment: future tendency

Consumer tendency surveys
65. Consumers confidence indicator
66. Consumers expected inflation
67. Consumers expected economic situation

Retail sales
68. Total retail sales (value)
69. Total retail sales (volume)
70. New passenger car registrations (level)

International trade
71. Imports c.i.f. or f.o.b. (value)
72. Exports c.i.f. or f.o.b. (value)
73. Net trade (value)
74. Imports c.i.f. or f.o.b. (volume)
75. Exports c.i.f. or f.o.b. (volume)
76. Import prices
77. Export prices

Labour
78. Employment: total
79. – Employment: agriculture
80. – Employment: industry
81. – Employment: services
82. Total employees
83. – Part-time employees
84. – Temporary employees
85. Total unemployment (level)
86. Total unemployment (rate)
87. Unemployment: short-term index
88. Worked hours
89. Job vacancies

Wages
90. Hourly earnings: all activities
91. Hourly earnings: manufacturing
92. Unit labour costs: manufacturing

Producer prices
93. Total
94. Manufacturing
95. – Consumer goods
96. – Investment goods
97. – Intermediate goods including energy
98. – Intermediate goods excluding energy
99. – Energy
100. Food
101. Services

Consumer prices
102. Total
103. Food
104. All items less food and energy
105. Energy
106. All services less rent
107. Rent
108. National core inflation

Domestic finance
109. Narrow Money
110. Broad Money
111. Domestic credit to total economy
112. New capital issues
113. Fiscal balance
114. Public debt

Balance of payments
115. Current account balance
116. – Balance on goods
117. – Balance on services
118. – Balance on income
119. – Balance on current transfers
120. Capital and financial account balance
121. – Reserve assets
122. Net errors and omissions

Interest rates – share prices
123. 3-month interest rate
124. Prime interest rate
125. Long-term interest rate
126. All shares price index

Foreign finance
127. US dollar exchange rate: spot
128. Euro exchange rate: spot
129. Reserve assets excluding gold

[1] This target list is based on priorities as of December 2001. As stated in the main text, such a list needs to be revised at regular intervals as priorities change and new topics of interest to users emerge.

1.6 Target definitions for MEI target indicators

In addition to the list of target indicators provided above, the OECD has also published a glossary or thesaurus[9] containing "target definitions" for many of the indicators published in MEI. These are derived from existing international statistical recommendations and guidelines. It is stated in the Glossary that "national practices, methodologies and concepts used in the actual compilation of data by OECD Member countries may (and frequently do) depart from these standards for a number of reasons". In the context of using methodological information to make across country comparisons, it is important to remember that such departures do occur. Moreover, even the use of the same definition does not always guarantee a harmonised or uniform interpretation of that definition in different countries. In this current publication, national departures from standard international definitions have been highlighted whenever possible.

The definitions used in the compilation of the glossary were drawn from the international statistical standards located on the UNSD database referred to above. Extensive use was also made of glossaries published by international agencies. Examples of these include the OECD publication, *System of National Accounts, 1993: Glossary*, [10] the *Monthly Bulletin of Statistics* (MBS) data dictionary published by UNSD[11] and Eurostat's CODED Glossary.[12]

In most instances, the definitions in the OECD glossary are extracted word for word from the relevant international statistical recommendation or guideline. The glossary also provides precise reference information for each definition. The practice of direct quotation from the standard has been adopted to enable the user to refer to the actual guideline document when further information and/or context are required.

It should again be emphasised that the target definitions included in the OECD website are just that, target definitions. As mentioned above, national definitions do in fact depart from these definitions for a number of reasons. However, they provide a useful starting point for comparisons between countries.

1.7 Collection of methodological information for this publication

The OECD currently is looking at ways of streamlining the collection and maintenance of methodological information through more effective co-ordination with other international agencies (in particular IMF, ILO, Eurostat and UNSD). Essentially, this entails the inclusion of links (hyperlinks) in OECD metadata to more detailed methodological information maintained by other international organisations and national agencies in lieu of direct collection by the OECD for MEI. Extensive use of this approach was made in the preparation of the current publication.

There was significant co-operation with national agencies of OECD Member countries, notably national statistical institutes and central banks. Wide use was also made of methodological descriptions provided by these agencies in national publications and on the internet. Some information

[9] OECD Glossary of Statistical Terms will be available at http://www.oecd.org/statistics in 2002.

[10] The preparation of this glossary (published in 2000) entailed extensive input from UNSD, IMF, World Bank and Eurostat. It is available on the OECD website at http://www.oecd.org/std/ana (see documents, publications).

[11] Refer to http://esa.un.org/unsd/cdbmeta/default.asp

[12] Refer to http://forum.europa.eu.int/Public/irc/dsis/bmethods/info/data/new/main_en.htm

was drawn from other sources, for example, information collected by international organisations such as the IMF, ILO, UNSD and Eurostat. In a few instances, direct contact was made with national agencies, usually to verify a specific aspect of methodology.

Finally, extensive material was obtained from papers prepared by OECD staff members for presentation at the Joint OECD-Economic and Social Commission for Asia and the Pacific (ESCAP) Workshop on Key Economic Indicators, held in Bangkok on 22-25 May 2000.

It is important to note that the information in the publication was accurate when the original research was carried out. The accuracy of the information was again checked just prior to publication. However, the compilation practices of Member countries are constantly evolving and given the wide range of subject matter and the number of countries covered, it is likely that methodological changes will occur over time, thus affecting the accuracy of the information contained herein.

1.8 Conclusions

As mentioned above, the focus of this publication is the presentation of comparisons of national practice in OECD Member countries in the compilation of key short-term indicators for industry, retail and construction. It does this by comparing (in a series of comparison tables) current national practice in important aspects of methodology subjectively believed to have particular impact on the comparability of the indicators produced by Member countries.

The methodological information obtained from national agencies and other international organisations was thus sought for a purpose that is probably more specific to the needs of an international organisation such as the OECD, *i.e.* assessment of the comparability of national indicators. The exercise required use of national metadata that was in most cases intended originally to give transparency to the statistics to national users. The process of preparing the comparison tables highlighted the limitations of currently available metadata for use in international comparisons. These limitations stem from problems of accessibility, differences in semantics (the same term does not necessarily have the same meaning) and the fact that national agencies frequently describe different aspects of the statistical production cycle. It is often difficult to obtain metadata for all 30 OECD Member that describes the same methodological element.

The current publication falls well short of describing in any quantitative way the actual significance that identified differences in national practices have with respect to each of the indicators described. However, not withstanding these issues, it is possible for users to draw some conclusions regarding the comparability of the indicators described from the information provided in Parts 2, 3 and 4 of this publication. The significance of the differences identified can really only be made in the context of a specific use of the data.

1.9 Feedback on contents

The OECD welcomes your comments on this publication and suggestions for improvement with respect to contents and presentation. Feedback can be provided by mail, fax or internet to:

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2. INDICES OF INDUSTRIAL PRODUCTION[13]

2.1 Introduction

The MEI publication contains a number of production indices in Parts One (indicators by subject), Two (indicators for OECD Member countries) and Three (indicators for OECD non-member countries). These provide a general measure of changes in the volume of output of goods or services produced by national production units over a given period of time. The production indices published in Part Two of MEI primarily comprise those compiled for the industry sector, though indices are also published for the construction, and to a much lesser extent, the agriculture and service sectors.

A number of OECD Member countries have in recent years expanded the sector scope of their production indices beyond industry. In light of this, more information on construction and output indicators for services will be included in MEI over the next twelve months. However, because of their broader country coverage, the discussion in this Part is largely restricted to indices of industrial production. For this sector, MEI provides sub-aggregate indices either on an activity basis (*e.g.* total industry, manufacturing, mining, electricity gas and water) or by type of end use (*e.g.* finished investment goods, finished consumer durable goods, finished consumer non-durable goods, intermediate goods).

Production indices for the industry sector are used as a main short-term economic indicator in their own right because of the impact that fluctuations in the level of industrial activity have on the remainder of the economy in many OECD Member countries. The availability of production indices on a monthly basis and the strong relationship between changes in the level of industrial production and economic cyclical behaviour facilitates the use of production indices as a reference series in the compilation of cyclical or leading indicators in many countries. These are tools for forecasting turning points in business cycles. Production data are also a key input in the compilation of annual and quarterly national accounts in many Member countries.

2.2 Volume indices

A major aim of economic analysis is to develop an understanding of changes taking place in an economy over time. This includes the measurement of short-term growth or decline. To achieve this for key economic value aggregates, such as the value of industrial production or the value of retail turnover, it is necessary to distinguish between changes arising solely from price changes and those arising from other influences such as quantity and quality, which are referred to as changes in "volume".

[13] Considerable material for this part was drawn from the paper, *Index of Industrial Production: Summary of Practices in OECD Countries*, E-P Hong and M. Chavoix-Mannato, presented at the Joint OECD-ESCAP Workshop on Key Economic Indicators, held in Bangkok on 22-25 May 2000.

Any system of price and volume indices is based on the assumption that at the level of a single homogeneous good or service *i* at time *t*, value (V_{it}) is equal to the price per unit of quantity (P_i) in time *t* multiplied by the number of quantity units (Q_i), *i.e.*:

$$V_{it} = P_{it} \times Q_{it}$$

Volume movements are determined by holding the price constant. By keeping fixed the prices on each item included in the volume index, period to period changes in the constant price estimates for aggregates of items reflect changes in the quantities and/or the quality of the different products. For example, if there is a fall in the total quantity of goods produced or goods consumed, volume data will decrease. Volume data will also decrease where the production or consumption pattern is changing towards cheaper goods (even if total quantity is not decreasing). It should be noted that although a change in volume terms reflects changes in quantity and or quality, it cannot in itself tell which of the factors is responsible. Further investigation is required before it can be ascertained how much of the change is due to quantity and how much to quality influences.

The *System of National Accounts 1993* (SNA) defines a volume index as "an average of the proportionate changes in the quantities of a specified set of goods or services between two periods of time."[14] The quantities compared must be homogeneous while changes for different goods or services must be weighted by their economic importance as measured by their values in one or other, or both, periods. A volume index based on constant prices is therefore one in which volumes are aggregated using prices as the weights.

The expression "constant prices" is often used interchangeably with "volume". However, there is a slight distinction between the terms even though both have had the effects of price changes removed from the underlying value series. More specifically, the term "constant prices" describes aggregate data for several periods compiled using a fixed-base Laspeyres formula so that all the items are expressed in their respective prices of the base period and for which the components and totals are additive. However, for an annually chained volume series the resulting data is non-additive and it is no longer strictly correct to describe then as being at constant prices although for convenience they may be described as such. [15]

In terms of the above notation, measuring a product at constant prices involves the compilation of a time series where all the transactions for that product are expressed in the price of a selected base period *0*.

$$CP_{it} = P_{i0} \times Q_{it}$$

Both the SNA and the *European System of Accounts* (ESA 1995)[16] state that, in general, the best method of estimating volume changes for flows of goods or services is by deflating current value data with a suitable price index. Values of production, sales, etc., may be used in the compilation of such volume indices. The resulting series is often presented in index form with a value of 100 in a base period but may also be presented in national currency.

[14] *System of National Accounts 1993* – Eurostat, IMF, OECD, UN, World Bank (1993), Section 16.11, page 381.

[15] For further information on this distinction, see also *System of National Accounts 1993* – Eurostat, IMF, OECD, UN, World Bank (1993), Sections 16.19 and 16.71 – 16.77, pages 383 and 392-393.

[16] *European System of Accounts ESA 1995* – Eurostat (1996), Section 10.32, page 235.

In practical terms, the adjustment of current value data by a suitable price index provides an alternative to quantity aggregates that cannot be directly measured and aggregated because of their diversity. However, in periods of high inflation there is greater difficulty in measuring both current price data and in compiling price indices since prices increase rapidly in a short period of time. In these circumstances it may be more appropriate to estimate volumes directly. This approach entails the selection of a number of representative individual commodities expressed solely in physical quantity terms.

Volume indices are discussed further in Part 3 in the context of retail trade indices.

2.3 International guidelines and recommendations

The most relevant international statistical guidelines and recommendations for the compilation of industrial production indices are those published by the United Nations in *Studies in Methods – Index Numbers of Industrial Production*, (Series F, No. 1 (1950)). Recommendations for the compilation of annual statistics for industry are provided in another UN publication, *International Recommendations for Industrial Statistics* (UN Statistical Papers, 1983, Series M, No. 48 Rev. 1). The focus of these recommendations, however, is the compilation of annual statistics for industry, though brief mention is given to sub-annual statistics. More specific guidelines for member countries of the European Union have been published by Eurostat in *Methodology of Industrial Short-term Indicators: Rules and Recommendations* (Eurostat, 1996).

Comparisons between countries of key elements of methodology used in the compilation of industrial production indices are provided below in the remainder of this Part. These comparisons are based on the recommendations and guidelines in the United Nations publications referred to previously.

2.4 Frequency of industrial production indices

As Table 2 shows, most OECD Member countries compile monthly indices of industrial production (IIP). Australia, New Zealand and Switzerland compile quarterly indices. Iceland currently compiles an annual index only. The data for Australia, Canada and New Zealand are derived from GDP estimates.

The indices for most Member countries are compiled and disseminated by their national statistical institutes. The exceptions are the United States and Japan where IIPs are compiled respectively by the Federal Reserve Board and the Ministry of Economy, Trade and Industry (METI).

Table 2: Industrial production: source agency and frequency

	Source agency	Frequency
Canada	Statistics Canada	M
Mexico	National Institute of Statistics, Geography and Information	M
United States	Federal Reserve Board	M
Australia	Australian Bureau of Statistics	Q
Japan	Ministry of Economy, Trade and Industry	M
Korea	National Statistical Office	M
New Zealand	Statistics New Zealand	Q
Austria	Central Statistical Office	M
Belgium	Statistical Office of Belgium	M
Czech Republic	Czech Statistical Office	M
Denmark	Statistics Denmark	M
Finland	Statistics Finland	M
France	Statistical Office of France	M
Germany	Federal Statistical Office of Germany	M
Greece	National Statistical Office of Greece	M
Hungary	Hungarian Central Statistical Office	M
Iceland[1]	Statistics Iceland	A
Ireland	Central Statistics Office	M
Italy	National Institute of Statistics	M
Luxembourg	Statistical Office of Luxembourg	M
Netherlands	Statistics Netherlands	M
Norway	Statistics Norway	M
Poland	Central Statistical Office of Poland	M
Portugal	National Institute of Statistics	M
Slovak Republic	Statistical Office of the Slovak Republic	M
Spain	National Statistical Institute	M
Sweden	Statistics Sweden	M
Switzerland	Federal Statistical Office	Q
Turkey[2]	State Institute of Statistics	M, Q
United Kingdom	Office for National Statistics	M

[1] Industrial Production data for Iceland are not published in MEI at the present time. Nevertheless, methodological information for the annual indicator is included in this publication.
[2] In Turkey, annual and quarterly data are derived from a wider coverage than the monthly data.
A: Annual; Q: Quarterly; M: Monthly

2.5 Industrial production indicators published in *Main Economic Indicators*

As stated earlier, for industrial production indices, MEI provides sub-aggregate indices either on an economic activity basis (*e.g.* total industry, manufacturing, mining, electricity gas and water) or by type of end use (*e.g.* finished investment goods, finished consumer durable goods, finished consumer

non-durable goods, intermediate goods). It provides indices on an activity basis for all Member countries except Iceland. On an end use basis, it provides indices for only nineteen Member countries at the present time. It should be noted that the sub-indices under each category are not necessarily comparable or even common across all Member countries. The sub-indices within each category may be significantly different across certain Members.

Table 3: Industrial production: summary of MEI industrial production indicators

	Economic activity	**End use**
Canada	X	X
Mexico	X	..
United States	X	X
Australia	X	X
Japan	X	X
Korea	X	X
New Zealand	X	..
Austria	X	X
Belgium	X	X
Czech Republic	X	..
Denmark	X	X
Finland	X	X
France	X	X
Germany	X	X
Greece	X	X
Hungary	X	X
Iceland	..	..
Ireland	X	X
Italy	X	X
Luxembourg	X	..
Netherlands	X	..
Norway	X	X
Poland	X	..
Portugal	X	X
Slovak Republic	X	..
Spain	X	X
Sweden	X	..
Switzerland	X	..
Turkey	X	..
United Kingdom	X	X

X: indicators available in MEI; .. : indicators are not available in MEI

2.6 Access to detailed methodological information

As stated in Part 1, statistical methodological information (metadata) prepared by a national agency may be available in a national publication or on the agency's website. The level of detail provided on websites varies from country to country. In some cases, all or almost all the necessary metadata are provided whereas in others, only a contact name is provided. However, since industrial production statistics are included on the IMF Dissemination Standards Bulletin Board (DSBB), detailed methodological information for industrial production indices for individual OECD Member countries may also be accessed from the IMF site. Where they exist (in one or both of the official OECD languages (English or French)), sources of methodological information for both the IMF and national agencies are provided in Table 4.

Table 4: Industrial production: access to detailed methodological information

	National sources	IMF DSBB
Canada	http://www.statcan.ca/english/sdds/1301.htm (English)	http://dsbb.imf.org/country/can/indbase.htm
	http://www.statcan.ca/francais/sdds/1301_f.htm (French)	..
Mexico	..	http://dsbb.imf.org/country/mex/indmeth.htm
United States	http://www.federalreserve.gov/releases/g17/About.htm	http://dsbb.imf.org/country/usa/indbase.htm
		..
Australia	..	http://dsbb.imf.org/country/aus/indmeth.htm
Japan	http://www.stat.go.jp/english/1431-07e.htm	http://dsbb.imf.org/country/jpn/indbase.htm
Korea	http://www.nso.go.kr/eng/surveys/em3.htm	http://dsbb.imf.org/country/kor/indbase.htm
New Zealand [1]	http://www.stats.govt.nz/domino/external/omni/omni.nsf/outputs/Economic+Survey+of+Manufacturing	..
Austria	..	http://dsbb.imf.org/country/aut/indbase.htm
Belgium	http://statbel.fgov.be/products/method/production_en.htm (English)	http://dsbb.imf.org/country/bel/indmeth.htm
	http://statbel.fgov.be/products/method/production_fr.htm (French)	..
Czech Republic	http://www.czso.cz/eng/figures/8/80/80010005/80010005.htm	http://dsbb.imf.org/country/cze/indmeth.htm..
Denmark [2]	http://www2.dst.dk/internet/k16/pub98uk/puuk9809.htm	http://dsbb.imf.org/country/dnk/indbase.htm
Finland	..	http://dsbb.imf.org/country/fin/indmeth.htm
France	http://www.insee.fr/en/indicateur/indic_conj/donnees/method_idconj_10.pdf (English)	http://dsbb.imf.org/country/fra/indbase.htm
	http://www.insee.fr/fr/indicateur/indic_conj/donnees/method_idconj_10.pdf (French)	
Germany	http://www.statistik-bund.de/basis/e/prohan/prodtxte.htm	http://dsbb.imf.org/country/deu/indbase.htm
Greece [1]	..	..
Hungary	http://www.ksh.hu/pls/ksh/docs/eng/emodsz/emodsz01.html#indust	http://dsbb.imf.org/country/hun/indmeth.htm
Iceland	..	http://dsbb.imf.org/country/isl/indbase.htm
Ireland	http://www.cso.ie/publications/indust/indprod.pdf	http://dsbb.imf.org/country/irl/indbase.htm
Italy	..	http://dsbb.imf.org/country/ita/indmeth.htm
Luxembourg [1]	..	..
Netherlands	..	http://dsbb.imf.org/country/nld/indmeth.htm
Norway [2]	http://www.ssb.no/english/subjects/08/04/pii_en/	http://dsbb.imf.org/country/nor/indbase.htm
Poland	..	http://dsbb.imf.org/country/pol/indbase.htm

Table 4: Industrial production: access to detailed methodological information (continued)

	National sources	IMF DSBB
Portugal	..	http://dsbb.imf.org/country/prt/indmeth.htm
Slovak Republic [2]	http://www.statistics.sk/webdata/english/ep2000a/ostsl_a.htm	http://dsbb.imf.org/country/svk/indmeth.htm
Spain	http://www.ine.es/dacoin/dacoinme/inotipi.htm	http://dsbb.imf.org/country/esp/indbase.htm
Sweden	..	http://dsbb.imf.org/country/swe/indmeth.htm
Switzerland [2]	http://www.statistik.admin.ch/stat_ch/ber06/eaus06.htm	http://dsbb.imf.org/country/che/indmeth.htm
Turkey	..	http://dsbb.imf.org/country/tur/indbase.htm
United Kingdom	http://www.statistics.gov.uk/statbase/source.asp?vlnk=846&B9=View#general	http://dsbb.imf.org/country/gbr/indmeth.htm

[1] New Zealand, Greece and Luxembourg do not subscribe to the IMF DSBB at date of publication.
[2] Detailed methodological information not available at the present time on the website. However, the site does contain information about publications that can be ordered from the national agency or a direct contact name to whom queries can be addressed. Each IMF country page also includes a contact name in the national agency to whom queries can be addressed.
..: metadata are not available

2.7 National classifications of industrial production

As mentioned in Part 2.2, the quantity approach in the compilation of IIPs entails the selection of a number of representative individual commodities expressed solely in physical quantity terms. Activities and the commodities representing them are normally chosen with reference to (i) their contribution to total industry output in the base year and (ii) the availability of the required data. This is generally undertaken using annual or less frequent activity classification census data. Generally, a basket of representative products (or product groups) is observed for each activity classification to calculate a reliable index. The products are identified and defined with the aid of one of the international product classifications such as the United Nations *Central Product Classification* (CPC) or the European Union equivalent, the *Classification of Products by Activity* (CPA).

The products chosen are representative of the output of the activity classification and their share of total activity output can be readily determined. Each individual commodity is also chosen for its suitability to represent a number of other product groups each of which can be attributed to the activity classification. This is done to ensure that a particular activity classification is adequately represented by one or more of its main products. Although the selection process can be quite judgmental, the more homogeneous the group of products, the smaller the relative movements in their production pattern, prices etc., so that the selected commodity or commodities from the group is representative of the group as a whole.

The activity scope of production indicators published in MEI is generally defined in terms of national activity classifications. In most instances these are directly comparable,[17] in particular at higher levels of aggregation, with existing standard international classifications such as the *International Standard Industrial Classification (ISIC), Revision 3* or the equivalent European Union

[17] National Classifications are comparable to an international standard if activity data at the lowest (most disaggregated) level can be aggregated to a higher level that compares directly with the international standard. If the lowest level data are so aggregated that the necessary adjustment cannot be made, then the classification is not comparable.

classification, the *Statistical Classification of Economic Activities in the European Community (NACE), Revision 1*.[18] A small number of countries correspond to earlier ISIC Revisions.

Table 5: Industrial production: classification used to compile data

	Classification Used	Comparability with ISIC or NACE
Canada	Canadian Standard Industrial Classification, 1980 (1980 SIC)	No direct correspondence to SNA industry code and ISIC
Mexico	1993 Mexican System of National Account Classification (*Sistema de Cuentas Nacionales de México*) – SCNM	Corresponds to ISIC Rev. 3 at 4-digit level
United States	1987 Standard Industrial Classification (SIC), at 2-digit level	Corresponds to ISIC Rev. 2
Australia	Australian and New Zealand Standard Industrial Classification (ANZSIC)	Corresponds to ISIC Rev. 3 at 4-digit level
Japan	Standard Industrial Classification of Japan (JSIC Rev. 10)	Corresponds to ISIC Rev. 3, at 2-digit level
Korea	Korean Standard Industrial Classification, 1991 (KSIC) Rev. 6	Corresponds to ISIC Rev. 3 at 3-digit level
New Zealand	Australian and New Zealand Standard Industrial Classification (ANZSIC)	Corresponds to ISIC Rev. 3 at 4-digit level
Austria	Austrian version of NACE Rev. 1 (ONACE 1995)	Corresponds to NACE Rev. 1 at 4-digit level
Belgium	Industrial Short-term Indicators (ISTI) which is based on NACE Rev. 1	Corresponds to NACE Rev. 1 at 4-digit level and ISIC Rev. 3 at 2-digit level
Czech Republic	Sector Classification of Economic Activities (OKEC 1992)	Corresponds to NACE Rev. 1 at 4-digit level
Denmark	Dansk Branchekode 1993 (DB 1993)	Corresponds to NACE Rev. 1 at 4-digit level
Finland	Finnish Standard Industrial Classification 1995 (SIC 1995)	Corresponds to NACE Rev. 1 at 3-digit level with a few exceptions and ISIC Rev. 3 at 2-digit level
France	Nomenclature d'Activités Françaises (NAF 1993) complemented by Nomenclature Economique de Synthèse (NES) from September 1995	Corresponds to NACE Rev. 1 at 4-digit level
Germany	Klassifikation der Wirtschaftszweige, Ausgabe 1993 (WZ 1993)	Corresponds to NACE Rev. 1 at 4-digit level and can be converted to ISIC Rev. 3
Greece	Greece Statistical Classification of Branches of Economic Activity (STAKOD 1980). STAKOD 1991 will be used for indices with base year 1993	STAKOD 1980 corresponds to ISIC Rev. 2 STAKOD 1991 corresponds to NACE Rev. 1 and ISIC Rev. 3
Hungary	Hungarian Standard Industrial Classification of All Economic Activities (TEAOR 1998)	Corresponds to NACE Rev. 1 and ISIC Rev. 3 at 2-digit level
Iceland[1]	ÍSAT-95: Icelandic version of ISIC Rev. 1 at 3-digit level	Corresponds to ISIC Rev. 1 at 3-digit level

[18] NACE Rev. 1 is totally in line with ISIC Rev. 3 at one and two digit levels. At the three and four digit levels, groups and classes of ISIC Rev. 3 are subdivided according to European Union requirements but, as these can be aggregated into the groups and classes of ISIC Rev. 3 from which they were derived, NACE Rev. 1 can be said to correspond totally to ISIC Rev. 3.

Table 5: Industrial production: classification used to compile data (continued)

	Classification Used	Comparability with ISIC or NACE
Ireland	NACE Rev. 1 at 3-digit level, from May 1999.	Corresponds to ISIC Rev. 3 at 3-digit level
Italy	Classificazione delle attivita economiche (ATECO 5 of 1991)	Corresponds to NACE Rev. 1 and to ISIC Rev. 3 at 3-digit level, with 80% of the branches at 4-digit level
Luxembourg	NACELUX Rev. 1	Corresponds to NACE Rev. 1 at 5-digit level (additional) and ISIC Rev. 3 at 2-digit level
Netherlands	Standaard Bedrijfsindeling (SBI 1993)	Adjusted to NACE Rev. 1 and ISIC Rev. 3, at 2-digit level
Norway	Standard Industrial Classification (SIC 1994)	Follows NACE Rev. 1 and ISIC Rev. 3 but goes up to 5-digit level
Poland	Europejska Dzialalnosci (Polish version of NACE Rev. 1).	Corresponds to NACE Rev. 1 and ISIC Rev. 3, at 2-digit level (3-digit for some branches)
Portugal	Classificacao Portuguesa de Actividades Economicas-Revisao (CAE Rev. 2, 1992)	Comparable with NACE Rev. 1 at 4-digit level and ISIC Rev. 3
Slovak Republic	From 1992, NACE Rev. 1 at 4-digit level	Corresponds to ISIC Rev. 3 at 4-digit level
Spain	Clasificacion National de Actividades Economicas (CNAE 1993)	Corresponds to NACE Rev. 1 at 2-digit and ISIC Rev. 3 at 2-digit level
Sweden	Swedish Standard Industrial Classification (SE-SIC 1992)	Corresponds to NACE Rev. 1 at 4-digit level and ISIC Rev. 3 at 2-digit level
Switzerland	Nomenclature Générale des Activités economiques 1995 (NOGA)	Corresponds to NACE Rev. 1 at 4-digit level and ISIC Rev. 3
Turkey	ISIC Rev. 3 at 2-digit level	Corresponds to NACE Rev. 1
United Kingdom	Standard Industrial Classification (SIC 1992)	Corresponds to NACE Rev. 1 at 4-digit level and a 5th digit has been added

[1] Iceland currently is implementing NACE Rev. 1 for all industrial statistics.

2.8 Statistical population

International Recommendations for Industrial Statistics[19] describes the industrial sector as comprising:

	ISIC Rev. 2	ISIC Rev. 3
Mining and quarrying	Major division 2	Tabulation category C (Divisions 10-14)
Manufacturing	Major division 3	Tabulation category D (Divisions 15-37)
Production and distribution of electricity, gas and water	Major division 4	Tabulation category E (Divisions 40-41)

Construction (ISIC Rev. 3 - tabulation category F), once considered part of the industrial sector, is not now included.

[19] *International Recommendations for Industrial Statistics*, Series M, No. 48, Rev. 1, United Nations, New York, page 6, paragraph 25.

However, there is no standard international definition of industrial production. In general, industrial production indices measure the change in output of activities included in tabulation categories C (Mining and Quarrying), D (Manufacturing), and E (Electricity, Gas and Water Supply) of ISIC Rev. 3. However, national practice in some countries may be to exclude certain activities within these categories from the industrial production index whereas in other countries tabulation category F (Construction) may be included.

The situation with respect to the activities included in production statistics published in MEI is summarised in Table 6. As can be seen, almost all countries include mining; manufacturing; and electricity, gas and water, though there is some variation in the inclusion/exclusion of specific activities such as quarrying, energy and some manufacturing. As mentioned above, a small number of countries also include construction.

Table 6: Industrial production: activity scope and reporting units

	Activity Scope	**Reporting unit**
Canada[1]	All industries according to the System of National Accounts industry codes	Establishment
Mexico	ISIC tabulation categories C (mining only – quarrying excluded); D (manufacturing – except for the following ISIC Rev. 3 groups: dressing and dying of fur; sawmilling; processing of nuclear fuel; manufacture of watches and clocks; manufacture of aircraft and spacecraft; and part of manufacture of refined petroleum products); E (electricity, gas and water supply) and F (construction)[2]	Establishment
United States	Mining; manufacturing; and electricity and gas utilities industries	Establishment
Australia[1]	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Various[3]
Japan	ISIC tabulation categories C (mining only – quarrying excluded); D (manufacturing); and E (electricity, gas and water supply)	Establishment
Korea	ISIC tabulation categories C (mining only – quarrying excluded); D (manufacturing); and E (electricity and gas only – water supply excluded)	Establishment
New Zealand[1]	ISIC tabulation categories D (manufacturing); and E (electricity, gas and water supply)	Kind of activity unit
Austria	ISIC tabulation categories C (mining and quarrying); D (manufacturing – except film production and parts of textile finishing); E (electricity, gas and water supply – excluding collection, purification and distribution of water); and F (construction)[2]	Establishment
Belgium	ISIC tabulation categories C (mining and quarrying); D (manufacturing); E (electricity, gas and water supply); and F (construction)[2]	Local unit
Czech Republic	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Enterprise
Denmark	ISIC tabulation categories C (mining and quarrying – excluding extraction of crude oil and natural gas); and D (manufacturing)	Enterprise
Finland	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Establishment
France	ISIC tabulation categories C (mining and quarrying); D (manufacturing); E (electricity, gas and water supply); and F (construction)[2]	Enterprise
Germany	ISIC tabulation categories C (mining and quarrying); D (manufacturing); E (electricity, gas and water supply); and F (construction)[2]	Local unit
Greece	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity and city gas only)	Establishment

Table 6: Industrial production: activity scope and reporting units (continued)

	Activity Scope	Reporting unit
Hungary	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Enterprise
Iceland	ISIC tabulation categories D (Manufacturing); and E (electricity and water supply only)	Administrative sources[4]
Ireland	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Local unit
Italy	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Enterprise
Luxembourg	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity and water supply only – gas supply excluded)	Establishment
Netherlands	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Establishment
Norway	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply – excluding collection, purification and distribution of water)	Establishment
Poland	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Enterprise
Portugal	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Enterprise
Slovak Republic	ISIC tabulation categories C (mining and quarrying); D (manufacturing) and E (electricity, gas and water supply)	Enterprise
Spain	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Establishment
Sweden	ISIC tabulation categories C (mining and quarrying) and D (manufacturing)	Kind of activity unit
Switzerland	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Enterprise
Turkey	ISIC tabulation categories C (mining only – quarrying excluded); D (manufacturing); and E (electricity, gas and water supply)	Various[5]
United Kingdom	ISIC tabulation categories C (mining and quarrying); D (manufacturing); and E (electricity, gas and water supply)	Enterprise

[1] Industrial production data are derived from GDP calculations.
[2] Separate industrial production indices for ISIC tabulation categories C, D and E are available.
[3] Data are derived from a variety of sources and units. The reporting unit for manufacturing is the management unit; for mining it is the establishment; and electricity, gas and water data mainly comes from administrative sources. The management unit is a national concept. It is defined as the largest type of unit within an enterprise group which controls its productive activities and for which accounts are kept. It is a component unit of the enterprise(s) and consists, in turn, of one or more establishments.
[4] Production data derived from administrative registers such as VAT tax files and financial accounts of enterprises.
[5] Quarterly data are derived from establishments. Monthly data are derived from enterprises.

2.9 Statistical units

The statistical unit is the entity for which the required items of data are compiled. The central problem is how to define the unit. Many enterprises make more than one product. In manufacturing industry, for example, the total output of manufactured goods often includes non-principal production of other manufactured products. It is also not uncommon for manufacturing enterprises to produce goods or provide services that are not manufactured products. These could include, for example, construction output or transport services. So, a basic choice has to be made as to whether one is

measuring the output of the entire enterprise, or only of its main product. In OECD Member countries, it is often assumed that the output of the main product is representative of the output of the entire enterprise.

The SNA recommends use of the United Nations ISIC system. ISIC recognises that whilst it is theoretically desirable to define units on the basis of a single activity, in practice the heterogeneous nature of activities conducted by many units makes this difficult. Under the United Nations classification system, non-principal production and non-manufacturing activities may still be included in the unit classified to manufacturing.

ISIC is thought to offer the best practical response to the desire for units of homogeneous production or activity in normal market situations. As a result, much of the structural data (*i.e.* income and cost/expenditure items) compiled by OECD Member countries is based on the predominant activity of the unit and includes income and cost information on secondary activities conducted by that unit. Predominant activity is determined on one of a number of alternative bases. Both ISIC Revision 3 and the SNA recommend the use of value added to determine the main activity. However, ISIC Revision 3 states that gross output or, failing that, employment should be used if value added cannot be determined.[20] In the case of vertical integration (where an enterprise produces goods at different stages of the production chain), ISIC Revision 3 recommends that proportional weight should be given to kind of activity or establishment in each portion of the chain.[21]

The value of using standard classifications would be reduced if they were applied to statistical units not defined in a standard way. The units for which data are collected also have to be as homogeneous as possible. In that context, four types of statistical unit can be used, depending on the information to be collected and the type of location. These are the: enterprise; kind of activity unit; local unit and establishment. These concepts are defined as follows:[22]

- The *enterprise* is an institutional unit or the smallest combination of institutional units that encloses and directly controls all necessary functions to carry out its production activities.

- The *kind-of-activity unit* (KAU) is an enterprise or part of an enterprise which engages in one kind of economic activity without being restricted to the geographical area in which this activity is carried out.

- The *local unit* is an enterprise or part of an enterprise which carries out heterogeneous economic activities at or from one location.

- The *establishment* is an enterprise or part of an enterprise which independently engages in one, or predominantly one, kind of economic activity at or from one location or within one geographical area, for which data are available, or can meaningfully be compiled, that allow the calculation of the operating surplus.

[20] *International Standard Industrial Classification of all Economic Activities*, Statistical Papers, Series M, No. 4, Rev. 3, United Nations, New York, 1990, page 27, paragraph 115.

[21] *International Standard Industrial Classification of all Economic Activities*, Statistical Papers, Series M, No. 4, Rev. 3, United Nations, New York, 1990, page 29, paragraph 125.

[22] *International Standard Industrial Classification of All Economic Activities*, Statistical Papers, Series M, No. 4, Rev. 3, United Nations, New York, 1990, pages 20-25.

Whilst both the establishment and the KAU strive for homogeneity in terms of the activity of the units from which information is collected, both classifications allow for the reality of secondary activity by some units.

The UN publication, *International Recommendations for Industrial Statistics,* does not recommend any particular type of unit for the aggregation of data used in the compilation of production indices. However, the SNA recommends use of the establishment as the basic statistical unit for the production and generation of income accounts.[23]

Whilst the ideal situation would be to observe the activities of homogeneous production units engaged in only a single activity, reality generally dictates a choice between one of the following options for the collection of information:

- collect only enterprise data;
- collect combined information in respect of all activities (principal and secondary) from the establishment; or
- collect data from establishments only in respect of principal production.

The selection of the statistical unit by individual OECD Member countries is invariably a function of the scope of the register used as a frame for data collection and the availability of statistical data from the units within the register. As Table 6 shows, there is considerable variation between countries in the type of units from which production data are collected. The multiplicity of sources within countries also often results in the use of a variety of collection units.

Furthermore, when considering the question of units and their implications for data output, one should not assume that the label attached to the unit selected in any one country necessarily implies that it conforms to an international standard definition. Careful reference should be made to the definition of the unit provided in many of the country descriptions in *Main Economic Indicators: Sources and Definitions,* or in national publications.

2.10 Data source and coverage of indicators

The coverage of monthly and quarterly surveys used in the compilation of sub-annual indicators of production often excludes small units, except for activities where the combined output of such units account for a significant portion of total output. As can be seen from Table 7, cut-off points, generally expressed in terms of number of paid employees, vary significantly between countries.

The number of commodities chosen by OECD Member countries for inclusion in their indices varies from a few hundred to several thousand, the aim being to ensure that in total, the number selected account for a high proportion of total output, sales, etc. At the two-digit ISIC or NACE levels, the selected products generally account for at least 70% of the total branch output. However, the basic aim is to compile an index that accurately shows movements between periods, not absolute changes.

[23] What is referred to as establishment in the SNA and ISIC Rev. 3 is called local kind-of-activity unit (LKAU) in the ESA.

Table 7: Industrial production: main data source and coverage of indicator

	Main data source	Coverage of indicator
Canada[1]	The main data sources are monthly sample surveys. Data are used to compile monthly estimates of GDP at constant prices.	100%
Mexico	In the case of manufacturing, the Monthly Industrial Survey covers 6 670 establishments and 1 799 products. For mining, data are mainly compiled from the results of the Monthly Survey on Mining and Metallurgy, as well as direct information from the company 'Petroleos Mexicanos'. Data are also collected from the Federal Commission for Electricity. For all sectors, use is also made of direct information provided by chambers of commerce, associations and other organisations, as well as administrative records.	85.7% of the total value of output for manufacturing, 100% of the total value of output for mining, construction, electricity, gas and water supply.
United States	Monthly output measured in physical units using data obtained from private trade associations and government agencies, and data on inputs to the production process (*e.g.* labour and electricity). When data on physical output are unavailable, output estimates are based on production-worker hours or electric power use by industry. Since 1997, the total industrial production index has been constructed from 276 individual series based on the 1987 Standard Industrial Classification.	..
Japan	Data are primarily derived from the monthly Current Production Statistics Survey, which collects data in respect of around 3 100 commodities surveyed each month at establishments and companies in the mining and manufacturing sectors.	Commodities collected account for around 85% of production value for each 2-digit JSIC industry.
Korea	Data are primarily collected in the Monthly Industrial Production Survey with total sample size around 8 100 establishments and 665 products. The sample survey includes establishments with more than 20 employees and, for 9 products, enterprises with more than 5 employees.	85% of total industrial value added in 1995.
New Zealand[1]	In most cases, data are compiled by extrapolating base year value added with an indicator representing the quantity of output produced. Where this is not available, data are based on input indicators, usually employment data. With some exceptions, manufacturing output data are based on deflated sales from the Quarterly Economic Survey of Manufacturing (QSM). The survey sample contains around 2 000 Kind of Activity Units classified as Manufacturing (NZSIC Major Division 3) out of 17 000 enterprises in the reference population.	..
Austria	Data are derived from the monthly Survey of Statistics on Short-term Data – Production Industry. Survey includes around 11 900 local kind of activity units. Units with at least 20 persons employed are surveyed.	Survey covers at least 90% of the production value of total industrial production.
Belgium	Primary data source is a monthly survey of around 11 000 local units employing 10 or more persons or having a turnover of BEF 100 million or more. Data for utilities and construction are obtained from other sources.	Survey represents more than 95% of the production values; only eight 3-digit NACE Rev.1 activities fall below 70%, the lowest being 51%.

Table 7: Industrial production: main data source and coverage of indicator (continued)

	Main data source	Coverage of indicator
Czech Republic	Data are obtained monthly from around 6 100 businesses reporting on around 1 500 products and 1 040 representative items. All enterprises employing 20 or more are surveyed.	Survey covers around 89% of total industrial production.
Denmark	Almost all data used to compile the production index are obtained from direct monthly collections of enterprises employing 20 or more persons (about 1 300 enterprises out of a total of 3 000).	Survey accounts for around 85% of turnover in mining and manufacturing.
Finland	Monthly sample survey of 1 500 establishments out of 6 000. Smaller units (*i.e.* those employing less than five persons) are excluded.	The monthly production index covers around 80% of total value.
France	About 7 100 enterprises. Size threshold for units included are 10 and 20 paid employees. Smaller units are included for a small number of specific industrial activities.	The index comprises about 86.4% of total value added of the output of enterprises with more than 10 employees belonging to the branches EB to EH of NAF. Some branches are not entirely covered. Monthly surveys account for 74.8% of total value added. The remaining 12.6% is covered by quarterly survey data converted to monthly data by econometric techniques.
Germany	The primary data sources are monthly surveys conducted by regional statistical offices. There are 28 000 units reporting monthly production for around 1 000 items.	The coverage is around 77% of total production of units employing more than 20 persons.
Greece	Data are primarily obtained from the "Annual Industry Survey" of 2 053 establishments. Establishments with less than 10 employees are not included.	For direct collection, the sampled establishments represent around 77% of manufacturing industry value added.
Hungary	All enterprises employing more than 49 employees are enumerated. Data for enterprises with 5-49 employees are collected by the sample survey "Monthly Data of Industry Statistics: Simplified Survey". Data for enterprises with less than 5 employees are imputed from administrative sources.	The coverage of the indicator is around 92% of production value.
Iceland	For most of the branches, the index is derived from the value of production, as estimated in the national accounts, deflated by the most relevant price indices in each case. In other cases, such as export industries, a detailed product classification is available showing both quantity and value.	..

Table 7: Industrial production: main data source and coverage of indicator (continued)

	Main data source	Coverage of indicator
Ireland	Around 2 000 local units which in the base year 1995 had 20 or more persons engaged or which have started up since 1995 and have 20 or more persons engaged.	In 1998, the sample accounted for about 93.5% of total net output.
Italy	Data are obtained from around 20% of the 40 000 units in the reference population each month. The enterprise size cut-off generally applied is 20 persons or more, though smaller units are included for a limited number of specific branches.	The resulting index accounts for about 80% of industry value added at factor cost.
Luxembourg	The collection primarily includes only larger units (*i.e.* employing 20 or more persons) though smaller units are included where their activity is of special interest.	The survey covers around 92% of gross value added for industry and 67% for construction.
Netherlands	Most data are collected monthly from around 6 600 establishments. Data are directly obtained from units employing 20 or more persons. Estimates of production of smaller units are compiled with the help of other indicators such as wages and working hours.	The survey covers about 90% of value added at market price.
Norway	Data are collected monthly from about 2 000 establishments. The sample covers all units employing more than 100 persons. Units employing between 10 and 100 are selected with probability proportional to size.	The index covers around 80% total industrial production.
Poland	Data are primarily obtained from a monthly survey of 9 000 enterprises with more than 9 employees.	Units in survey account for around 90% of industrial production.
Portugal	Data are primarily obtained from a monthly survey of 2 000 enterprises. Size cut-off is 10 employees.	Units in survey account for 80% of sales value of enterprises that produce 901 selected products.
Slovak Republic	Since January 1999, data are obtained from a monthly survey of about 2 350 enterprises and 530 representative items. The Industrial Production Indices are calculated from the results of a statistical survey of enterprises with 20 or more employees and selected enterprises with up to 19 employees.	Units in survey account for 89.6% of industrial activity.
Spain	Data are obtained from monthly surveys of more than 9 000 establishments that produce 980 products representative of all industrial activities. Enterprises employing 20 persons or more are included in survey sample.	Establishments surveyed account for 90% of industry value added.
Sweden	Data are obtained primarily from monthly collections, though information is also obtained from trade associations. Kind of activity units with less than 10 employees are not surveyed.	..
Switzerland	Information is mostly obtained from quarterly collections, though administrative data and information from trade associations are also used. The 8 000 surveyed enterprises account for around 33% of the reference population. The size cut-off is more than 5 employees.	The sampled units account for around 70% of total turnover.

Table 7: Industrial production: main data source and coverage of indicator (continued)

Turkey	Quarterly data are obtained from the Quarterly Industrial Manufacturing Survey. Includes around 2 922 establishments employing 10 or more persons and 2 005 commodities. Monthly data are obtained from around 900 enterprises and 403 commodities.	About 80% quarterly and 70% monthly of the total gross value added of the manufacturing sector.
United Kingdom	The main source, the Monthly Production Inquiry (MPI), includes around 5% of the 170 000 enterprises in the reference population. The size cut-off varies by branch. All units employing more than 150 persons are included down to less than 1% of units employing under 10 persons.	The MPI covers around 90% of total manufacturing or 75% of the industry including the energy sectors.

[1] Industrial production data are derived from GDP calculations.
..: metadata not available

2.11 Index compilation

As can be seen from Table 8, industrial production indices are compiled using a variety of methodologies. Many countries base their indicator on the production of selected commodities expressed in quantity terms, some use deflated values of selected commodities or deflated sales or turnover data.[24] On the other hand, many countries base their indicators on inputs such as hours worked, electricity used or raw materials. Most use a combination of these methodologies.[25]

Physical quantity data is the data source most commonly used to compile indices of industrial production, followed by deflated value data. The advantage of volume indices over value estimates arises because price factors are sometimes difficult to discount, especially in periods of high inflation. However, physical quantity data is seldom available at the required classification level for "complex" items such as machinery and other engineering industry output. The following table summarises the main data sources used in OECD Member countries.

[24] There is no universally accepted definition of "turnover" or "sales" and the terms are often used interchangeably by a number of national and international agencies. This is discussed in more detail below in Part 3.

[25] A summary of the advantages and disadvantages of each approach is provided in Eurostat's *Manual of Business Statistics*, Section 3.1, *Short-term Statistics – Industry* (available at http://forum.europa.eu.int/irc/dsis/bmethods/info/data/new/embs/sts/part2a.html). This reference manual summarises an earlier document, *Index Numbers of Industrial Production*, United Nations, New York, 1950.

Table 8: Industrial production: measure of production used

	Deflated turnover/ Sales value	Value added	Physical output	Hours worked/ Employment data	Raw material inputs
Canada[1]	..	X	X	X	..
Mexico	X	..	..	X	X
United States	..	..	X	X	X
Australia[1]	X	X	X	..	..
Japan	..	..	X	..	..
Korea	X	..	X	..	..
New Zealand[1]	..	X	X	X	..
Austria	X	..	X	..	..
Belgium	X	..	..	X	X
Czech Republic	X	..	X	..	..
Denmark	X	..	..	X	..
Finland	..	..	X	X	X
France	..	..	X	X	X
Germany	X	..	X	X	..
Greece	..	..	X	..	..
Hungary	X	..	X	..	..
Iceland	X	..	X	X	..
Ireland	X	..	X	..	X
Italy	X	..	X	X	..
Luxembourg	..	X	..	..	..
Netherlands	X	X	X	X	X
Norway	..	..	X	X	X
Poland	X	..	..	..	..
Portugal	X	..	X	X	..
Slovak Republic	X	..	X	..	..
Spain	X	..	X	X	..
Sweden	X	..	X	X	..
Switzerland	X	..	X	..	..
Turkey	X	..	X	X	..
United Kingdom	X	..	X	..	..

[1] Industrial production data are derived from GDP calculations.
X: indicates measure of production used

Where quantity data are used, national statistical institutes ensure that the quantities refer to products that are as homogeneous as possible. Physical and other characteristics are taken into consideration when identifying products for which there may be differences in quality. Differences in quality are reflected by:

- physical characteristics;
- different market demands;
- deliveries at different times of the year;
- differences in conditions of sale or the circumstances or environment in which the goods or services are supplied.

For transactions in goods, it is often relatively easy to define the physical unit involved and therefore the price per unit. In a number of cases, however, *e.g.* unique capital or "complex" goods, it is more difficult.

As can be seen from the above table, most countries typically use a number of data sources and calculation methodologies in the compilation of their production indicators. More detailed information on the data sources used by individual countries are available in the OECD publication, *Main Economic Indicators: Sources and Definitions* (June 2000).

More specifically, the two primary approaches used for computing an index of industrial production entail:

- Calculation of a ratio by dividing the weighted sum of the quantities of a fixed set of commodities produced in a given period by the same weighted sum for the base period. As mentioned above, the set of commodities selected should be representative of the production of the specified industries. The weights may be based on the prices of the commodities in the base period, thus defining a Laspeyres type volume index. Alternatively, the weights are based on prices in the current period (Paasche index).
- Calculation of a ratio obtained by dividing the sum of the gross output for each of the specified industries in current prices by a producer price index (PPI) for that industry – a process known as deflation. The resulting series is then re-referenced so that the value in a base period is equal to 100. If a Laspeyres type PPI is used for deflation the resulting volume index is a Paasche type index. Alternatively, if a Paasche type PPI is used then a Laspeyres type volume index results.

Both the 1993 SNA and ESA 1995 recommend that countries should, where possible, use annual chain indices for measuring growth rates in volumes of production. However, fixed base indices may also be used when the volume measures for aggregates and their individual components or sub-aggregates have to be additively consistent for purposes of economic analysis and modelling.

2.12 Weights used for aggregation

As Table 9 shows, the most commonly used method of aggregation entails use of value added weights, with the data generally being derived from manufacturing censuses. Also used, though to a lesser extent, are weights based on sales and production. Some countries use different weights at different stages of aggregation, for example, value of production weights to aggregate at product level and value added at factor cost for higher levels of aggregation.

The composition of total industrial production changes over time. For example, the absolute decline of heavy industry may result in a relative increase in the proportion of industrial production accounted for by consumer goods or food processing. Such changes highlight the need to frequently

change the weights used. The type of weights used for aggregation for the indices published in MEI and the reference year for these weights are shown below.

Table 9: Industrial production: index compilation, weights used for aggregation and current base year

	Index compilation	Weights used	Reference period
Canada[1]	Data are based on GDP at constant 1992 prices	NA	1992
Mexico	Fixed weight Laspeyres	Industry value added in 1993	1993
United States	Fisher-type index	Unit value added derived from annual estimates of industry value added (Census definition: output less cost of materials)	1992
Australia[1]	Chained Laspeyres	Industry value added annually re-weighted	Annual
Japan	Fixed weight Laspeyres	Value added at factor cost in 1995 derived from the Census of Manufactures	1995
Korea	Fixed weight Laspeyres	Value added in 1995 derived from the Mining and Manufacturing Survey	1995
New Zealand[1]	Data are based on GDP at constant 1995/96 prices	NA	1995/ 96
Austria	Fixed weight Laspeyres	Gross value added at factor cost in 1995	1995
Belgium	Chained Laspeyres	Value added weights of previous year	1995
Czech Republic	Fixed weight Laspeyres	Two stages: Proportion of production volume in 1995 at commodity level and proportion of industry value added in 1995	1995
Denmark	Fixed weight Laspeyres	Value added of production at factor cost in 1995	1995
Finland	Fixed weight Laspeyres	Two stages: for establishments, newest commodity value re-weighted annually; value added of production at factor cost in 1995 for industrial sectors	1995
France	Fixed weight Laspeyres	Gross value added at factor cost in 1995	1995
Germany	Fixed weight Laspeyres	Gross value added at factor cost in 1995	1995
Greece	Fixed weight Laspeyres	Gross value added at factor cost in 1980	1980
Hungary	Chained Paasche	Gross output annually re-weighted	1992
Iceland	Fixed weight Laspeyres	Value added at factor cost in 1990 derived from the national accounts	1990
Ireland	Chained Laspeyres	Gross value added at factor cost annually re-weighted	1995
Italy	Fixed weight Laspeyres	Two stages: products are aggregated in classes using output value in 1995 as weights; aggregation from classes up to overall level is effected using value added at factor cost in 1995	1995
Luxembourg	Fixed weight Laspeyres	Gross value added at factor cost in 1995	1995
Netherlands	Chained Laspeyres	Value added at factor cost annually re-weighted from the national accounts	1995
Norway	Chained Laspeyres	Value added at factor cost (with a 2 year lag) annually re-weighted	1995
Poland	Fixed weight Laspeyres	Index derived from summing values and calculating annual changes for all industry. Weights not used.	1995

Table 9: Industrial production: index compilation, weights used for aggregation and current base year (continued)

	Index compilation	Weights used	Reference period
Portugal	Fixed weight Laspeyres	Gross value added at factor cost in 1995	1995
Slovak Republic	Fixed weight Laspeyres	Two stages: value added of enterprises in 1997; then output value of products in 1998	1998
Spain	Fixed weight Laspeyres	Two stages: Value of gross output in 1990 for elementary indices; then value added at factor cost in 1990 for aggregation up to branch and total industry levels	1990
Sweden	Fixed weight Laspeyres	Value added in 1995	1995
Switzerland	Fixed weight Laspeyres	Turnover and value added at factor cost in 1993	1995
Turkey	Fixed weight Laspeyres	Value added at market prices in 1997	1997
United Kingdom	Fixed weight Laspeyres	Gross value added at factor cost in 1995	1995

[1] Industrial production data are derived from GDP calculations.
NA: not applicable

3. RETAIL TRADE[26]

3.1 Introduction

The *International Standard Industrial Classification (ISIC), Revision 3*, states that goods sold in the retail trade sector are limited to so called consumer goods.[27] Thus, retail trade data record details of transactions in consumer goods between customers and sellers. This sector generates a large part of total employment and private final consumption expenditure, which represents around 60% of total GDP of OECD Member countries. Therefore, retail trade statistics are a very useful indicator of short-term developments for the whole economy.

Retail trade data are used by:

- government and business analysts as a short-term indicator for assessing trends in business activity;
- agencies responsible for administering taxes on sales of commodities to assess whether sales taxes are being collected to the extent required by regulation and to assess changes in tax revenue resulting from changes to the tax rate structure; and
- analysts in the retail trade sector for market research, market surveys, etc.

Retail trade data are primarily published in Parts One (Indicators by subject), Two (indicators for OECD Member countries) and Three (indicators for OECD non-member countries) of the monthly OECD *Main Economic Indicators* (MEI). They are primarily in the form of two main indicators: retail trade volume indices and retail trade value indicators expressed either as levels or indices. The data are based on "turnover" or "sales"[28] of goods and services invoiced to third parties by a reporting unit during a reference period.

3.2 International guidelines and recommendations

ISIC Rev. 3 defines the retail trade sector as comprising classifications falling within Division 52 of tabulation category G. ISIC is an activity-based classification that not only specifies which activities are included but also those excluded. In addition, guidelines for the compilation of statistics for retail trade are included in the United Nations publication, *International Recommendations on Statistics of the Distributive Trades and Services*.[29] A second UN document, *Organisation and*

[26] Considerable material for this Part was drawn from the paper, *Indicators of Retail Trade: Summary of Practices in OECD Countries*, E-P Hong and M. Pazos, presented at the Joint OECD-ESCAP Workshop on Key Economic Indicators, held in Bangkok on 22-25 May 2000.

[27] *International Standard Industrial Classification of all Economic Activities*, Statistical Papers, Series M, No. 4, Rev. 3, United Nations, New York, 1990, page 112.

[28] As will be discussed further below, there is no universally accepted definition of "turnover" or "sales" and the terms are often used interchangeably by many national and international agencies.

[29] *International Recommendations on Statistics of the Distributive Trades and Services*, Statistical Papers, Series M, No. 57, United Nations, New York, 1975.

Conduct of Distributive-Trade Surveys[30] provides a guide to the planning and management of censuses and surveys for the sector.

For European Union member countries, Eurostat is currently implementing regulations for the compilation of retail trade statistics within the context of the Council Regulation Concerning Short-term Statistics.[31] This Regulation specifies that the scope of retail trade indicators should include the activities listed in Division 52 of NACE Rev. 1, the equivalent European Union classification of ISIC Rev. 3.

3.3 Frequency of retail trade data

All OECD Member countries except Luxembourg and Turkey compile indicators of retail trade. The indicators for the remaining 28 countries are compiled by the national statistical institute except for France and Japan where they are compiled respectively by the French Chamber of Commerce and the Ministry of Economy, Trade and Industry (METI). The indicators are available on a monthly basis in MEI for all countries except Iceland where the data, which are published on a bi-monthly basis by the national source, are quarterly.

Table 10: Retail trade: source agency and frequency

	Source agency	**Frequency**
Canada	Statistics Canada	M
Mexico	National Institute of Statistics, Geography and Information	M
United States	US Bureau of the Census	M
Australia	Australian Bureau of Statistics	M
Japan	Ministry of Economy, Trade and Industry	M
Korea	National Statistical Office	M
New Zealand	Statistics New Zealand	M
Austria	Central Statistical Office	M
Belgium	Statistical Office of Belgium	M
Czech Republic	Czech Statistical Office	M
Denmark	Statistics Denmark	M
Finland	Statistics Finland	M
France	Chamber of Commerce	M
Germany	Statistiches Bundesamt	M
Greece	National Statistical Office of Greece	M
Hungary	Hungarian Statistical Office	M

[30] *Organisation and Conduct of Distributive-Trade Surveys*, Studies in Methods, Series F, No. 19, United Nations, 1977.

[31] Refer to Annex C (Retail Trade and Repair) Council Regulation (EC) No. 1165/98, 19 May 1998.

Table 10: Retail trade: source agency and frequency (continued)

	Source agency	Frequency
Iceland	Statistics Iceland	Q
Ireland	Central Statistics Office	M
Italy	National Institute of Statistics	M
Luxembourg	NA	NA
Netherlands	Statistics Netherlands	M
Norway	Statistics Norway	M
Poland	Central Statistical Office of Poland	M
Portugal	National Institute of Statistics	M
Slovak Republic	Statistical Office of the Slovak Republic	M
Spain	National Statistical Institute	M
Sweden	Statistics Sweden	M
Switzerland	Federal Statistical Office	M
Turkey	NA	NA
United Kingdom	Office for National Statistics	M

NA: not applicable; M: Monthly; Q: Quarterly

3.4 Retail trade indicators published in *Main Economic Indicators*

Retail trade data in MEI are primarily in the form of two main indicators: retail trade volume indices and retail trade value indicators expressed either as levels or indices. Within the two categories, there are a number of sub-aggregate series such as major outlets, department stores, etc. However, the main emphasis is on total retail trade data. Data other than on a total basis are provided only when they are considered to be of significance for a particular country. The indicators published in MEI are summarised in Table 11.

Table 11: Retail trade: summary of MEI retail trade indicators

	Value	Volume
Canada	PC, R, T	T
Mexico	..	T
United States	DG, PC, T	T
Australia	T	T
Japan	DS, T	DS, T
Korea	..	T
New Zealand	T	T
Austria	T	T
Belgium	T	T
Czech Republic	T	T
Denmark	DG, T	T
Finland	T	C, T

Table 11: Retail trade: summary of MEI retail trade indicators (continued)

	Value	Volume
France	M	M, T
Germany	T	T
Greece	F, T	T
Hungary	..	T
Iceland	T	T
Ireland	T	T
Italy	M, N, T	T
Luxembourg	NA	NA
Netherlands	DG, T	T
Norway	T	T
Poland	T	T
Portugal	NA	T
Slovak Republic	T	T
Spain	T	T
Sweden	T	T
Switzerland	T	T
Turkey	NA	NA
United Kingdom	T	T

C: cars; DG: durable goods; DS: department stores; F: footwear and wearing apparel; M: major outlets; N: non-specialised retail trade in stores; NA: not applicable; PC: passenger cars; R: recreational and motor dealers; T: total; ..: indicator not available

3.5 Access to detailed methodological information

Detailed methodological information (in one or both of the official OECD Languages (English or French) for the retail trade indicator for individual OECD Member countries may be accessed from the sources shown in Table 12. The level of detail provided varies from country to country. In some cases, all or almost all the necessary metadata are provided whereas in others, only a contact name is provided.

Table 12: Retail trade: access to detailed methodological information

	National sources
Canada	http://www.statcan.ca/english/sdds/2406.htm (English) http://www.statcan.ca/francais/sdds/2406_f.htm (French)
Mexico	http://www.inegi.gob.mx/estadistica/ingles/economia/fieconomia.html (through a link)
United States	http://www.census.gov/mrts/www/mrts.html
Australia	http://www.abs.gov.au/Ausstats/ABS%40.nsf/e8ae5488b598839cca25682000131612/e1ccd8eac9eaf770ca2568b7001b4598!OpenDocument#ISSUES+FOR+TIME+SERIES+ANALYSIS

Table 12: Retail trade: access to detailed methodological information (continued)

	National sources
Japan	http://www.stat.go.jp/english/1431-11e.htm[2] http://www.meti.go.jp/english/statistics/index.html
Korea[1]	http://www.nso.go.kr/eng/surveys/ew1.htm
New Zealand	http://www.stats.govt.nz/domino/external/omni/omni.nsf/outputs/Retail+Trade+Survey
Austria	..
Belgium[2]	http://www.statbel.fgov.be/indicators/tor_en.htm (English) http://www.statbel.fgov.be/indicators/tor_fr.htm (French)
Czech Republic	http://www.czso.cz/cgi-bin/toCP1250/eng/figures/1/10/2000/20m.htm
Denmark[2]	http://www.dst.dk/dst/666
Finland	..
France	http://www.insee.fr/fr/ffc/tef/tef12.pdf (French)
Germany[2]	http://www.statistik-bund.de/basis/e/bihan/tradetxe.htm
Greece	..
Hungary	http://www.ksh.hu/pls/ksh/docs/eng/emodsz/emodsz01.html#retail
Iceland	..
Ireland	http://www.cso.ie/publications/distrib/rsi.pdf
Italy	..
Luxembourg	NA
Netherlands[2]	http://www.cbs.nl/en/figures/keyfigures/hdv0409z.htm
Norway	http://www.ssb.no/english/subjects/08/03/20/doi_en/
Poland[3]	http://www.stat.gov.pl/english/index.htm
Portugal	..
Slovak Republic	http://www.statistics.sk/webdata/english/ep2000a/ostsl_a.htm[2] http://www.statistics.sk/webdata/english/tab/int/int01.htm
Spain	http://www.ine.es/dacoin/dacoinme/inoticm.htm
Sweden[2]	http://www.scb.se/eng/ekonomi/ekonomi.asp#Handel (through a link)
Switzerland	http://www.statistik.admin.ch/stat_ch/ber06/puk/fdh2fr01.htm (French) http://www.statistik.admin.ch/stat_ch/ber06/puk/edh2fr01.htm (English)
Turkey	NA
United Kingdom	http://www.statistics.gov.uk/statbase/Source.asp?vlnk=563

[1] More information also available on the OECD website at http://www.oecd.org/std/mei (see national methodological practices).
[2] Detailed methodological information not available at the present time on the website. However, the site does contain information about publications that can be ordered from the national agency or a direct contact name to whom queries can be addressed.
[3] Link to "Methodological Information" through "Statistical Bulletin". Brief information available in paragraph 40.
NA: not applicable; ..: metadata are not available

3.6 Statistical population

For data collection purposes, the statistical population of retail trade is generally defined on the basis of two dimensions, the predominant activity of units operating in the sector (as specified in ISIC) and the type of operation.

The United Nations guidelines recommend that the activities of the unit in the sector should be defined on the basis of the goods sold or the services rendered. The predominant activity should be based on the "proportion of the value of sales of goods and receipts from services attributable to the goods and services associated with this activity."[32]

As stated above, ISIC Rev. 3 defines the sector as comprising activities falling within Division 52 of tabulation category G. Thus, the retail sector covers retail sales in various types of outlets, and the repair of personal and household goods. The classification also includes sales of goods where some processing is involved as long as this is only incidental to the selling. Since the goods sold in this division are limited to consumer goods, examples of goods not included would be cereal grains, ores, crude petroleum, and industrial machinery and equipment. It also excludes the retail sales of motor vehicles and their parts and fuel.[33]

The European Council Regulation on short-term statistics specifies that the scope of retail trade indicators should include the activities listed in Division 52 of NACE Rev. 1. The similarity between ISIC Rev. 3 and NACE Rev. 1 at the higher levels is illustrated below.

Table 13: Retail trade: comparison of ISIC Rev. 3 and NACE Rev. 1 classifications

ISIC Rev. 3	**ISIC Group**	**NACE Rev. 1**	
Non-specialised retail trade in stores	521	Retail sale in non-specialised stores	52.1
Retail sale of food, beverages or tobacco in specialised stores	522	Retail sale of food, beverages and tobacco in specialised stores	52.2
		Retail sale of pharmaceuticals and medical goods; cosmetic and toilet articles	52.3
Other retail trade of new goods in specialised stores	523[1]	Other retail sale of new goods in specialised stores	52.4
Retail sale of second-hand goods in stores	524	Retail sale of second-hand goods in stores	52.5
Retail trade not in stores	525	Retail sale not in stores	52.6
Repair of personal and household goods	526	Repair of personal and household goods	52.7

[1] ISIC Group 523 includes retail sale of retail sale of pharmaceuticals and medical goods; cosmetic and toilet articles.

The Regulation also specifies the adoption by Member states of harmonised definitions for variables and statistical units. This Regulation, which was adopted in May 1998, is currently being implemented.[34]

[32] *International Recommendations on Statistics of the Distributive Trades and Services*, Statistical Papers, Series M, No. 57, United Nations, New York, 1975, page 18.

[33] For further details, refer to *International Standard Industrial Classification of all Economic Activities*, Statistical Papers, Series M, No. 4, Rev. 3, United Nations, New York, 1990, pages 111 to 113.

[34] Refer to paper, *Some Elements of Business Statistics Methodology*, E. Raulin, prepared for Commerce 99 – Proceedings of the Seminar on Distributive Trades in Europe, organised by the European Commission and Eurostat in Brussels on 22-23 November 1999.

As Table 14 shows, most OECD Member countries have developed their own national activity classifications that reflect the structure of their individual economies. Thus, there is no universally adopted definition of the "retail sector" across all OECD Member countries in terms of international activity classifications such as ISIC Rev. 3. However, almost all national classifications were developed on the basis of either ISIC Rev. 3 or NACE Rev. 1. As a result, in most instances they are directly comparable, in particular at higher levels of aggregation, with the two main international classifications.

The other dimension with respect to the statistical population is the so-called "type of operation" which refers to the technical organisation of units operating in the sector. The United Nations recommendations suggests the following type of operation classification for retail trade:[35]

- stores and shops – self service and other;
- stalls – fixed places where, where the customer does not enter the premises where the sale takes place;
- mail order houses;
- itinerant trade – includes ambulant trade such as house-to-house canvassing, street sales and market sales;
- other retail trade – including vending machine sales.

Sales to final consumers using e-commerce technology would also be included in this classification. E-commerce is discussed briefly in Box 1.

Box 1. E-Commerce

In recent years, e-commerce has emerged as an area of significant user interest in retail trade. International statistical standards are still evolving in the area, particularly in the clarification of terms and concepts and what precisely are the "boundaries" of e-commerce. A number of OECD Member countries have commenced the collection of annual e-commerce statistics in order to provide a base-line estimate of the magnitude of e-commerce turnover in relation to the total for the retail sector. However, only a small number of countries have commenced collection of sub-annual data on an on-going basis in this area, notably the United States (as an adjunct to its monthly retail trade survey), France and Korea.

Owing to the high degree of interest in e-commerce, the OECD Working Party on Indicators for the Information Society (WPIIS) established an Expert Group on Defining and Measuring E-Commerce to "compile definitions of electronic commerce that are policy relevant and statistically feasible". In April 2001, at its annual meeting, the WPIIS developed guidelines for the interpretation of the electronic transaction definitions and encouraged Member states to incorporate the guidelines in their questionnaire development. These guidelines will be revisited by WPIIS at its 2002 meeting where it is expected to benefit from additional experience in the measurement of e-commerce.

In general, however, on-going statistical measurement (particularly sub-annual data collection) in this area is quite limited.

[35] *International Recommendations on Statistics of the Distributive Trades and Services*, Statistical Papers, Series M, No. 57, United Nations, New York, 1975, page 21.

3.7 National classifications of retail trade

The United Nations guidelines state that the main criterion in defining retail trade is that the "goods are sold to individuals for personal or household use or consumption regardless of the nature of the commodity sold, the place where it is sold or the method of operation of the selling unit".[36] There are considerable differences between OECD Member countries in each of the dimensions included in this definition. Such differences arise out of cost and other constraints faced by national statistical institutes responsible for the compilation of the indicators. The result complicates comparisons of the indicators between countries. With respect to activity scope, the main areas of difference in activity coverage concern the inclusion/exclusion of:

- personal and household equipment repairs;
- personal services;
- automotive sales and repairs;
- sale of gasoline;
- hotels, cafes, restaurants and bars.

Table 14: Retail trade: activity coverage inclusions and exclusions

	Coverage inclusions		**Exclusions**
	National classification of retail trade	**Non retail activities included in national survey**	**Specific retail activities excluded from national survey**
Canada	Division J of Canadian 1980 Standard Industrial Classification. Includes motor vehicle dealers and gasoline service stations. Includes mail order and catalogue sales of department stores.	None	Establishments primarily engaged in non-store retail dealing (Division J Major Group 69). These comprise vending machine operators and direct sellers. Retail trade estimates do not include any form of direct selling, which bypasses the retail store, except mail-order and catalogue sales activities of department store businesses. They also exclude retail sales through ancillary units, sales of contractors whose major activity is not retailing and retail transactions between individuals.

[36] *International Recommendations on Statistics of the Distributive Trades and Services*, Statistical Papers, Series M, No. 57, United Nations, New York, 1975, page 10.

Table 14: Retail trade: activity coverage inclusions and exclusions (continued)

	Coverage inclusions		Exclusions
	National classification of retail trade	**Non retail activities included in national survey**	**Specific retail activities excluded from national survey**
Mexico	Mexican Classification of Activities and Products (CMAP), which is compatible with ISIC Rev. 3 at 4 digit level. Includes Vehicles, car repair & accessory parts and sales of automotive fuel. Excludes repair of personal and household goods.	None	None
United States	Major Groups 44-45 of North American Industry Classification System (NAICS), which is compatible with ISIC Rev. 3 at 2-digit level with some exceptions. Includes automotive dealers, and gasoline service stations. Excludes repair of personal and household goods (NAICS 8114).	Eating and drinking places (NAICS 72)	None
Australia	Division G of Australian and New Zealand Standard Industrial Classification 1993 (ANZSIC), which is aligned with ISIC Rev. 3 except where local conditions and requirements make this inappropriate.	ANZSIC Div. H Groups 572 [pubs, taverns and bars], 573 [cafes and restaurants], 574 [clubs (hospitality)]; ANZSIC Div. Q Classes 9511 [video hire outlets] and 9526 [hairdressing and beauty salons]. Also includes non-petrol sales of identified convenience stores of petrol stations.	ANZSIC Div. G Sub-division 53 [motor vehicle retailing and services]; ANZSIC Div. G Group 526 [household equipment repair services]; ANZSIC Div. G Classes 5126 [milk vendors], 5245 [marine equipment retailing];
Japan	Major Groups 54-61 of Standard Industrial Classification for Japan (JSIC), which is compatible with ISIC Rev. 3 at 4 digit level. Includes sales by mail orders, sales of automobiles and of automotive fuel. Excludes repair of personal and household goods.	None.	Eating and drinking places, which are classified in Major Groups 60 and 61.
Korea	Tabulation Category G, Division 52 (Retail Trade, Except Motor Vehicles and Motorcycles) Korean Standard Industrial Classification 1991, Rev. 6 (KSIC), which corresponds to ISIC Rev. 3 at 3 digit level.	KSIC Category G Division 50 (Sale of Motor Vehicles and Motorcycles; Retail Sale of Automotive Fuel).	Retail sales of tobacco, surgical and orthopaedic instruments, local specialised cane handiwork and other local wooden products, sale of second hand goods outside stores, repairs of personal and household goods.

Table 14: Retail trade: activity coverage inclusions and exclusions (continued)

	Coverage inclusions		Exclusions
	National classification of retail trade	**Non retail activities included in national survey**	**Specific retail activities excluded from national survey**
New Zealand	Division G of Australian and New Zealand Standard Industrial Classification 1993 (ANZSIC), which is aligned with ISIC Rev. 3 except where local conditions and requirements make this inappropriate. Includes motor vehicle retailing and services (including fuel retailing) and household equipment repair services.	ANZSIC Division H: Accommodation, Cafes and Restaurants; ANZSIC subdivision Q95: Personal Services.	None
Austria	ÖNACE G of ÖNACE 1995 (the Austrian version of NACE Rev. 1).	..	..
Belgium	..	..	Since data are derived from VAT returns, goods not subject to VAT (periodic publications, newspapers, tobacco products, products of recovery, etc.) are excluded.
Czech Republic[1]	Division 52 (Retail Trade, except of motor vehicles and motor cycles; repair of personal and household goods) of CZ-NACE (OKEC) which completely corresponds to NACE Rev. 1	Businesses whose principal activity falls into Divisions 50 (sale, maintenance and repair of motor vehicles/cycles; retail sale of fuel), 51 (wholesale trade and commission trade, except for motor vehicles/cycles and 55 (hotels and restaurants) of CZ-NACE (OKEC).	None
Denmark	Danish Industrial Classification of All Economic Activities 1993 (DB93), which corresponds to NACE Rev. 1 at 4-digit level.	None	Sales to institutes, business and exports. Sales of pharmacies.
Finland	..	..	..
France	Activity code 52 of the "Nomenclature d'Activités Françaises" (NAF 1993), which corresponds completely to NACE Rev. 1.	None	None
Germany	Division 52 (Retail Trade, except of motor vehicles and motor cycles; repair of personal and household goods) of the WZ1993, which corresponds to NACE Rev. 1 and can be converted to ISIC Rev 3.	..	..

Table 14: Retail trade: activity coverage inclusions and exclusions (continued)

	Coverage inclusions		Exclusions
	National classification of retail trade	**Non retail activities included in national survey**	**Specific retail activities excluded from national survey**
Greece	The classification used is the "abridged branches of economic activities" classification.	..	..
Hungary [2]	Division 52 of Classification of the Hungarian Standard Industrial Classification of All Economic Activities 1998.	Division 50 (Sale, maintenance and repair of motor vehicles and motor cycles; retail sale of automotive fuel) excluding 50.2 (motor vehicle repairs).	Sales by agents and direct sales from producing enterprises to consumers; markets and occasional street vendors; all repair services.
Iceland	From 1998, the series is based on NACE Rev.1, divisions 50 and 51.	..	..
Ireland [3]	From October 1999, monthly indices of retail trade are compiled according to NACE Rev. 1.	None	Retail sales from non-distribution establishments; sales by hawkers, street stalls, street-based newspaper vendors; other retailing activities not conducted from permanent business premises.
Italy	Activity Code 52 (Retail Trade, excluding motor vehicles and motor cycles and retail sale of automotive fuel) of ATECO 5 of 1991 which corresponds to NACE Rev. 1 and to ISIC Rev 3 at 3-digit level.	None	Non-fixed sales points
Luxembourg	NA	NA	NA
Netherlands	Standaard Bedrijfstakindeling (SBI 1993) which can be adjusted to NACE Rev. 1 and ISIC Rev. 3. Includes mail order trade.	..	None
Norway	Sub-divisions 52.1-52.6 (Sectors for retail trade and repair of personal and household goods excluding trade of motorised vehicles and petrol) of SN94 which corresponds to NACE Rev. 1.	..	..
Poland	Polish Classification of Activities (PKD), which corresponds to NACE Rev. 1.	None	None
Portugal	Category 52.111 of CAE Rev. 2. Motor vehicles, petrol, repairs are excluded.	..	..
Slovak Republic	..	Accommodation and catering; motor vehicle repairs.	..

Table 14: Retail trade: activity coverage inclusions and exclusions (continued)

	Coverage inclusions		Exclusions
	National classification of retail trade	**Non retail activities included in national survey**	**Specific retail activities excluded from national survey**
Spain	Division 52 of Clasificacion Nacional de Actividades Economicas (CNAE-93), which corresponds to NACE Rev. 1. Includes mail orders and street vendors.	..	Excludes: trade activities non-permanent locations (mobile or not); pharmaceutical and medical goods; second hand commodities; retail trade carried out in family dwellings not identified from without; trade of motor vehicles, motorcycles, mopeds and fuel, cereals, seeds, minerals.
Sweden	Section 52 (excluding sections 52.25 & 52.31) of SE-SIC 92 which corresponds to NACE Rev. 1.	None	Motor vehicles, beverages, pharmaceuticals, retail sales by repair shops for personal and household goods.
Switzerland	Swiss Nomenclature of Economic Activity 1995 (NOGA) which corresponds completely to NACE Rev. 1 at the 4 digit level.	Motor vehicle dealers are included except those selling two wheeled motorised vehicles.	Revenue from wholesale business and sales of services is excluded.
Turkey	NA	NA	NA
United Kingdom	Division 52 (Retail Trade, Not Motors; Repairs) of UK Standard Industrial Classification (SIC).	None	None

[1] Metadata published in the annual *Statistical Yearbook of the Czech Republic*.
[2] Metadata published in the *Monthly Bulletin of Statistics*.
[3] Metadata published in *Statistical Bulletin*, March 1994, pp. 115-117.
NA: not applicable; ..: metadata are not available

3.8 Data source and coverage of indicators

In almost all countries, retail trade data are compiled from regular sample surveys. Samples are selected from master lists, commonly derived from retail censuses. The samples are generally updated on a regular basis to include new businesses and to remove those that have ceased activity. Sampled outlets are selected either randomly or through use of purposive criteria (*e.g.* type of retail outlet, geographic location, inclusion of units only above a certain level of turnover, number of employees, etc.). Units included, range from single person operations (*i.e.* units without employees) to corporations controlling chains of major outlets. It should also be mentioned that, in general, street vendors, etc. are generally excluded from the data due to difficulties in both ensuring collection coverage and in collecting information.

In a small number of countries, notably Belgium and Iceland, data are derived from VAT returns completed by each outlet and returned to the national tax office. The reliability of such data sources may suffer from the fact that their primary purpose is to meet an administrative requirement of government and not specifically as instruments of statistical data collection.

One of the factors complicating the collection of retail data is the very high incidence of small enterprises operating in the sector. Although the sector in many OECD Member countries is dominated by a small number of very large retail enterprises and chains, the contribution of small-scale units may still be significant. This characteristic adds to the cost of coverage maintenance, in particular, for large-scale collections, whether they are conducted annually or at less frequent intervals. In order to minimise costs and the burden on respondents, whilst at the same time providing reliable information on short-term movements, many national statistical institutes restrict coverage and only include those units above a cut-off expressed in terms of employment, turnover, etc., in monthly collections. The following table provides details of collection methodology, type of outlets included, cut-off points, and sample sizes in absolute terms and as a proportion of the total population.

Table 15: Retail trade: collection methodology, size of survey population

	Data source and selection criteria	**Coverage of indicator**
Canada	Monthly Retail Trade Survey Includes all large multi organisations (stores with 4 or more outlets involved in the same business and 5 million and over of sales and receipts) and other organisations that have PD (Payroll Deduction) account numbers. Excludes non-employers and companies with annual revenues of less than $30 000.	The target population consists of all statistical companies on the Central Frame Data Base (CFDB) that have at least one location identified in the retail trade sector. The sample is about 14 000 and represents slightly less than 10% of the target population.
Mexico	Monthly Survey of Commercial Establishments (Encuesta Mensual sobre Establecimientos Comerciales). The units selected are those which sell merchandise for personal or domestic use (as opposed to intermediate consumption).	The (non-random) sample supplies information on 19 486 large and medium size establishments in 33 cities. The sample covers 53% to 85% of total retail sales in each of the 33 cities, according to the 1994 commercial census.
United States	Monthly Retail Trade Survey of establishments across whole country. The survey comprises about 12 000 businesses with paid employees. It is supplemented by estimates for non-employers, new employers and missed employers obtained by benchmarking to the annual Retail Trade Survey.	Target population comprises companies of one or more establishments that sell merchandise and related services to final customers.
Australia [1]	Monthly Retail Trade Survey Surveys about 6 600 retail and selected businesses (covering 20 000 outlets). Includes all large businesses and about 3 800 smaller businesses. Excludes Retailers with no employees.	The target population consists of all employing businesses with at least one retail establishment. The large businesses account for about 56% of total turnover.
Japan	Monthly Current Survey of Commerce Survey covers retail trade (excluding eating and drinking places) throughout the country. All stores of 50 or more employees are included while others are sampled.	..
Korea	Monthly Report on the Wholesale and Retail Sales Index All department stores included. Other retail outlets sampled according to turnover strata. Sample size is 2 100 establishments.	Target population consists of all establishments in all cities of 50 000 or more inhabitants. Estimates not available for the proportion of turnover covered by the sample although for wholesale trade in 1990 it was 61.4%.

Table 15: Retail trade: collection methodology, size of survey population (continued)

	Data source and selection criteria	Coverage of indicator
New Zealand	Monthly Retail Trade Survey Includes all geographic units (7 700 approximately) of about 4 000 enterprises. Enterprises with a turnover of less than $30 000 are excluded.	Target population consists of all geographic units in Division G, Division H and Sub-division Q95. Currently, there are approximately 50 000 retail outlets in New Zealand.
Austria	Data are collected from a monthly sample survey of enterprises in the retail trade sector. 6 500 establishments are included in the survey.	The target population consists of all enterprises in ÖNACE G (*i.e.* 70 000 enterprises). The survey represents 8% of the target population.
Belgium	Data are derived from VAT returns. Enterprises with a turnover of more than FB2.5 m (FB4.5 m for the food sector) are included.	..
Czech Republic	From 1995, a monthly survey of private enterprises with 25 or more employees. Enterprises with 50 or more employees are completely enumerated.	Target population consists of all businesses classified in Divisions 50, 51, 52 and 55 of CZ-NACE (OKEC), which are incorporated in the Business Register.
Denmark	Monthly sample survey of around 3 000 enterprises The test sample frame contains those units in the population which generate annual sales of at least DKK 2.5 million inclusive of VAT.	The total number of enterprises in the population amounts to approx. 11 000. The test sample frame covers about 28% of enterprises and about 70% of the total turnover in enterprises whose main activity is retailing.
Finland	Monthly retail trade survey Data collected from a sample of establishments. Excludes establishments not subject to sales tax.	..
France	Data collected monthly by la Chambre de Commerce et d'Industrie de Paris (CCIP/COE) in a monthly survey of 2 600 enterprises.	..
Germany	Data are collected in a monthly survey of 487 000 retail outlets allocated to Division 52 of the WZ1993.	..
Greece	Data are collected from 3 540 establishments located in Greater Athens and communes and municipalities with 5 000 inhabitants or more.	Target population consists of all retail trade establishments and wholesale trade establishments conducting retail trade.
Hungary	Data are collected in a quarterly survey from retail trade outlets above a defined space threshold. Outlets that received an operation license for carrying out retail sales activities are included.	Target population consists of all retail trade and catering outlets regardless of size. Retail outlets of sole proprietors and of economic units whose main activity is not retail are included.
Iceland	Data are derived from VAT returns.	..
Ireland	Monthly Retail Sales Enquiry Data are collected from 2 500 enterprises.	Sample accounts for around 40% of total current retail sales of all enterprises.
Italy	Data relate to sales of 8 000 enterprises operating more than 16 000 retail outlets. Coverage includes outlets with more than 20 employees.	..
Luxembourg	NA	NA

Table 15: Retail trade: collection methodology, size of survey population (continued)

	Data source and selection criteria	Coverage of indicator
Netherlands	Data are collected in a monthly survey. Enterprises with more than 20 persons are always surveyed.	..
Norway	Data are compiled in connection with the collection of the general sales tax.	The total sample now includes 8 500 stores representing 62% of total turnover of the industry.
Poland	Monthly sample survey. Data are collected from enterprises with 9 employees or more (5 or more until 1999).	All large enterprises and 10% of medium enterprises
Portugal	Data are collected monthly by INE, via mail, from a random sample of enterprises.	..
Slovak Republic	Since 1997, enterprises with 20 or more employees are surveyed monthly. These estimates are refined using a quarterly survey including enterprises with less than 20 employees.	Enterprises of 20 or more employees accounted for around 38% of total retail sales in 1999.
Spain	Data are collected from a monthly survey on retail trade.	Sample of 16 770 enterprises from a total of 55 798 units.
Sweden	Data are collected by means of a survey of enterprises. All enterprises with turnover of more than SEK 1 billion are included. Enterprises with turnover of less than SEK 2 million are excluded.	..
Switzerland	Data are collected by means of a monthly survey of 850 retail businesses.	..
Turkey	NA	NA
United Kingdom	Data are collected from a monthly survey of 5 000 retailers. It is a stratified sample of all retail units with turnover of GBP 5 million or more and a random sample of smaller units.	The sample covers between 25% and 33% of the total retail trade volume.

[1] From June 2002, the ABS will make further changes to its business surveys including the adoption of a new units model and expanding the frame to include all units on the Australian Business Register, including non-employers.

NA: not applicable; ..: metadata are not available

3.9 Reporting units

As it is difficult to measure the sales of each separate product, individual units are allocated to a specific branch (as defined by an activity classification such as ISIC) on the basis of predominant activity. Such allocation provides a reliable estimate of the types of goods being sold at each outlet and facilitates the compilation of retail trade data at the level of commercial activity. The predominant activity of the unit is derived from the proportion of gross sales of each product or groups of products.

The United Nations guidelines recommends that the statistical unit, the unit for which data are collected, should be the establishment or the establishment-type unit. ISIC Rev. 3 defines the former as "an enterprise or a part of an enterprise which independently engages in one, or predominantly one, kind of economic activity at or from one location or within one geographic area, for which data are available, or can meaningfully be compiled, that allow the calculation of the operating surplus".[37] It

[37] *International Standard Industrial Classification of all Economic Activities*, Statistical Papers, Series M, No. 4, Rev. 3, United Nations, New York, 1990, page 25.

defines the latter as "an enterprise or a part of an enterprise which engages in one kind of economic activity at or from one location".[38] In the context of retail trade, the United Nations guidelines define the establishment as "the store, shop, office or other single location at which a combination of resources and activities is directed by one ownership in carrying out one kind of business."[39]

However, the guidelines state that the reporting unit, the entity from which the data are gathered, may or may not be the establishment. Recognising that difficulties can arise in gathering certain data, it states that on occasion a broader unit such as the enterprise might be a more suitable reporting unit. In some countries, the kind-of-activity unit might have to be used as a suitable alternative, particularly where larger multi-establishment units are significant. The kind-of-activity unit is less restrictive on the geographical area in which a given kind of activity is carried out by a single owning or controlling entity.

As Table 16 shows, data for OECD Member countries generally refer to sales of establishments, enterprises or local units whose main activity is retail trade. Although it has already been stated in Part 2.9, it is worth emphasising that one should not assume that the label attached to the unit selected in any one country necessarily implies that it conforms to an international standard definition. Careful reference should be made to the definition of the unit provided in many of the country descriptions in *Main Economic Indicators: Sources and Definitions*, or in national publications.

Table 16: Retail trade: reporting units

	Reporting units
Canada	Retail locations (outlets)
Mexico	Establishments (predominately retail)
United States	Establishments (predominately retail)
Australia	Establishments (predominately retail).
Japan	Establishments
Korea	Establishments (predominately retail)
New Zealand	Geographic unit [1]
Austria	Retail enterprises
Belgium	Enterprises
Czech Republic	Enterprises
Denmark	Enterprises
Finland	Establishments

[38] *International Standard Industrial Classification of all Economic Activities*, Statistical Papers, Series M, No. 4, Rev. 3, United Nations, New York, 1990, page 25.

[39] *International Recommendations on Statistics of the Distributive Trades and Services*, Statistical Papers, Series M, No. 57, United Nations, New York, 1975, page 13.

Table 16: Retail trade: reporting units (continued)

	Reporting units
France	Includes department stores, chain stores, hypermarkets, supermarkets and mail order businesses
Germany	Enterprises (predominately retail)
Greece	Establishments (predominately retail)
Hungary	Enterprises
Iceland	All outlets
Ireland	Enterprises
Italy	Enterprises
Luxembourg	NA
Netherlands	Enterprises
Norway	Establishments
Poland	Enterprises
Portugal	Enterprises
Slovak Republic	Enterprises
Spain	Enterprises
Sweden	Enterprises (predominately retail)
Switzerland	Enterprises
Turkey	NA
United Kingdom	Enterprises

[1] The initial selection unit is the enterprise that has one or more retailing geographic units and an annual GST turnover of more than NZ $30 000.
NA: not applicable

3.10 Data collected

As Table 16 also shows, there is considerable variation in the nature of the value data from which the indicator is compiled. Most OECD Member countries collect information on turnover, whilst others only collect information on sales of goods.

The European Council Regulation on Short-term Statistics specifies the collection of "turnover" for value data. The European Commission has defined turnover as:

> "the totals invoiced by the observation unit during the reference period, and this corresponds to market sales of goods or services supplied to third parties. Turnover includes all duties on the goods or services invoiced by the unit with the exception of the VAT invoiced by the unit vis-à-vis its customer and other similar deductible taxes directly linked to turnover. It also includes all other charges (transport, packaging, etc) passed on to the customer even if these charges are listed separately in the invoice. Reduction in prices, rebates and discounts as well as the value of returned packaging must be deducted. Income classified as other operating income, financial income and extraordinary income in company accounts is excluded from turnover.

Operating subsidies received from public authorities or the institutions of the European Union are also excluded."[40]

Unfortunately, there is no universally accepted international standard with respect to which variable should be collected. Furthermore, there is also no international standard definition for variables such as "sales" or "turnover". Indeed, the terms "sales" and "turnover" are often used interchangeably by a number of national and international agencies.

In many instances, the methodological information provided by individual countries does not provide sufficient detail on the variable labelled "turnover" to enable the precise definition of that variable to be identified. The following table provides examples of definitions applied by some OECD Member countries. From these examples it can be seen that some countries apply the term "turnover" only in the context of receipts from sales of merchandise whilst others also include other types of receipts such as those from services, repairs, commissions, etc. In some countries, turnover or sales exclude taxes but includes deferred payments for orders received.

Table 17: Retail trade: examples of national "turnover" and "sales" definitions

	Data	National definition
Canada	Retail sales/ Turnover	Retail sales are defined as "the aggregate sales made through retail locations (outlets)". A retail location is a "business location (usually a store) in which the principal activity is the sale of merchandise and related services to the general public, for household or personal consumption." Data refer to the level of sales (turnover) made through business locations.
Mexico	Sales of goods	Merchandise sold, property of the establishment less the value of returns, discounts and prices reductions on sales without including VAT (Value Added Tax), but including any other taxes transferred by the establishment to the customer.
United States	Retail sales/ Turnover	Sales include merchandise sold (for cash or credit at retail or wholesale) by establishments primarily engaged in retail trade. Services that are incidental to the sale of merchandise, and excise taxes that are paid by the manufacturer or wholesaler and passed along to the retailer are also included.
Australia	Turnover	Turnover includes retail sales; wholesale sales; takings from repairs, meals and hiring of goods (except for rent, leasing and hiring of land and buildings); and commissions from agency activity (*e.g.* commissions received from collecting dry cleaning, selling lottery tickets, etc.) and net takings from gaming machines, etc.
Japan	Sales of goods	Data refer to sales of all retail outlets including sales by mail order.
Korea	Sales of goods	The indices measure monthly changes in volume of commodities traded predominately on retail markets.

[40] Commission Regulation (EC) No 2700/98 of 17 December 1998 concerning the definitions of characteristics for structural business statistics.

Table 17: Retail trade: examples of national "turnover" and "sales" definitions (continued)

	Data	National definition
New Zealand	Sales of goods and services	Data refer to turnover from cash and credit sales and commission received for goods and services sold on behalf of others. Also included are receipts from hiring and leasing of consumer goods.
Austria	Turnover	..
Belgium	Turnover	..
Czech Republic	Turnover	..
Denmark	Turnover	..
Finland	NA	..
France	Sales of goods	..
Germany	Turnover	..
Greece	Turnover	..
Hungary	Sales of goods	..
Iceland	Turnover	..
Ireland	Turnover	Monthly retail turnover figures represent the total receipts (including VAT) of enterprises for the retail sale of goods during the period. Respondents are asked to include receipts from services (*e.g.* repairs) and the cash value (including VAT) of goods sold under hire purchase and credit sales agreements. Instalment repayments for credit sales in earlier periods are excluded.
Italy	Value of Sales	The value of sales is defined as the total amount billed to consumers including VAT, interest on credit sales and additional charges for delivery but excluding discounts.
Luxembourg	NA	NA
Netherlands	Turnover	..
Norway	Turnover	Turnover includes dutiable and duty-free sales income from goods and services as well as rents, commission fees and royalties. Financial revenues are not included.
Poland	Turnover	..
Portugal	Turnover	..
Slovak Republic	Retail Sales/ Turnover	Receipts for retail sales include receipts for sales of goods, own products and services in retail sales network units, delivery goods, repair centres of motor vehicles and consumer goods and in non-trade enterprises. Receipts are expressed at realised prices (including value added tax).
Spain	Turnover	..
Sweden	Turnover	..
Switzerland	Sales of goods	..
Turkey	NA	NA
United Kingdom	Turnover	..

NA: not applicable; ..: definition not available

3.11 Basis of prices

The United Nations guidelines[41] recommend that the sales value of goods and services collected should be the total sum paid. It should include sales, excise and other indirect taxes and duties collected, as well as financing, delivery and installation charges, where these services are provided by the establishment. The sales price should also be net of discounts, rebates and similar allowances granted.

Depending on national practices and need of final users, the price of the transactions incorporated in the sales/turnover variable can vary from country to country, owing to the inclusion or exclusion of value added and other taxes, and other aspects of prices such as rebates and discounts. Other pricing elements include transport and packaging that may be passed on to the customer, even if they are charged separately on the invoice.

Table 18: Retail trade: basis of prices

Country	VAT	pecific taxes such as onsumption, excise taxes, etc	Rebates and discounts
Canada[1]	..	From January 1991 excludes Provincial sales taxes, the Goods and Services Tax (GST) and the Harmonized Sales Tax (HST).	Excluded
Mexico	Excluded	Included	Excluded
United States	..	Sales exclude sales taxes collected directly from customers and paid directly to a local, state, or federal tax agency. Excise tax are included.[2]	Sales are net after deductions for refunds and allowances for merchandise returned by customers.
Australia	..	From July 2000, turnover includes GST	..
Japan	..	Value of sales after April 1989 includes consumption tax.	Discounts excluded
Korea	..	Includes indirect taxes	Includes amounts charged for deferred payments but exclude discounts.
New Zealand	..	Excludes goods and services tax	..
Austria	Excluded	..	..
Belgium	..	..	..
Czech Republic	Included	..	..
Denmark	Included	..	..
Finland	..	Excludes sales tax	..
France	Sales of goods	..	..
Germany	Excluded (included prior to 1993)	..	..
Greece	Excluded	..	..

[41] *International Recommendations on Statistics of the Distributive Trades and Services*, Statistical Papers, Series M, No. 57, United Nations, New York, 1975, page 47.

Table 18: Retail trade: basis of prices (continued)

Country	VAT	pecific Taxes Such as onsumption, Excise Taxes, etc	Rebates and Discounts
Hungary	Included	Included	..
Iceland	Excluded	..	..
Ireland	Included	..	..
Italy	Included	..	Net of discounts.
Luxembourg	NA	NA	NA
Netherlands	Included	..	..
Norway	..	Included	..
Poland	Included	..	..
Portugal	Included	Included	Included
Slovak Republic	Included	Included	..
Spain	Excluded	Included	..
Sweden	..	..	..
Switzerland	Included	Included	Excluded
Turkey	NA	NA	NA
United Kingdom	Included	..	..

[1] Prior to January 1991 included Federal Sales Tax.
[2] Only those paid by manufacturer or wholesaler and passed along to the retailer.
NA: not applicable; ..: metadata are not available

3.12 Compilation of retail sales volume indices

As mentioned in the discussion on industrial production indices in Part 2.2 above, volume movements are determined by holding the price constant. For retail sales volume indices, generally this is done by deflating current value data by a suitable price index. The most appropriate price index is a retail price index based on a set of items representing retail sales. However, in the absence of a specific retail sales index in most countries, a consumer price index may be used.

There are a variety of methods for compiling a retail sales volume index from survey data. Some countries calculate elementary value indices, aggregate them at different levels and deflate them to compile volume indices. Others estimate the value of retail sales at different levels by grossing up the data from the sample following the sampling scheme (*i.e.* the weights are the inverse of the original probability of selection for each unit). The indices may be calculated by directly comparing the turnover of each period with the base year or as chained indices or as a mixture of both.

The most appropriate weights can be drawn from actual (domestic) turnover, but in practice these data are not always available. The most commonly used method by OECD Member countries entails the use of turnover data generally derived from a survey. However, weights based on business registers are also used, though to a lesser extent. Due to changes in expenditure patterns, sales policies, and the composition of price and product changes over time, it is good practice to revise weights regularly. This is done every five years in European Union countries (as recommended by Eurostat).

Most OECD Member countries compile retail trade volume indices by deflating value series with a particular deflator (for most cases specific CPIs are used). For those countries that do not compile volume indices - Japan, Greece, Netherlands, Poland, Spain and Switzerland[42] - the OECD Secretariat provides proxies for the volume indices by deflating the value data with CPI all items. Table 19 provides information on the compilation of volume indices including the price index used to deflate current values.

Table 19: Retail trade: calculation of volume indices

	Undertaken by (OECD/NSO)	**Base year of constant prices**	**Price index used for deflation**
Canada	NSO	CAD 1992 average prices	Implicit Price Index
Mexico	NSO	1994=100	CPI all items
United States	NSO	USD 1996 average prices	..
Australia	NSO	..	Annually re-weighted chain Laspeyres indices referenced to current price values in chosen reference year
Japan	OECD	1995=100	CPI all items
Korea	NSO	1995=100	Calculated using the Laspeyres formula with weights derived from the Census of Wholesale and Retail Trade
New Zealand	NSO	NZD 1995Q1 average prices	Retail Trade Price Deflators
Austria	NSO	1995=100	Calculated using the Laspeyres formula with weights derived from private consumption
Belgium	NSO	1985=100	CPI all items excluding food
Czech Republic	NSO	1994=100	CPI all items
Denmark	NSO	1990=100	CPI all items
Finland	NSO	1995=100	..
France	Chamber of commerce	1990=100	An appropriate price index
Germany	NSO	1995=100	The retail trade CPI
Greece	OECD	1995=100	CPI all items
Hungary	NSO	1995=100	A price index
Iceland	NSO	1990=100	Retail Price Index, including cost of housing
Ireland	NSO	1995=100	Specially constructed retail price indices, derived from the CPI
Italy	NSO	1995=100	..

[42] Luxembourg and Turkey are already excluded since they do not produce retail sales data.

Table 19: Retail trade: calculation of volume indices (continued)

	Undertaken by (OECD/NSO)	Base year of constant prices	Price index used for deflation
Luxembourg	NA	NA	NA
Netherlands	OECD	1995=100	CPI all goods
Norway	NSO	1995=100	Relevant components of the CPI
Poland	OECD	1995=100	CPI all items
Portugal	NSO	1995=100	..
Slovak Republic	NSO	December 1995=100	..
Spain	OECD	1995=100	CPI all items
Sweden	NSO	1995=100	..
Switzerland	OECD	1995=100	CPI all items
Turkey	NA	NA	NA
United Kingdom	NSO	1995=100	A price index

NSO: the national statistical office of the relevant country; NA: not applicable; ..: metadata not available

4. CONSTRUCTION

4.1 Introduction

The United Nations defines construction as comprising "economic activity directed to the creation, renovation, repair or extension of fixed assets in the form of buildings, land improvements of an engineering nature, and other such engineering constructions as roads, bridges, dams and so forth."[43]

Construction activity represents a significant share of the economies of all OECD Member countries both in terms of its contribution to GDP and total employment. It is also an important market for materials and products produced by other sectors of the economy, *e.g.* manufacturing. A characteristic feature of construction activity is its volatility and sensitivity to movements in overall business activity and the business cycle. For this reason, construction statistics are key economic indicators that are monitored closely by analysts in both government and the private sector.

However, the United Nations guidelines distinguish between "construction activity", which may be carried out by any unit irrespective of its predominant activity, and "the construction industry", which is confined to those units whose predominant activity falls within Tabulation Category F (Construction) of ISIC Rev. 3.[44] The activities within Category F comprise:

- site preparation;
- building of complete constructions or parts thereof; civil engineering;
- building installation;
- building completion;
- renting of construction or demolition equipment with operator.

The construction industry exhibits a number of special features described in the United Nations guidelines publication as:

- wide geographical dispersion of construction activities even for the same enterprise;
- highly seasonal nature of the level of activity. In addition, the level of activity is also affected by weather conditions;
- a significant proportion of output comprises unique or "made to measure outputs";
- the duration of individual projects (particularly large scale projects) is often longer than a single accounting period. This complicates measurement of the value of work done over relatively short periods, *e.g.* a month or a quarter;
- construction activity is conducted by a wide variety of agents including large private or public enterprises, small private construction firms, government departments and individuals working on own account. Also, a significant amount of activity is conducted by units whose predominant

[43] *International Recommendations for Construction Statistics*, Series M, No. 47, Rev. 1, United Nations, New York, 1997, page 5.

[44] This equates almost completely with Section F of NACE Rev. 1.

activities are in other sectors. The contribution of small enterprises (including single person units) is particularly significant and adds to the difficulties of collecting data for this sector. In 1994 small and medium sized enterprises represented over 99% of total construction business in Europe and provided about 80% of jobs in this sector;[45]

- in some countries a significant proportion of construction activity may be conducted by units operating within the informal sector.

The contribution of the construction industry to GDP in OECD Member countries ranges between 5%-8%, and between 5%-9% of total employment. Of course, given that a significant proportion of construction activity is undertaken by units outside the construction industry, these percentages understate the importance of construction activity. Nevertheless, even for countries with well-maintained enterprise registers and significant resources, it is only units within the construction industry proper that can feasibly be included in annual and sub-annual surveys. This is because the inclusion of construction undertaken by households and non-construction establishments would require a survey, the scope of which extended to the household sector and to the whole of industry, thus making it unwieldy.

4.2 International guidelines and recommendations

The primary international guidelines and recommendations for construction statistics are those included in the United Nations handbook referred to above. However, the guidelines included in this publication mainly tend to focus on the data requirements related to economic statistics that are important to the SNA. It does not contain specific recommendations on the compilation of physical outputs such as numbers of dwellings/non-residential buildings constructed, square feet of dwellings constructed, etc. The handbook does, however, define a range of terminology including the following:

- *Residential buildings*: So classified when more than half of the floor area of the building is intended for dwelling purposes;

- *Non-residential buildings*: All buildings not classified as residential;

- *Other construction*: Comprises all construction projects not predominantly involving the erection of buildings.

The annual UN/ECE publication *Bulletin of Housing and Building Statistics for Europe and North America* also includes a number of other useful definitions.[46]

- *Dwelling*: Is a room or suite of rooms and its accessories in a permanent building or structurally separated part thereof which by the way it has been built, rebuilt, converted, etc., is intended for private habitation. It should have a separate access to a street (direct or via a garden or grounds) or to a common space within the building (staircase, passage, gallery, etc.). Detached rooms for habitation which are clearly built, rebuilt, converted, etc., to be used as a part of the dwelling

[45] *Eurostat Manual of Business Statistics* – Section 3.2, Short-term Statistics – Construction, p. 3.

[46] See http://www.unece.org/env/hs/bulletin/cnt2_e98.htm. The terminologies used in this publication are commonly agreed definitions developed under the auspices of the Conference of European Statisticians and the Committee on Human Settlements of the United Nations Economic Commission for Europe. These definitions are also published by the United Nations in the *1977 Supplement to the Statistical Yearbook and the Monthly Bulletin of Statistics – Methodology and Definitions*, Series S, Suppl. 2 and Series Q, Suppl. 2, Statistical Office, United Nations, 1997.

should be counted as part of the dwelling. (A dwelling may thus be constituted of separate buildings within the same enclosure, provided they are clearly intended for habitation by the same private household, *e.g.* a room or rooms above a detached garage, occupied by servants or other members of the household.)

- *Building*: A building is any independent structure comprising one or more rooms or spaces, covered by a roof, enclosed with external walls or dividing walls, which extend from the foundations to the roof, and intended for residential, agricultural, industrial, commercial, cultural, etc., purposes.
- *Value of construction put in place*: Is the value of work carried out on projects completed during the inquiry period, plus the value of work under construction at the end of the inquiry period minus the value at the beginning of the period. It includes construction work done as a main contractor and on own-account, plus work done as a sub-contractor (minus the payments to sub-contractors for work done).
- *Work completed*: Work is completed when the building or other structure is physically ready to be occupied or to be put into use.

Under *Value of Buildings* the following definitions apply:

- *Construction completed*: the value actually paid for the completed buildings. The value of land is not included.
- *Construction authorised and started*: tender or estimated value of the buildings upon completion.

For European Union member countries, guidelines and requirements for the production of construction statistics are spelt out in Annex B of the Council Regulation concerning short-term statistics.[47] This Annex applies to all activities included in Section F of NACE Rev. 1.[48] The list of variables required include: "new orders received"; "building permits: number of dwellings"; and "building permits: square metres of useful floor area or alternative size measure". The Regulation also specifies the level of disaggregation of these variables and that the required data be produced at least quarterly. Definitions for "buildings", "residential buildings", dwellings and "non-residential buildings" are provided in Eurostat's Glossary CODED (http://forum.europa.eu.int/Public/irc/dsis/bmethods/info/data/new/main_en.html). Through this URL can also be found, in the context of business in general, a definition of "work in progress". This is defined as "output produced that is not yet finished". Work in Progress is recorded at the end of the reference period and reductions in work-in-progress take place when the production process is completed."[49]

4.3 Classifications of construction

The United Nations handbook in its "classes of construction"[50] draws a clear distinction between new construction and repairs and maintenance. The broad classification is:

[47] Council Regulation (EC) No. 1165/98, 19 May 1998.

[48] At the broad aggregate level these are the same as those included in Tabulation Category F (Construction) of ISIC, Rev. 3, listed in Part 4.1. above.

[49] *Glossary of Business Statistics*, Eurostat Unit D2, 1996.

[50] *International Recommendations for Construction Statistics*, Series M, No. 47, Rev. 1, United Nations, New York, 1997, page 27, paragraph 73.

New construction: Includes site preparation for, and construction of, entirely new structures and/or significant extensions to existing structures whether or not the site was previously occupied

- Residential buildings;
- Non-residential buildings;
- Other construction.

Repairs and maintenance: Includes all construction work not included under new construction[51]

- Capital repairs including restoration and conversions. Includes all construction work performed for others and intended to extend the normal economic life or to increase the productivity of existing structures;
- Current repairs and maintenance. Includes all construction work performed for others and not classified as capital repairs, restoration or conversion. Such work is performed to prevent the normal deterioration of existing structures or to maintain them in a normal functional state.

The UN/ECE *Bulletin* also makes an important distinction between "repairs and maintenance" and "improvements".[52] Whereas the former refers to construction work that does not extend the normal life of a structure but only prevents their abnormal deterioration and keeps them in a state of normal functioning, the latter refers to construction work that increases or at least renews the utility of a structure. The term "Improvements" includes additions/extensions, alterations, renovations and major replacements.

Eurostat's *Classification of Types of Construction* (CC), which has been developed along the lines of the *Provisional Central Product Classification* (CPC) published by the UN in 1991,[53] subdivides construction into buildings and engineering works. These two 1-digit sections are further subdivided into six 2-digit divisions, twenty 3-digit groups and forty-six 4-digit classes. The classification mainly differentiates according to the technical design that results from the special use of the structure (*e.g.* commercial buildings, road structures, waterworks, pipelines) and, particularly for buildings, according to the main use (*e.g.* residential, non-residential).

4.4 Construction indicators published in *Main Economic Indicators*

Constructions are structures connected with the ground which are made of construction materials and components and/or for which construction work is carried out.[54] Construction works thus include buildings, railways, roads, bridges, airport runways, dams and so on.

In the main, however, apart from the total construction data for Korea, the UK and the USA, construction indicators published in MEI focus on the construction of buildings, in particular, residential buildings and dwellings. In a small number of cases (Belgium, Germany and Norway), data

[51] The UN handbook states that one practical distinction is that capital repairs may require a permit in some countries whilst current repairs may not.

[52] See http://www.unece.org/env/hs/bulletin/00pdf/anx2e.pdf.

[53] *Provisional Central Product Classification*, Statistical Papers, Series M, No. 77, United Nations, New York, 1991.

[54] *Eurostat Classification of Types of Constructions* – Paragraph 8, Page 2.

on non-residential buildings are also published. Data are presented in value terms, physical terms (number of "units" constructed, square metres, cubic metres) or both. The indicators for the United Kingdom are presented in index form. The publication does not contain indicators for Mexico, Italy and the Slovak Republic.

It should also be remembered that the activities included in an indicator might differ between countries. In some cases, for instance, alterations, additions and renovations may be included whereas in other cases they may be excluded.

The indicators published in MEI are summarised in Table 20. As can be seen from this table the indicators compiled by countries represent the entire construction cycle, from the issue of permits, commencement of work, work in progress and work completed.

Table 20: Construction: summary of MEI construction indicators

	Permits issued	**New orders**	**Work started**	**Work put in place**	**Work in progress**	**Work completed**
Canada	B, R	..	D	..	..	..
Mexico	..	..	..	..	..	..
United States	..	C, R	D	B, R[1]	..	..
Australia	B, D	..	D	..	B, D	..
Japan	..	B, D	B, D	..	..	..
Korea	B, R, D	C, R	..	..	..	..
New Zealand	B, R, D	..	..	B, R	..	..
Austria	..	..	..	C	..	..
Belgium	B, R, D, N	..	B, R, D, N	..	..	..
Czech Republic	..	..	D	..	..	D
Denmark	D	..	B, D	…	B, D	..
Finland	B, R	..	..	..	B, R	..
France	D	..	D	..	..	..
Germany	B, R, D, N	B	..	R, N	..	..
Greece	B, R	..	..	..	..	..
Hungary	..	..	..	..	..	D
Iceland[2]	R	..	..	..	..	..
Ireland	D	..	..	..	..	D
Italy	..	..	..	..	..	..
Luxembourg	B, D	..	..	..	..	..
Netherlands	B, R	..	D	..	D	..
Norway	..	..	B, R, D, N	..	..	..
Poland	B	..	..	..	..	D
Portugal	B, R	..	..	..	..	B, R
Slovak Republic	..	..	..	..	..	..
Spain	R, D	..	D	..	..	R, D

Table 20: Construction: summary of MEI construction indicators (continued)

	Permits issued	New orders	Work started	Work put in place	Work in progress	Work completed
Sweden	..	..	D	..	..	D
Switzerland	D	..	..	..	D	D
Turkey	R, B	..	..	..	..	B, R
United Kingdom	..	C, R	D	C, B, D	..	..

B: buildings; R: residential buildings; D: dwellings; N: non-residential buildings; C: total construction.

[1] Private sector.

[2] Also published are data on the number of house bonds issued each month to individuals for the purchase of new dwellings.

The indicators outlined above can be divided into two groups. The first comprising permits issued, new orders and work started (based on estimated value, area or numbers upon completion) are indicators of future activity. The second group, comprising work put in place, work in progress and work completed are indicators of work actually done within a given period of time or at a particular point in time.

The indicators for each Member country have evolved over time. They have been selected for inclusion in MEI on the criteria of their importance as an economic indicator to each country. However, as stated in Part 1, the list of indicators published in MEI needs to be revised at regular intervals as priorities change and new topics of interest to users emerge. This is particularly relevant to construction indicators where it is intended to change the list of target indicators in the future to maximise the number of series common to all members. The revised list of indicators will include indicators of both future activity and work actually done.

4.5 Sources of construction data and access to metadata

Table 21 shows the sources of the data published in MEI as well as some URLs where detailed methodological information may be accessed. As with industrial production and retail trade data, the level of detail provided varies from country to country.

For most Member countries the data are compiled and disseminated by their national statistical institutes. The eight exceptions are Canada (work started data from the Canada Housing and Mortgage Corporation), the United States (new orders data from FW Dodge Corporation), Japan (Ministry of Construction), Korea (Ministry of Construction and Transportation), France (Ministry of Equipment, Transport and Housing), Ireland (Work Completed data from the Department of the Environment and Local Government), Spain (Ministry of Public Works and Transport) and United Kingdom (Department of the Environment). For Canada, United States and Ireland, some data are also sourced from the national statistical institute.

Frequency of statistical data is not included in Table 21. However data is usually compiled on a monthly basis. There are only a few exceptions. For Australia, New Zealand, Poland and Portugal some of the data is monthly and some is quarterly. For the United Kingdom some of the data is monthly and some is annual.

Table 21: Construction: source agency and access to detailed methodological information

	Source Agency	National sources
Canada	*Permits Issued* - Statistics Canada	*Building Permits Survey* http://www.statcan.ca/english/sdds/2802.htm (English) http://www.statcan.ca/francais/sdds/2802_f.htm (French)
	Work Started - Canada Housing and Mortgage Corporation	*Housing Starts and Completions Survey* http://www.statcan.ca/english/sdds/2801.htm (English) http://www.statcan.ca/francais/sdds/2801_f.htm (French)
Mexico	..	..
United States	*New Orders* - FW Dodge Corporation	*Work put in place*
	Work put in place and *Work Started* - US Bureau of the Census	http://www.census.gov/const/www/index.html
Australia[1]	Australian Bureau of Statistics	http://www.abs.gov.au/ausstats/ABS%40.nsf/c1061106e0c3442fca2568b5007b861d!OpenView&Start=1&Count=1500&Expand=41#41
Japan	Ministry of Construction	http://www.stat.go.jp/english/1431-08e.htm
Korea[1]	Ministry of Construction and Transportation	http://www.nso.go.kr/eng/esub/esub3.htm
New Zealand	Statistics New Zealand	http://www.stats.govt.nz/domino/external/omni/omni.nsf/outputs/Building+Consents+Issued
Austria	Central Statistical Office	..
Belgium	Statistical Office of Belgium	..
Czech Republic	Czech Statistical Office	..
Denmark[2]	Statistics Denmark	http://www.dst.dk/dst/666
Finland	Statistics Finland	..
France	Ministry of Equipment, Transport and Housing	..
Germany[1]	Federal Statistical Office of Germany	http://www.statistik-bund.de/allg/e/sitemap/sitemap2.htm
Greece	National Statistical Office of Greece	..
Hungary	Hungarian Central Statistical Office	http://www.ksh.hu/pls/ksh/docs/eng/emodsz/emodsz01.html#const
Iceland	Statistics Iceland	..
Ireland	*Permits Issued* - CSO	*Permits Issued*
	Work Completed - Department of the Environment and Local Government[1]	http://www.cso.ie/publications/building/planperm.pdf *Work Completed* http://www.environ.ie/housindex.html
Italy	..	..
Luxembourg	Statistical Office of Luxembourg	..
Netherlands[3]	Statistics Netherlands	http://www.cbs.nl/en/figures/keyfigures/lbn1666z.htm
Norway[3]	Statistics Norway	http://www.ssb.no/english/subjects/10/09/byggeareal_en/
Poland	Central Statistical Office of Poland	..
Portugal	National Institute of Statistics	..

Table 21: Construction: source agency and access to detailed methodological information (continued)

	Source Agency	National sources
Slovak Republic	..	..
Spain	Ministry of Public Works and Transport	..
Sweden[1]	Statistics Sweden	http://www.scb.se/eng/ekonomi/ekonomi.asp#Bostader
Switzerland[3]	Federal Statistical Office	http://www.statistik.admin.ch/stat_ch/ber09/eaus09.htm
Turkey	State Institute of Statistics	http://www.die.gov.tr/TURKISH/SONIST/INSAAT/INSAATist/BINANG.gif
United Kingdom[4]	Department of the Environment	http://www.statistics.gov.uk/statbase/source.asp?vlnk=127&B9=View

[1] There is one or more links given under the general heading of construction although metadata may not be detailed.
[2] Refer to "Declarations of content".
[3] Contains information about publications that can be ordered from the national agency or a direct contact name to whom queries can be sent.
[4] Data cover Great Britain only.
..: metadata not available

4.6 Indicators of future activity

As can be seen from Table 20, "Permits issued" is the most common indicator of future activity in the MEI. The prime sources of information on permits issued are administrative documents issued by the responsible government agency in OECD Member countries. Such documents are generally issued by local government (or municipal) agencies and in some instances by state/regional or central government bodies. The permit process is often a means for ensuring compliance with government zoning regulations and building codes, and the issue of a permit generally provides authorisation for the commencement of building work.

Table 22 outlines the sources of some of the indicators of future activity. The predominant indicator is "permits issued" but where this is not possible, "work started" or "new orders" is used instead. It can be seen from the table that comparability is difficult because data do not always refer to the same activity.

Table 22: Construction: indicators of future activity – sources and coverage[1]

	Source of data	Definition/ coverage	Alterations, additions, renovations
Canada	The monthly Building Permits Survey of all municipalities issuing permits	Data refer to the value of permits issued for new buildings. About 2 500 municipalities are surveyed representing all the provinces and territories and 94% of the Canadian population	Included
Mexico	NA	NA	NA
United States[2]	Data are derived from FW Dodge reports, permit place reports, publications and sampling	Data refer to the value of contracts made during the reference period and represent actual construction costs for all construction including civil engineering	Included
Australia	Mainly compiled from permits issued by licensing authorities but also includes major building activity in areas not subject to normal administrative approval	Data refer to the value of all new residential buildings valued at AUD 10 000+ plus all approved non-residential building jobs valued at AUD 50 000+	Included
Japan[3]	Data are derived from the Survey of Construction Work Started completed by prefectural officials in charge of building construction	Data refer to the value of new construction, reconstruction and extensions of buildings requiring notification in accordance with the Building Standards Law. The series cover buildings in which the total floor space exceeds 10 square meters	Included
Korea	Collected at all administrative levels by local government officers from registered documents	Data refer to the floor area of approved construction work permits by type of structure and building use	Included – also includes repairs
New Zealand	Data on building authorisations are obtained each month from all territorial authorities	Data refer to building permits issued throughout the country for work valued at NZD 5 000+	Included
Austria	NA	NA	NA
Belgium	Collected by municipalities representing all provinces and territories	Data refer to all new building constructions and complete reconstructions	..
Czech Republic[4]	..	Data refer to the number of dwellings started during the period according to registration in the construction journal	..
Denmark[5]	Compiled using information on the Register of Buildings and Dwellings (BBR)	Data refer to all building projects for dwellings approved by municipal authorities during the reference period	Included
Finland	..	Data cover whole country and refer to the physical volume of buildings for which permits have been authorised during the reference period	Included
France[5]	Data collected by municipalities and compiled by the Departmental Directorate of Equipment under the project SITADEL (Information system on the construction of residential buildings and premises)	Data only cover metropolitan France and refer to the number of housing permits (excluding lodging houses and communal dwellings) authorised during the reference period	Included if the surface area of the house is increased

Table 22: Construction: indicators of future activity – sources and coverage[1] (continued)

	Source of data	Definition/ coverage	Alterations, Additions, Renovations
Germany	..	Data refer to the value of all types of residential and non-residential construction above ground level	Included – also includes repairs
Greece	..	..	Included
Hungary	NA	NA	NA
Iceland[6]	..	Data refer to the physical volume of residential buildings for which permits have been authorised in the capital city Reykjavik	..
Ireland[5]	Compiled from permits issued by licensing authorities	Data refer to all planning permissions granted each quarter for new houses	Excluded
Italy	NA	NA	NA
Luxembourg	Compiled from number of definitive permits authorised by municipalities	Data refer to the construction of all new buildings and additions to existing buildings	Included
Netherlands	..	Data refer to the value of permits for new buildings, renovations, and extensions costing 100 000+ guilders	Included
Norway[4]	Local authorities prepare the consolidated reports for their respective areas on the basis of the notifications of construction starts sent to them by builders	Data refer to the number of dwelling units started in new buildings and dwellings resulting from the extension of existing buildings, nation-wide. Dwelling units with effective floor areas of less than 30 square meters are excluded	..
Poland	..	Data refer to the number of all new residential and non-residential buildings for which permits have been issued	..
Portugal	Data are obtained from a monthly survey of local municipalities which provide a nominal list concerning the permits granted in the previous month	Data refer to the number of permits for new buildings, and alterations and additions to buildings, granted by local municipalities in mainland Portugal	Included
Slovak Republic	NA	NA	NA
Spain[5]	Data obtained from approvals by the Association of Architects (Colegio de Arquitectos) recorded during the month in which payment for the permit was made	Data refer to the number of permits for the construction of new dwellings	..
Sweden[4]	..	Data refer to the number of dwelling starts, recorded in the month that the foundation is laid and for which a building permit has been issued	..
Switzerland[5]	Data are collected by commune authorities via a survey on dwelling constructions	Data refer to the number of dwelling permits issued in all communes during the reference period	..

Table 22: Construction: indicators of future activity – sources and coverage[1] (continued)

	Source of data	Definition/ coverage	Alterations, additions, renovations
Turkey	Data are obtained from municipalities of provinces, districts, sub-districts, and villages in accordance with the Municipalities Law No. 1580	Data refer to surface area of new buildings and additions to already existing buildings for which permits issued have been delivered. Buildings without permits in sub-districts and villages that do not have municipal organisations and squatter houses in large cities are excluded	Included
United Kingdom[2]	Data are derived from the Monthly Sales Inquiry	Data are volume data based on net new orders of enterprises classified to the construction industry in Great Britain only. They exclude orders for home improvement work and include civil engineering	..

[1] Permits issued for total buildings unless otherwise indicated.
[2] New orders total construction.
[3] Work started on total buildings.
[4] Work started on dwellings.
[5] Permits issued for dwellings.
[6] Permits issued for residential buildings.
NA: not applicable; .. :metadata not available

4.7 Indicators of actual activity

Most OECD Member countries also compile short-term indicators on actual building activity during a particular reference period. As Table 20 shows, there is considerable variation in the type of indicator produced. Some countries base the indicator on work in progress during the reference period whilst others use work completed or work put in place as the indicator. Some comparative information on these indicators is provided in Table 23.

Table 23: Construction: indicators of actual activity – sources and coverage[1]

	Source of data	Definition/ coverage	Alterations, additions, renovations
Canada	NA	NA	NA
Mexico	NA	NA	NA
United States[2]	The Census Bureau obtains data from a rotating panel design for owner-occupied units and from a mail survey of owners of a sample of rental or vacant properties	Data refer to the value of on-the-site work on all buildings under construction during the reference period regardless of when work on each project was started or when payment was made to the contractors.	Included
Australia[3]	Data are derived from a survey conducted among builders in the private sector and all other individuals and organisations engaged in building activity	Data refer to the value of work in progress and cover all projects involving construction of new residential buildings other than private sector houses, all private sector residential building projects valued at AUD 10 000+, and all private sector non-residential building projects valued at AUD 50 000+.	Included
Japan	NA	NA	NA
Korea	NA	NA	NA
New Zealand[2]	Data are obtained in the Quarterly Building Activity Survey of builders, owners and other applicant.	Data refer to the gross value of actual work done throughout the country during the reference period. The sample is stratified with all residential projects of NZD 215 000+ and all non-residential projects of NZD 650 000+ being covered.	Included
Austria[4]	Data are compiled from the results of a compulsory quarterly survey of enterprises in the construction industry	Data refer to the turnover (excluding indirect taxes) of enterprises classified to the construction sector. Data cover the whole country. Civil engineering is covered by the data.	
Belgium	NA	NA	NA
Czech Republic	..	Data refer to the number of new dwellings completed and the completion of extensions to existing buildings.	..
Denmark[3]	..	Data refer to the total gross surface of all categories of buildings in progress.	..
Finland[3]	..	Data refer to the physical volume of buildings under construction throughout the whole country.	Included
France	NA	NA	NA
Germany[5]	Data are calculated from turnover data of enterprises specialising in the preparation of building sites.	Data refer to turnover excluding indirect taxes and covers all types of work including repairs.	Included – also includes repairs
Greece	NA	NA	NA

Table 23: Construction: indicators of actual activity – sources and coverage[1] (continued)

	Source of data	Definition/ coverage	Alterations, additions, renovations
Hungary	..	Data refer to the number of dwellings completed during the reference period that have received authorised permits.	..
Iceland	NA	NA	NA
Ireland	Data are in the Quarterly Bulletin of Housing Statistics published by the Department of the Environment.	Data refer to the number of dwellings completed and also include prefabricated and mobile dwellings built by local authorities.	..
Italy	NA	NA	NA
Luxembourg	NA	NA	NA
Netherlands[6]		Data refer to the number of dwellings in progress or on the point of being started.	Included
Norway	NA	NA	NA
Poland	Data are derived form a monthly survey of the construction sector which covers around 580 construction and assembly enterprises where the number of employees exceeds 9 persons (prior to 2000, more than 5 persons).	Data refer to the number of all dwellings completed in residential and non-residential buildings, including those resulting from converting non-residential buildings into residential accommodation.	..
Portugal[7]	Data are compiled from surveys sent to (I) all entities which, during the reference period, completed licensed works and (ii) all official entities which completed works that were exempt from municipal licensing during the same period.	Data refer to work on new buildings, and alterations and additions which have been completed during the reference period for all Portugal including the Azores and Madeira.	Included
Slovak Republic	NA	NA	NA
Spain	Data are obtained from compulsory notification forms submitted by construction enterprises to the General Directorate for Housing upon the completion of each dwelling.	Data refer to the number of dwellings completed during the reference period.	..
Sweden	..	Data refer to the number of multiple dwellings and houses completed during the reference period.	..
Switzerland	Data are collected by commune authorities via a survey on dwelling constructions	Data refer to the number of dwellings completed in all communes during the reference period	..
Turkey[7]	Data are obtained from municipalities of provinces, districts, sub-districts, and villages in accordance with the Municipalities Law No. 1580	Data refer to the surface area of completed and partially completed buildings and additions to already existing buildings. Buildings without permits in sub-districts and villages that do not have municipal organisations and squatter houses in large cities are excluded.	Included

Table 23: Construction: indicators of actual activity – sources and coverage[1] (continued)

	Source of data	Definition/ coverage	Alterations, additions, renovations
United Kingdom[4]	..	Data are volume data and refer to work done by contractors during the reference period, including estimates of unrecorded output by small firms and self-employed workers, and output by Public sector Direct Labour Departments classified to 'Construction' in the 1992 Standard Industrial Classification.	..

[1] Work completed on dwellings unless otherwise indicated.
[2] Work put in place in respect of buildings.
[3] Work in progress in respect of buildings.
[4] Work put in place total construction.
[5] Work put in place in respect of residential buildings.
[6] Work in progress in respect of dwellings.
[7] Work completed in respect of buildings.
NA: not applicable; ..: metadata not available