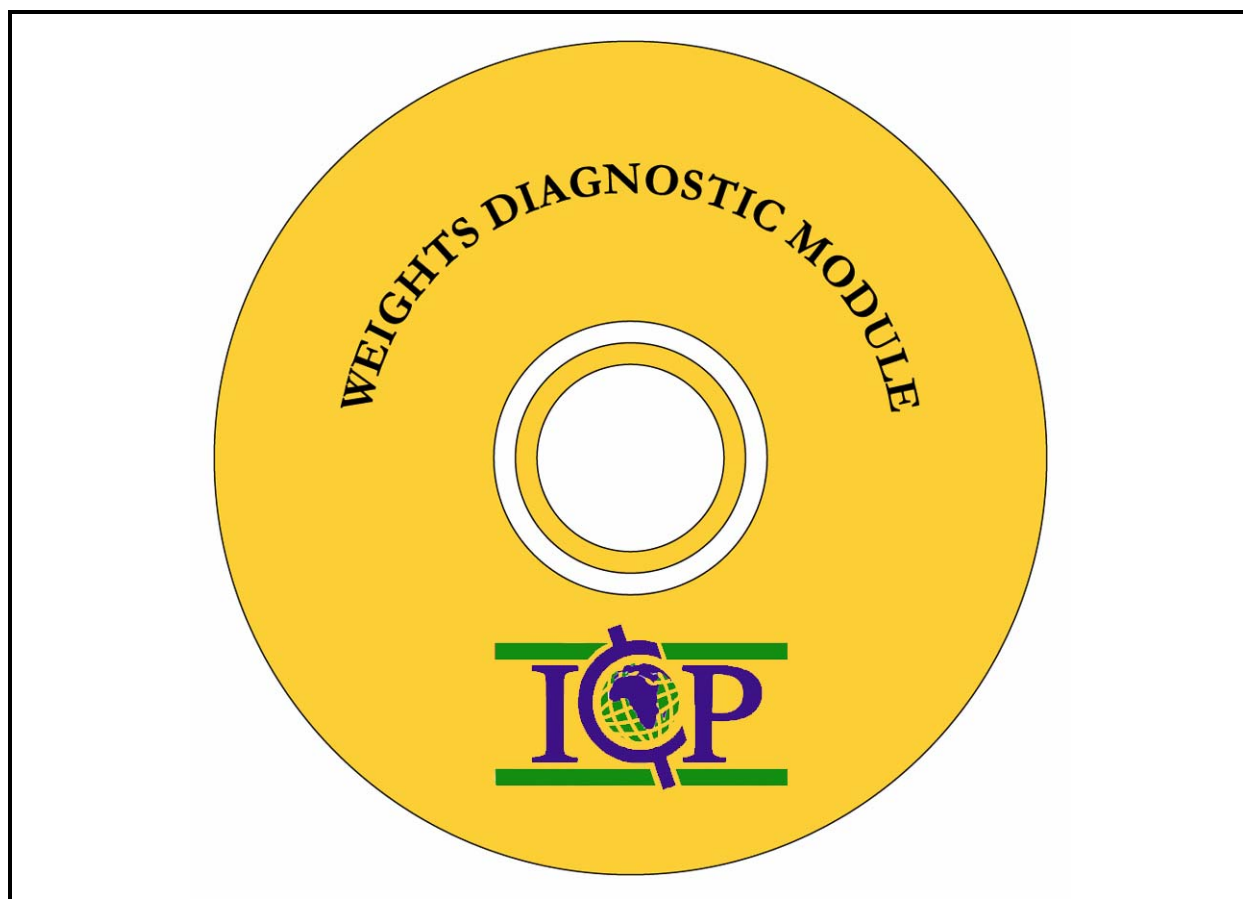


EXPENDITURE WEIGHTS DIAGNOSTIC MODULE

AN EXCEL BASED SOFTWARE

THE INTERNATIONAL COMPARISON PROGRAM
GLOBAL OFFICE



USER MANUAL

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EXPENDITURE WEIGHTS DIAGNOSTIC MODULE

I. BACKGROUND

The new International Comparison Program (ICP) strategic framework is designed to meet the short-term goal of producing reliable, timely and relevant Purchasing Power Parity (PPP) data and to address the long-term objective of building capacity in price and national accounts statistics, upon which the quality of PPP data depends. Basic Heading (BH) PPPs are averaged to higher levels of aggregation using expenditure weights. Countries taking part in the ICP are required to compile BH expenditure weights for 155 breakdowns of GDP.

As part of the ongoing effort to improve the quality of the data, the ICP Global Office, in close collaboration with Regional Coordinators and National Statistical Offices, produced data compilation and validation guidelines – see Chapter 3 of the ICP Handbook on expenditure weights and the associated annex providing data validation guidelines.

This Excel-based Weights Diagnostic Module (WDM) was developed to facilitate data validation and editing at the country, sub-regional and regional levels.

II. ABOUT THE EXPENDITURE WEIGHTS DIAGNOSTIC MODULE

The WDM is an Excel workbook with macros. The Module allows data validation at various levels of aggregations of GDP, including at GDP, Major Aggregate, Analytical Category, Group, Class, or Basic Heading levels. This permits users to first focus on getting the higher aggregates right, and then to move further down to groups and subsequently to classes and ultimately to basic headings. The Module permits horizontal as well as vertical checks. Vertical reviews can be performed both within a country and across countries to check the consistency of the structure of expenditure shares. Horizontal or cross-section validation involves inter-country checks. In addition, where multiple year data are available, horizontal diagnostics can be performed at country level to check for consistency of structure over time, comparing data from two or more years.

The Module follows a standard procedure to calculate coefficient of variations (CVs) of the country weights for each basic heading and highlights those that appear to be anomalous, compared to the regional mean for cross-country analysis. For a temporal consistency checks over time, the CVs show deviation of a particular year's data compared to the mean for the years included in the analysis. In both cases, the module combines the CV test with an examination of standard deviations in which countries (years) are color-coded if their weights fall outside one, two or more standard deviations from the regional (period) mean. The cross-country diagnostic reports are shown both for nominal shares expressed in the respective nominal currencies and real shares in a regional currency denominated in PPP terms. The time-series diagnostic reports compare structural share changes over time.

III. INSTRUCTIONS

1. INSTALLATION

The module does not require installation. It can be saved on a flash disk or a hard drive for use. The Module should work with Excel 2000 or better. However, since it has not been tested under the earlier versions of Excel, users are advised to use Excel 2003.

2. DATA INPUT

The WDM includes two data entry spreadsheets: (1) “Regional Data” for cross-country analysis and (2) “Yearly Data.” The system comes with Expenditure Classifications structured by type of final expenditure, with GDP broken down into seven main aggregates. The Main Aggregates are subsequently divided into 26 Analytical Categories, which are then split into 61 Groups. The Groups are broken down into 126 Classes and 155 Basic Headings (see Annex). The system provides users with option to change the classification titles in a language of their choice (see instructions below). Users are also expected to enter countries to be included in the analysis.

Regional Data: The “Regional Data” spreadsheet includes a template for 155 basic headings covering the full GDP. The template is organized hierarchically using the ICP classification of GDP, including 7 Major Aggregates, 26 Analytical Categories, 61 Groups, 126 Classes and 155 Basic Headings. The Module allows users to expand the basic headings up to 222. Users, however, cannot add or delete higher aggregates. The “Regional Data” spreadsheet includes the names of countries. The workbook is configured to have all the countries in a Region displayed across the columns. Users can add or delete countries. Expenditure estimates (in local current prices) and the corresponding parities must be entered at basic heading level before running the WDM. These data are needed in rolling up the BH weights to the higher level aggregates, and also for the computing of real expenditures expressed in PPP terms.

Yearly Data: The “Yearly Data” spreadsheet, which would primarily be used by country coordinators, includes the same 155 basic headings covering the full GDP, following the same hierarchical order as in the Regional Data spreadsheet discussed above. Users are allowed to expand the basic headings up to 222, but cannot add or delete higher aggregates. The “Yearly Data” spreadsheet displays the years under investigation across the columns. Users can add or delete year(s). Nominal expenditure estimates are entered at the basic heading level for each year to be analyzed.

Data input in Different Languages: The WDM allows users to upload the aggregate titles (main aggregates, categories, groups and classes), in a language of their choice.

To input data in different language other than English:

1. Click on the “ICP WDM” menu option in the menu bar on top of the screen.
2. Click on “Aggregate Titles.”
3. Click on “Export” – Depending on whether you are on the “regional Data” or “Yearly Data” sheet the system will open a file for you to input your translation for

the aggregate names. The file contains the English list and provides you with space (marked in yellow background) to input the translation.

4. Click on “Import” - After you input the aggregate names in the language of your choice click on “Import”. You go to the file and double click and the aggregate names will be imported.

3. SELECTING COUNTRIES TO BE INCLUDED

What follows is a set of instructions on how to use the system for regional data validation. The same instructions would apply for the yearly data validation. The only difference is that data for yearly data validation is entered in the “Yearly Data” spreadsheet.

Once data is entered into the “Regional Data” spreadsheet, the next step in running the regional diagnostics is to determine the countries and the levels of aggregation to be included in the analysis. The module comes with generic country names entered in the columns of the “Regional Data”. Regions are expected to add, edit and/or delete countries as appropriate for their regions. Procedures for doing this are given in the following sections. The Global Office has uploaded the names of the participating countries for each region. However, Regional Coordinators can edit, delete or add countries as they so wish.

Selecting Countries

The module is designed to allow regions to run diagnostic reports for all countries or for any sub-set of countries (for example, sub-region or economic grouping). It is recommended that users should first review data by sub-region or economic grouping and then expand the analysis progressively to the regional level, if so desired.

To select countries:

1. Go to the “Regional Data” spreadsheet and select the countries you would like to include in the analysis by highlighting them. If you wish to select a sub-set of countries, you can make your choice by dragging the mouse over the contiguous countries and clicking to add to your list.
2. Click the “ICP WDM” menu option in the menu bar at the top of the screen. (The menu appears right before the “Help” menu.
3. Click the “Select” menu option. The countries you have picked will be shown in yellow in both the “Nominal Expenditure” and “Parity” columns of the “Regional Data” spreadsheet.

Excluding Countries

1. Go to the “Regional Data” sheet and select the countries you would like to exclude from the analysis.
2. Click the “ICP WDM” menu option in the menu bar at the top of the screen.
3. Click the “Unselect” menu. The countries you have picked will be excluded from both the “Nominal Expenditure” and “Parity” columns of the “Regional Data” spreadsheet.

4. EDITING, ADDING AND DELETING A COUNTRY

Editing a Country Name

1. Go to the “Regional Data” sheet and highlight the country by placing your cursor on the country name.
2. Click the “ICP WDM” menu option in the menu bar at the top of the screen.
3. Select “Edit” from the dropdown menu and edit the name of the country.

Adding a Country

1. Go to the “Regional Data” sheet and insert the new country by positioning your cursor in the place where you intend to add the country. You can insert a line immediately before or after the country you have highlighted.
2. Click on the “ICP WDM” menu option in the menu bar at the top of the screen.
3. Select the “Insert Before” or the “Insert After” menu, depending on where you would like to insert the new country.
4. The system will prompt you to insert the name of the country.

Note: You will notice that the name of the country will be inserted in two places simultaneously – in the Parity and Nominal Expenditure columns.

Deleting a country

1. Go to the “Regional Data” sheet and highlight the country by placing your cursor on the name of the country you intend to delete.
2. Click the “Delete” menu. You can also delete all countries by clicking the “ICP WDM” menu option and then going to the dropdown menu and clicking on the “Unselect All” menu option.

5. SELECTING THE LEVEL OF AGGREGATION

The Expenditure Classification for ICP 2005 is structured by type of final expenditure, with GDP broken down into seven main aggregates. As noted above, these Main Aggregates are subsequently divided into 26 Analytical Categories, which are then split into 61 Groups. The Groups are broken down into 126 Classes and 155 Basic Headings (see Annex).

You can select any or all aggregate(s) by simply selecting the desired level, including GDP, Main Aggregates, Analytical Categories, Groups, or Classes. If you choose “Consumption,” for example, all Categories, Groups and Classes that fall under “Consumption” will be selected and highlighted in yellow.

1. To select the level of aggregation you wish to include in the analysis, highlight the intended aggregate, category, group or class on the left-hand side of the “Regional Data” spreadsheet. You may select two or more groups, for example, “Food” and “Clothing and Footwear”. All classes and basic headings falling under the two groups will be selected and highlighted. The share for each basic heading for items under “Food” will be

shown as percentage of total expenditure on Food. For example of the share for rice is 30%, it means it is 30% of total expenditure on “Food.”

2. Once you have selected the level of aggregate you wish to analyze, click on the “ICP WDM” menu option in the menu bar at the top of the screen.
3. Click the “Select” menu. All Categories, Groups, Classes and Basic Headings falling under “Consumption” will be selected and highlighted in yellow, assuming that you have picked “Consumption” as your target.

Note: You can “Unselect” by highlighting the Aggregate, Group or Class you wish to exclude. Then go to the “ICP WDM” menu and click the “Unselect” menu from the dropdown menu.

6. EDITING, ADDING AND DELETING BASIC HEADINGS

Editing Basic Heading Names and Codes

This can be done directly on the “Input Data” spreadsheet. Users can change or edit the basic heading name or code directly by overwriting on the desired cell.

Adding Basic Heading Names and Codes

1. Go to the “Regional Data” spreadsheet and determine where you would like to insert the new basic heading by placing your cursor there. You can insert a line immediately above or below the basic heading you have highlighted.
2. Click the “ICP WDM” menu option in the menu bar at the top of the screen.
3. Select “Basic Heading” from the dropdown menu.
4. Click the “Insert Before” or “Insert After” menu.
5. The system will insert a line for you to add the name of the basic heading and the corresponding code.

Deleting Basic Heading Names and Codes

1. Go to the “Regional Data” sheet and highlight the basic heading you intend to delete.
2. Click the “ICP WDM” menu option in the menu bar at the top of the screen (The menu appears right before the “Help” menu.)
3. Select “Basic Heading” from the dropdown menu.
4. Click the “Delete” menu.

Note: You can delete a basic heading only if there is more than one basic heading. The system will not allow you to delete the last basic heading under any given classification.

Missing Basic Headings

If the number of Basic Headings in your regional specification is less than the proposed 155 basic headings, you would need to format your classification following the 155 template, leaving the missing BH positions blank. The system will exclude the missing lines when computing the PPPs, real expenditure estimates and the diagnostic parameters.

7. GENERATING DIAGNOSTIC REPORTS

Regional Reports

To generate the Regional Diagnostic Reports you have to be on the “Regional Data” sheet. Click the “ICP WDM” menu option in the menu bar, and select “Run Report” from the dropdown menu. The following four reports will be generated in separate spreadsheets.

1. Nominal Expenditure Estimates – The nominal expenditure estimates for the selected aggregates and the associated basic headings are provided in the “Nom Exp” spreadsheet.
2. Real Expenditure Estimates (Real at PPP) – The real expenditure estimates for the selected aggregates and the associated basic headings are provided in the “Real Exp” spreadsheet. The PPPs used in the analysis are computed using the multilateral Tornqvist Index. Real expenditures are expressed in the regional currency, thereby removing the effects of the base country.
3. Diagnostic Report Based on Nominal Expenditure Shares – Nominal Expenditure Shares Diagnostics is provided in the “Nom Shares & Diag” spreadsheet. This sheet contains nominal expenditure SHARES for the selected aggregates and the corresponding basic headings followed by a diagnostic report. The diagnostics report is based on the deviations of the shares of a country from the corresponding average regional shares. The corresponding standard deviations are provided by basic heading, aggregate, and country. The diagnostics tables are color-coded for easy detection of deviations and outliers.
4. Diagnostic Report Based on Real Expenditure Shares – Real Expenditure Shares Diagnostics is provided in the “Real Shares & Diag” spreadsheet. This sheet contains real expenditure SHARES for the selected aggregates and the corresponding basic headings followed by a diagnostic report. The diagnostics is based on the deviations of the Real shares from the corresponding average regional shares. The corresponding standard deviations are provided by basic heading, aggregate, and country. The diagnostics tables are color-coded for easy detection of deviations and outliers.

Time Series Diagnostic Reports

To generate the Time Series Diagnostic Reports you have to be on the “Yearly Data” sheet. Click the “ICP WDM” menu option in the menu bar, and select “Run Report” from the dropdown menu. The following two reports will be generated in separate spreadsheets.

Diagnostic Report Based on Nominal Expenditure Shares – Nominal Expenditure Shares Diagnostics is provided in “Yearly Data.” This sheet will contain nominal expenditure SHARES for the selected aggregates and the corresponding basic headings followed by a diagnostic report. The diagnostics report is based on the deviations of the shares of the reference year *from* the corresponding average for the period covering the years included in the analysis. The corresponding standard deviations are provided by basic heading, aggregate, and year. The diagnostics tables are color-coded for easy detection of deviations and outliers.

Generating Multiple Reports

The WDM allows users to have multiple “runs” for different sub-sets of countries and BHs. This feature is particularly useful to the Regional Coordinators. The report outputs resulting from these “runs” can all be saved in the same WDM workbook as different sheets. For example, Asia

could run two sub-regions (East Asia and South Asia) and another one for the entire Asia region, i.e. all countries in that region. This feature of the WDM allows all three reports to appear in the same workbook. The advantage is that we can compare sub-regional averages across the sub-regions, and also compare sub-regional averages against the regional average. Obviously, in the above example, users should select the same group of line items in all three cases.

When a report is run using the “Run Report” option in the “ICP WDM” menu, the WDM prompts the user for a suffix for the report name. For example, if a report is being run for East Asia group of countries, the user may provide a suffix “EAsia”. The four reports sheets generated by the WDM (see Regional Reports under Section 7 above) would carry the suffix “EAsia” for each of the report sheets.

Showing or Printing Parts of the Diagnostic Report

Users have the option of running the report at the GDP level including all BHs, but showing or printing only selected levels of aggregations by using the collapsible “group” menu on the left hand side of the data input screen.

IV. READING THE DIAGNOSTIC REPORTS

The main report of the WDM will be the diagnostics of expenditure shares. A sample of such a report is shown below. Only the nominal share table is presented, as it is to be read identically to the real share table.

Each entry in the main part of the table is presented in terms of its deviation from the average for the BH or aggregate category [i.e., by row]. Deviation is measured as a ratio. Thus, the first entry in the table - 0.92 - means that the share of the “FOOD” category in Country 1 was eight percent lower than the average share for that category for the whole region. The same goes for entries at any level, including those for basic headings.

In the WDM, the data validation process begins by checking entries with large deviations. It is important to keep in mind that an observed large deviation does not necessarily indicate a problem. The purpose of the exercise is to investigate, confirm or take the necessary corrective action. For example, the shares of pork and alcohol in Pakistan and Bangladesh may be very low compared to other countries in Asia. Large deviations for these products in Pakistan and Bangladesh may therefore be acceptable. It is important to run the WDM after each data editing iteration.

The entries in the table are colored according to their values. The critical values for colors are the following:

Cell Background Color Scheme for Shares

<i>Black</i>	Lower than 0.1 and higher than 10
<i>Red</i>	Lower than 0.333 and higher than 3
<i>Yellow</i>	Lower than 0.667 and higher than 1.5
<i>Gray</i>	Between 0.667 and 1.5

High values for the deviations require investigation of the original data. For example, some of the entries in the table have zero or very low values, possibly because expenditures for these basic headings were lumped together with some other basic headings. Normally, all items in red and black would require investigation. Some of the items in yellow, especially the larger deviations, may also require attention.

The rightmost column of the table contains CVs for the nominal shares. The CVs provide diagnostics for whole rows [BHs or aggregate categories]. These indicators use a different color scheme:

Cell Background Color Scheme for Shares

<i>Black</i>	Higher than 1.0
<i>Red</i>	Higher than 0.5
<i>Yellow</i>	Higher than 0.25
<i>Gray</i>	Lower than 0.25

As in the previous case, high values of CVs call for attention. The CVs are useful for determining the level at which the most robust results for the comparison can arise.

Table 1. Sample report for nominal shares

	NOMINAL SHARES DIAGNOSTICS								CV
	Country1	Country2	Country3	Country4	Country5	Country6	Country7	Country8	
FOOD	0.92	1.16	0.87	0.82	1.01	1.04	1.14	1.26	0.08
1101111 Arroz	0.35	1.03	1.00	0.47	1.44	2.25	2.09	0.43	0.34
1101112 Otros cereales, harinas y otros productos de cereal	0.27	1.34	0.65	0.34	0.92	1.04	1.28	1.96	0.31
1101113 Pan	1.03	1.91	1.07	1.15	1.00	0.88	1.09	0.31	0.19
1101114 Otros productos de panadería	2.01	0.36	0.95	0.99	-	0.14	0.40	1.59	0.36
1101115 Productos de pastas	1.60	0.45	0.65	0.59	0.44	0.46	0.80	1.04	0.32
1101183 Confituras, chocolates y helados	1.22	0.59	0.39	1.12	2.49	1.27	0.95	0.31	0.30
1101191 Productos alimenticios n.e.p.	0.97	1.06	0.67	0.80	0.92	1.03	1.08	1.12	0.11
1101211 Café, té y cacao	0.79	2.12	1.13	0.68	0.75	0.78	0.46	1.31	0.24
1101221 Aguas minerales, gaseosas, jugos de frutas y veget	1.09	0.88	0.63	1.13	1.41	0.94	0.63	1.55	0.15
ALCOHOL & TOBACCO	1.42	0.60	0.87	0.98	1.61	0.79	0.71	0.93	0.15
1102111 Bebidas destiladas	0.38	1.12	0.36	1.20	2.11	1.39	0.68	0.76	0.25
1102121 Vino	3.09	0.84	0.26	1.25	0.37	0.60	0.48	1.16	0.40
1102131 Cerveza	0.53	0.44	0.55	0.46	2.61	1.08	1.24	1.15	0.34
1102211 Tabaco	1.98	0.51	1.53	1.30	0.97	0.42	0.31	0.69	0.26
CLOTHING & FOOTWEAR	0.84	0.79	0.53	1.13	0.99	1.19	1.11	1.47	0.13
1103111 Materiales para prendas de vestir, otros artículos y :	0.67	0.45	0.42	1.47	3.06	1.92	0.22	0.23	0.45
1103121 Prendas de vestir	0.55	0.84	0.62	1.05	0.94	1.17	1.26	1.55	0.14
1103141 Limpieza, reparación y alquiler de prendas de vestir	1.44	1.35	0.35	0.31	1.40	0.37	2.54	0.59	0.34
1103211 Calzado	1.63	0.59	0.32	1.40	0.56	1.27	0.58	1.69	0.23
1103221 Reparación y limpieza de calzado	0.70	0.70	-	2.37	0.46	0.16	1.67	2.17	0.40
HOUSING AND UTILITIES	1.34	0.86	1.41	1.01	1.08	0.80	0.58	0.62	0.15
Alquiler efectivo e imputado de la vivienda	1.56	0.71	1.46	0.94	1.16	0.88	0.46	0.32	0.21
1104311 Conservación y reparación de la vivienda	0.35	0.70	0.30	1.08	0.37	0.31	0.46	3.40	0.53
1104411 Suministro de Agua	1.14	0.86	1.54	1.52	1.46	0.63	0.67	0.91	0.19
Servicios diversos relacionados con la vivienda	1.32	1.06	4.16	-	1.18	-	0.35	0.04	0.59
1104511 Electricidad	0.66	1.35	1.45	1.00	0.81	0.96	0.84	1.15	0.12
1104521 Gas	1.67	1.56	1.29	1.93	1.09	0.44	0.78	0.06	0.29
1104531 Otros combustibles	0.40	1.54	0.20	0.76	0.71	0.25	2.30	2.26	0.40

Annex 1. The Classification of Expenditure on GDP

Main Aggregates	Categories	Groups	Classes	Basic Headings
11.00 Individual consumption expenditure by households	13	43	90	110
- .01 Food and non-alcoholic beverages		2	11	29
- .02 Alcoholic beverages, tobacco and narcotics		3	5	5
- .03 Clothing and footwear		2	5	5
- .04 Housing, water, electricity, gas and other fuels		4	7	7
- .05 Furnishings, household equipment and maintenance		6	12	13
- .06 Health		3	7	7
- .07 Transport		3	13	13
- .08 Communication		3	3	3
- .09 Recreation and culture		6	13	13
- .10 Education		1	1	1
- .11 Restaurants and hotels		2	2	2
- .12 Miscellaneous goods and services		7	10	10
- .13 Net purchases abroad		1	1	2
12.00 Individual consumption expenditure by NPISHs	1	1	1	1
13.00 Individual consumption expenditure by government	5	7	16	21
- .01 Housing		1	1	1
- .02 Health		2	7	12
- .03 Recreation and culture		1	1	1
- .04 Education		2	6	6
- .05 Social protection		1	1	1
14.00 Collective consumption expenditure by government	1	1	5	5
15.00 Gross fixed capital formation	3	6	11	12
- .01 Machinery and equipment		2	7	8
- .02 Construction		3	3	3
- .03 Other products		1	1	1
16.00 Change in inventories and acquisitions less disposals of valuables	2	2	2	4
- .01 Change of inventories		1	1	2
- .02 Acquisitions less disposals of valuables		1	1	2
18.00 Balance of exports and imports	1	1	1	2
GDP	26	61	126	155