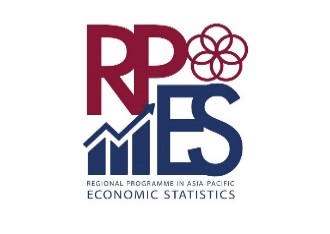
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**Curriculum for training in basic economic statistics**

**Overall objective:** To provide a set of training modules that trainers and statisticians may use to improve their knowledge in compilation of economic and related statistics. These modules will serve both as a training course and as a set of reference materials.

Overall outcome: Statisticians in national statistical offices (NSOs), in particular those working in national accounts, price index development and compilation, and in business statistics, will be able to access a wide variety of data sources and reference materials in order to be able to:

*develop and produce price indexes*, in particular the consumer price index (CPI) and any needed producer price indexes (PPIs); and/or

*develop and produce* *value and volume estimates* of gross domestic product (GDP) through one or more of the methods identified;

*by identifying and employing appropriate data sources and compilation methods*.

If all exercises are completed, statisticians will have

1. identified scope for improvement in value and volume estimates of GDP. Where estimates do not exist, statisticians will have identified ways forward with further development. Possible new data sources will have been identified; and
2. identified future requirements for rebasing the CPI and other price indices, including necessary data sources and a timeline for the development.

Note: it is assumed that (i) time is available for compilers and trainers to use this material and (ii) sufficient resources (people, office resources and financing as necessary) are available to compilers to develop their statistics.

**Summary curriculum**

|  | **Module** | **Objective** | **Time required** |
| --- | --- | --- | --- |
|  |  |  | total 60 hours plus time for exercises |
| **1** | **Introduction** | Explain purpose, focus and structure of the course, how to use the materials.  Intended for both compilers and trainers. | written material, no slides  up to 1 hour |
| **2** | **Overview of economic statistics** | Provide a brief overview of the economy and the statistical system that we use to measure the activities in the economy. | 3 hours maximum for slides  short exercise |
| **3** | **Concepts and definitions of the *System of National Accounts*** | Elaborate the concepts and definitions introduced in module 1 | 2 hours maximum and continue the exercise of module 1 |
| **4** | **The production account - measuring GDP** | Show how GDP may be estimated from the production side. Focus is on value estimates. | up to 6 hours  plus exercise |
| **5** | **Measuring expenditure on GDP** | **S**how how GDP may be compiled from the expenditure approach. Focus is on value estimates. | up to 6 hours  plus exercise |
|  | **Supply and Use Tables** | Provide an overview of SUT, data sources, compilation and use. | 3 hours  plus exercise |
| 6 | **Measurement issues in GDP** | (i) Identify possible reasons why the production-based and expenditure-based estimates will almost certainly not balance; and  (ii) Show how the SUT tool may be used to assist this balancing. | 3 hours  plus exercise |
| 6 | **Estimating GDP in practice** | (i) Describe some practical methods for estimating GDP in a timely way;  (ii) Explain practical steps in establishing a benchmark level of GDP and its components  (iii) Show how the SUT tool may be used to assist this balancing | up to 5 hours  plus, exercise |
| **7** | **Income and Capital Accounts** | Introduce concepts of GNI, GNDI and savings - what they are, why they are important, how they are used and how to calculate. | about 3 hours |
| **8** | **Classifications** | **E**xplain the need for classifications and describe and detail the classifications with emphasis on those used for national accounts and prices. | 3 hours  plus exercises |
| **9** | **Data from Taxation Systems** | Introduce the various forms of tax data and their uses as data sources. | 3 hours |
| **10** | **Price indices** | (i)Describe how to develop and produce price indexes.  (ii)Introduce other types of price indexes.  (iii)Identify issues related specifically to price index compilation  (IV) Describe the design, data collection, compilation | up to 15 hours |
| **11** | **Why economic statistics matter?** | Explain the role that economic statistics play in national development planning and monitoring | up to 3 hours |

**Detail of draft curriculum**

|  | **Module** | **Objective/Content** | **Comments** | **References** |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
| **1** | **Introduction** | **Objective**: Explain purpose, focus and structure of the course, how to use the materials.  Intended for both compilers and trainers. |  |  |
|  |  | Mention, inter alia, ESCAP related materials such as the core set of statistics; skill domains for statisticians; SDGs and their related targets; funding;  And the importance of other things like local knowledge; asking questions; and other things that statisticians ought to do…  Legal basis for statistical work, data confidentiality, resources.  Reference manuals and other countries’ practices. | Written material only, not a PowerPoint presentation. | Sustainable Development Goals (SDGs)  ESCAP’s Core Set of Statistics  https://www.unescap.org/resources/core-set-economic-statistics  ESCAP’s skill domains for statisticians  <http://www.unsiap.or.jp/tnetwork/CSF.pdf>  http://www.unsiap.or.jp/programmes/ms\_materials/ms9/P10\_CSF-GD.pdf |
|  |  |  |  |  |
|  | There are selected power point slides for some modules, not all, to act as a guide to the content of the module and accompanying written notes to flesh out the slides. Trainers are expected to design slides if they so wish to suit their training styles.  References will be provided to manuals and other materials to which the compilers may refer for more information.  There will be accompanying exercises in some modules as indicated (for example on the manipulation of indexes). | | |  |
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|  |  |  |  |  |
| **2** | **Overview of macro-economic statistics**  **3 hours**  **plus short exercise suggested** | **Objective**: Provide a brief overview of the economy and the statistical system that we use to measure the activities in the economy. | Some of this material will be repeated in later modules in more detail. | *System of National Accounts 2008* (*2008 SNA*), early chapters and particularly chapters 1-3  *The 2008 SNA – concepts in brief*  *The 2008 SNA – compilation in brief* |
|  |  | Focus is on what are macroeconomic statistics, why we need them. The SNA provides a framework for viewing the economy; this module provides an overview of the major concepts, definitions, and guidelines that we use. Major focus of economic planners on GDP and inflation, as is ours in this set of training notes. |  |  |
|  |  | The Core Set of Economic Statistics and how we address this – as statisticians and in this course. |  |  |
|  |  | The SNA as a framework, showing linkages with ESS, GFS, MBS, other. References. |  |  |
|  |  | Concepts and definitions  – residence/economic territory  – institutional units and groupings (classifications) into industries and institutional sectors  – production/consumption/accumulation  – transactions/supply-use/distribution/ redistribution/financial  – other changes/price/volume/classification  – accounting rules (time of recording, valuation, double and quadruple accounting)  – boundaries of production, consumption, assets  – formal and informal, non-observed economy |  |  |
|  |  | – imputation |  |  |
|  |  | – goods and services accounts and the other accounts of the system  – three approaches to GDP estimation  what is GDP, why is it important  – in value (current prices) and in volume (constant prices) terms | Detail of goods and services accounts in other modules. |  |
|  |  | – key data sources summarised | There are several modules dedicated to data sources in more detail. |  |
|  |  | – dissemination of data and metadata, documentation | Detail in a later module. |  |
|  | **Outcomes** | Statisticians will: (i) understand the framework within which economic statistics are developed, in particular measurement of GDP; changes in prices; growth; and inflation and (ii) relate the framework to their own economy and experience. |  |  |
|  | **Exercise** | Identify where the compiling economy does not follow the international standards. |  |  |
|  |  |  |  |  |
| **3** | **Concepts and definitions of the System of National Accounts** | Objective: To elaborate the concepts and definitions that underpin the SNA and other economic statistics. | Elaborates the concepts, definitions introduced in module 2 | 2008 SNA |
|  |  | The focus in this module is on the common rules and recommendations underlying the collection and presentation of economic statistics. |  |  |
|  |  | – centre of economic interest and residence, boundary of production |  |  |
|  |  | – institutional units and groupings (and the special case of industry groupings) |  |  |
|  |  | – stocks and flows |  |  |
|  |  | – accounting rules – valuation (market prices/producers’ prices/purchasers’ prices), time of recording (accrual principle), double (and quadruple) entry accounting |  |  |
|  |  | – boundaries – production, consumption, assets |  |  |
|  | **Outcome** | Students understand the set of concepts and definitions that are laid out in the SNA and underpin economic statistics. |  |  |
|  | **Exercise** | Continue the discussion from Module 2 |  |  |
|  |  |  |  |  |
| **4** | **The production account - measuring GDP**  **up to 6 hours**  **plus a suggested exercise** | **Objective**: Show how GDP may be estimated from the production side. Focus is on value estimates. |  | 2008 SNA |
|  |  | This module is mainly about value terms (current prices) that is, measuring the current state of the economy, but also needs to refer to volumes (constant prices).  – what does GDP measure (and NOT measure) and what are the main uses |  |  |
|  |  | – summary of concepts and definitions –output/intermediate consumption/value added, gross and net; residence; valuation levels (purchasers’, producers’ and basic prices);  – what does the production account look like and what does it tell us? |  |  |
|  |  | – coverage  – formal and informal economy  – non-observed economy | Identify links to SDGs, such as Value Added of Manufacturing to GDP. |  |
|  |  | – both value and volume measures should be mentioned, but there is a separate module with the detail of how to calculate volume measures and the relationship between values, volumes, and prices. This part focuses on current prices, as measuring the current state of the economy |  |  |
|  |  | – output and intermediate consumption by industry, which industries to identify and how to define (SIC); grouping by institutional sector  – valuation levels (basic prices, producers’ prices, purchasers’ prices) | separate module for classifications |  |
|  |  | – include specific mention of agriculture; construction; trade and transport margins; central bank output; financial services including both FISIM and insurance; owner occupied dwellings; market and nonmarket output. | these are examples only of areas that are sometimes more difficult to understand |  |
|  |  | – identify possible data sources for each industry (emphasise local knowledge for local data sources)  – identify the various advantages and disadvantages of each | Refer to separate modules for business registers and economic censuses/surveys; use of VAT and other tax data; other administrative sources; other data sources.  Refer briefly to constant prices – separate module for the details.  Include something about cross-checking multiple data sources; commodity flow technique (also relevant for expenditure). | refer to country methodological publications for good practice |
|  |  | – taxes less subsidies on products (define and explain why these are included here) |  |  |
|  |  | – possible compilation systems – excel spreadsheets, purpose built systems, one stage or multi-stage (for example to calculate all indicators before final compilation) | Emphasise desirability of a completely transparent system (as opposed to a black box).  Emphasise documentation on how the system works and how it is used. |  |
|  |  | – quality issues (and metadata) |  |  |
|  | **Outcome** | Compilers understand the process of compiling production-based GDP and can identify areas where improvements are necessary. |  |  |
|  | **Exercise** | Identify areas where improvements might be made in the existing production-based estimates with current data sources. Identify possible new data sources. |  |  |
|  |  |  |  |  |
| **5** | **Measuring expenditure on GDP up to 6 hours**  **plus suggested exercise** | **Objective**: Show how GDP might be compiled from the expenditure approach. Focus is on value estimates. | There is a separate module for quarterly GDP estimates and one for the mechanics of volume measures. | 2008 SNA |
|  |  | This module is also mainly about value terms (current prices), that is the current state of the economy, but will also need to refer to volume terms (constant prices). | Include something on links to SDGs and the targets for the relevant goals. |  |
|  |  | – why should GDP equal expenditure on GDP? | Include relationship between production and exports and imports |  |
|  |  | – concepts and definitions including valuation level; coverage and content; relationship with production-based GDP; |  |  |
|  |  | – identify data sources for each component  including household surveys; population estimates; various surveys for data on capital formation (including inventories); prices; import and export statistics; GFS if available and following latest manual, otherwise detailed government accounts (NOT GOVERNMENT BUDGETS); output estimates; production statistics; external sector statistics for exports and imports of goods and services | Household consumption is NOT the residual  Need to specifically mention changes in inventories (which may be the residual, but need to monitor carefully).  Mention importance of talking to compilers of other statistics. | Refer to country methodological publications for good practice |
|  |  | – possible compilation systems – add to what is covered in the production-based GDP compilation above, following the same ideas |  |  |
|  |  | – quality/measurement issues (and metadata) such as measuring inventory change, obtaining capital expenditure of government |  |  |
|  | **Outcome** | Compilers understand the process of compiling expenditure-based GDP and can identify areas where improvements are necessary. |  |  |
|  | **Exercise** | Identify areas where improvements might be made in the existing expenditure-based estimates with existing data sources. Identify possible new data sources. |  |  |
|  |  |  |  |  |
| **6** | **Estimating GDP in practice**  3 hours maximum  plus exercise | **Objectives:** (i) Identify possible reasons why the production-based and expenditure-based estimates will almost certainly not balance;  (ii) to reconcile estimates of GDP by the production and expenditure approaches – ensure data are used consistently in the two approaches; identify data gaps and so on  (iii)  (ii) Show how the SUT tool may be used to assist this balancing. | Not aiming here to provide training on how to produce balanced SUT; rather, the objective is to provide an understanding of how an SUT works.  Include an illustrative example of SUT as a diagnostic tool to identify weaknesses in data. |  |
|  |  | - What are SUT, what do they look like and how does one read/use them?  – summary use of SUT as a balancing tool |  |  |
|  |  | Uses of SUT  – provides a detailed description of the flows in an economy  – to reconcile estimates of GDP by the production and expenditure approaches – ensure data are used consistently in the two approaches; identify data gaps and so on |  |  |
|  |  | – note that some things are measured in both production-based and expenditure-based GDP (such as informal agricultural production and consumption) |  |  |
|  |  | Difficult to measure areas:  informal activities  illegal activities |  |  |
|  |  | Resolution through data confrontation |  |  |
|  | **Outcome** | (i)Compilers will have a better understanding of the relationships among SUT, and production- and expenditure-based GDP.  (ii) Compilers able to identify existing and possible periodic data sources for building an SUT |  |  |
|  | **Exercise** | Add to list developed in modules 3, 4 and 5 relating to possible future improvements. Identify any further prospective data sources. |  |  |
|  |  |  |  |  |
|  | **At this point, each GDP compiler should have a list of possible future improvements and a list of prospective new data sources. Need to have a course of action to follow this up – who they should discuss this with. Identify the way forward.** | |  |  |
|  |  |  |  |  |
| **7** | **Income and Capital Accounts**  **about 3 hours** | **Objective:** Introduce concepts of GNI, GNDI and savings - what they are, why they are important, how they are used and how to calculate. | Has links to SDGs and targets. | *2008 SNA* |
|  |  | Give examples of usage, and note that current price levels of GDP are important for the estimation of GNI and GNDI. |  |  |
|  |  | – pulls in data for the balance of payments current account to estimate GNI and GNDI (these data are normally available) |  |  |
|  |  | – explain primary and secondary income from the ESS (what is included in each)  – include explanation of current and capital transfers  – mention reliability |  |  |
|  |  | Explain concept of national savings and how to calculate | The trainees might have a discussion on how best to introduce savings. |  |
|  | **Outcomes** | (i)Compilers can calculate GNI, GNDI and national savings for their economy; and  (ii) Compilers understand how their country is classified in international development frameworks |  |  |
|  |  |  |  |  |
| **8** | **Classifications**  **2 hours** | **Objective:** Explain the need for classifications and describe and detail the classifications with emphasis on those used for national accounts and prices. |  |  |
|  |  | – why we need classifications and why we use them in all statistical collections, aggregations and publications, adjustment for local conditions, importance of each, updating | with examples |  |
|  |  | – industry |  |  |
|  |  | – institutional sector |  |  |
|  |  | – CPC |  |  |
|  |  | – HS |  |  |
|  |  | – SITC |  |  |
|  |  | – COICOP |  |  |
|  |  | – COFOG |  |  |
|  |  | – identify types of weaknesses in the statistics |  |  |
|  |  | – quality/measurement issues (and metadata) |  |  |
|  | **Outcomes** | Compilers understand the need for classifications and can identify those that are in use in their statistics. |  |  |
| **9** | **Data from Taxation Systems**  **3 hours** | **Objective:** Introduce the various forms of tax data and their uses as data sources |  |  |
|  |  | For all taxes, explain what they cover (including frequency and revisions as more returns are received by the Tax Office), what data are needed as inputs into national accounts compilation and/or useful for cross-checking. |  |  |
|  |  | – advantages and disadvantages of using tax data (for example, mixed balance dates for reporters) |  |  |
|  |  | – value-added (VAT) type taxes – how they work, what data are available, importance of talking to the taxation office staff to understand any weaknesses | Explain why it is a good data source. |  |
|  |  | – income tax |  |  |
|  |  | – other taxes that provide direct input or cross-checking information (such as import duties, excise taxes) | provide examples for cross checking – excise taxes useful, also import taxes |  |
|  |  |  |  |  |
| **10** | **Price indices**  **up to 15 hours** | **Objectives**  **(1)** To describe how to develop and produce price indexes.  (2) identify issues related specifically to CPI compilation. | This first price index module looks at the commonalties among the various indexes. Following modules deal with the specifics of the CPI, PPI and other indexes.  Focus is on how to set up and compile, not on the theory behind the development of all of the different index formulas. | *Consumer price index manual 2004* (*CPI manual*)  *Producer Price Index Manual***(***PPI Manual*) |
|  |  | – purposes of price indexes, why we have them, how to interpret the numbers | change from previous period, same period previous year |  |
|  |  | – uses of the various indexes and sub-indexes including CPI as a main economic indicator; use of CPI, PPI and XMPI in national accounts |  |  |
|  |  | – various index number formulas  – choice of index formula for a particular purpose |  |  |
|  |  | – determining scope and coverage, periodicity and timeliness |  |  |
|  |  | – choice of base period, frequency of updating/rebasing |  |  |
|  |  | – importance and relevance of classifications |  |  |
|  |  | – expenditure weights – sources of data, weight reference period, price and other updating of weights, |  |  |
|  |  | – reviewing, reweighting, rebasing , sources of bias |  |  |
|  |  | products  – initial choice and replacement  – probability and non-probability sampling and how to decide, resampling, item specification …  – product and outlet selection  – pricing level (how to deal effect of taxes/subsidies, discounts)  – item substitution  – adjusting for quality change  – new products | Note that there is a piece on sampling techniques in the Statistical Techniques module. |  |
|  |  | collection of price data  – frequency and timing  – method of collection  – seasonal products (and introduce the ideas of seasonality and seasonal adjustment)  – goods sold in markets  – product substitution and quality adjustment  – missing products/prices  – data editing and imputation |  |  |
|  |  | calculation in practice  – index formula options  – price relatives  – elementary indexes, high level indexes – when we need these and why?  –editing and imputation, quality changes, missing prices and products, seasonal products |  |  |
|  |  | – use of partner country indexes |  |  |
|  |  | availability of packaged software from international organisations (note need for technical support) |  |  |
|  |  | – errors and bias in indexes |  |  |
|  | **Outcome** | * Statisticians understand the process of setting up a system for producing a stable, reliable price index. * Statisticians understand the practical aspects of PPI compilation, and can design a PPI compilation system * Compilers understand the practical aspects of CPI compilation, and can design a CPI compilation system |  |  |
|  |  |  |  |  |
|  | **Exercises** | (i)Given suitable data, statistician develop a weighting scheme for a CPI, and design a suitable sampling scheme for both outlets and products.  (ii) Identify a future programme for rebasing the CPI, including required data and a time line for the development. |  |  |
|  |  |  |  |  |
| **11** | **Why economic statistics matter?**  **Up to 3 hours** | **Objective**: Explain the role that economic statistics play in national development planning and monitoring mainly targeting users | Material is presented in the form of power point slides | Based on all modules |