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National Accounts
ICP 2011

Global Office

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Outline

1. Framework
2. National Accounts Activities
3. ICP Classifications and Basic Headings
4. Reporting Requirements: The MORES
5. Approaches for Splitting GDP Expenditures
6. MORES - Case Study
7. Expenditure Data Validation

Part 1

Framework

Objectives

What is the ICP?

ICP is a worldwide statistical initiative to collect comparative price data and estimate purchasing power parities (PPPs) of the world's economies.

PPP Vs. Exchange Rate

Using PPPs instead of market exchange rates makes it possible to compare the output of economies and the welfare of their inhabitants in real terms.

Main Objectives

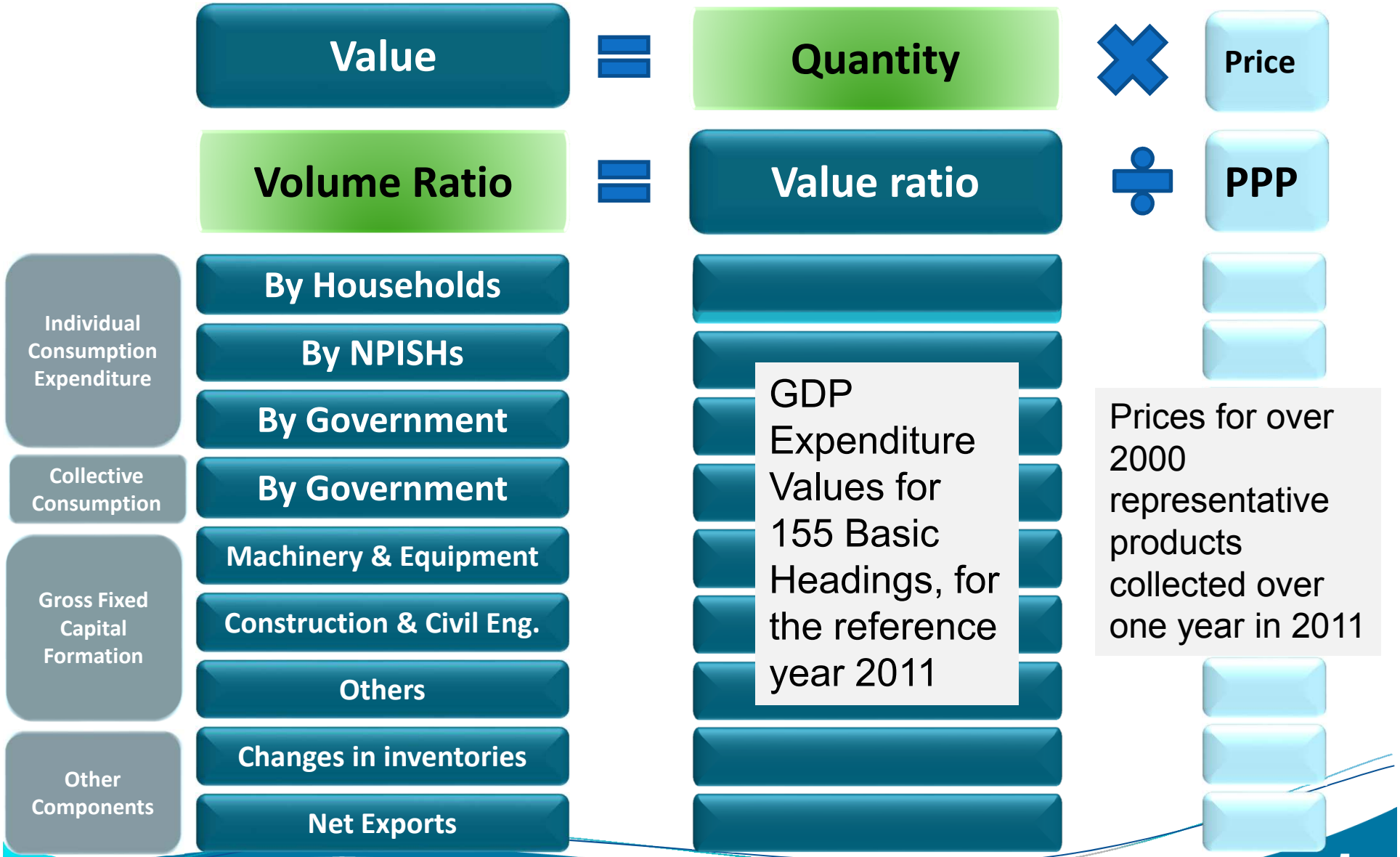
Provide international price and volume comparisons of Gross Domestic Product (GDP) and its component expenditures

Measure the differences in price and volume levels of GDP and GDP per capita of various expenditure aggregates and sub-aggregates

between countries within a region

between countries in different regions

From ICP Objective to N.A. in ICP



Lessons from the 2005 ICP

Identified issue	Pressures caused by the need to develop new procedures to collect and validate data led to insufficient attention to the national accounts until late in the process
Goals for 2011 ICP to focus on	Improving the quality of real expenditures by collecting national accounts data earlier in the process
	Identifying the basic headings that are most likely to have a significant impact on the consistency between economies

Comparability Problems

1993 SNA

The ICP requires national accounts estimates based on the 1993 SNA

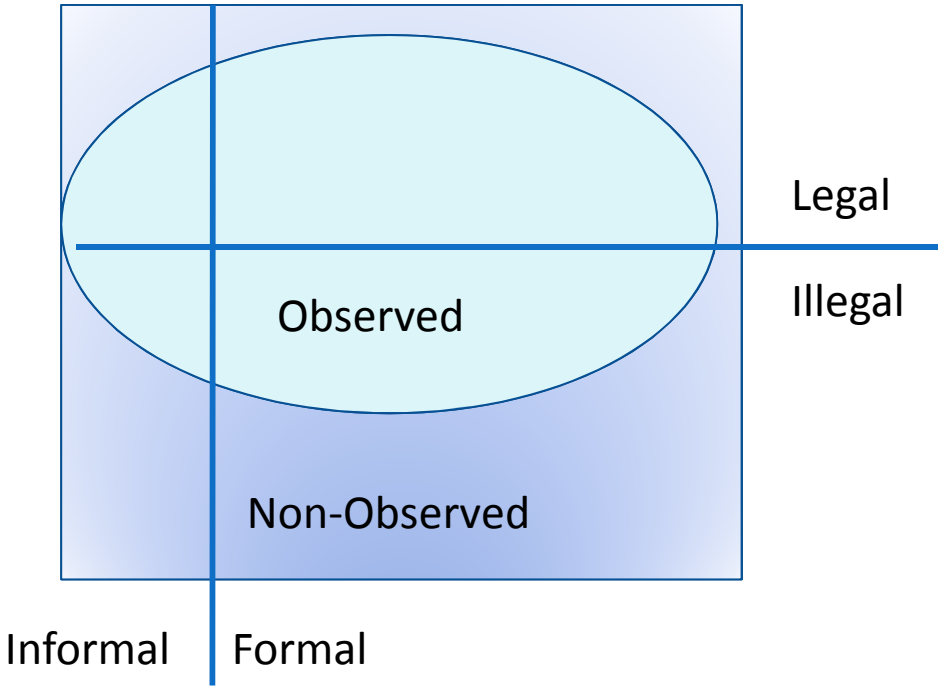
Exhaustiveness of GDP

All economic activities have to be included, whether legal and illegal

Various terms are used to describe parts of GDP that fall outside the scope of admin records and statistical surveys on which the national accounts are based

- underground economy, black economy, non-observed economy, informal economy

Comparability Problems [Cont'd]



- Terms do not always refer to the same thing across economies
- Informal economy and the non-observed economy may largely overlap
- It is likely that GDP in most economies includes some of the informal economy

- Subsistence production/consumption is a potential area of understatement
- The scope of economic surveys may exclude some businesses

Data & Metadata

Latest Data Available between 2006-2010

Final Data and Metadata

2011 Data

Preliminary Data and Metadata

Final Data and Metadata

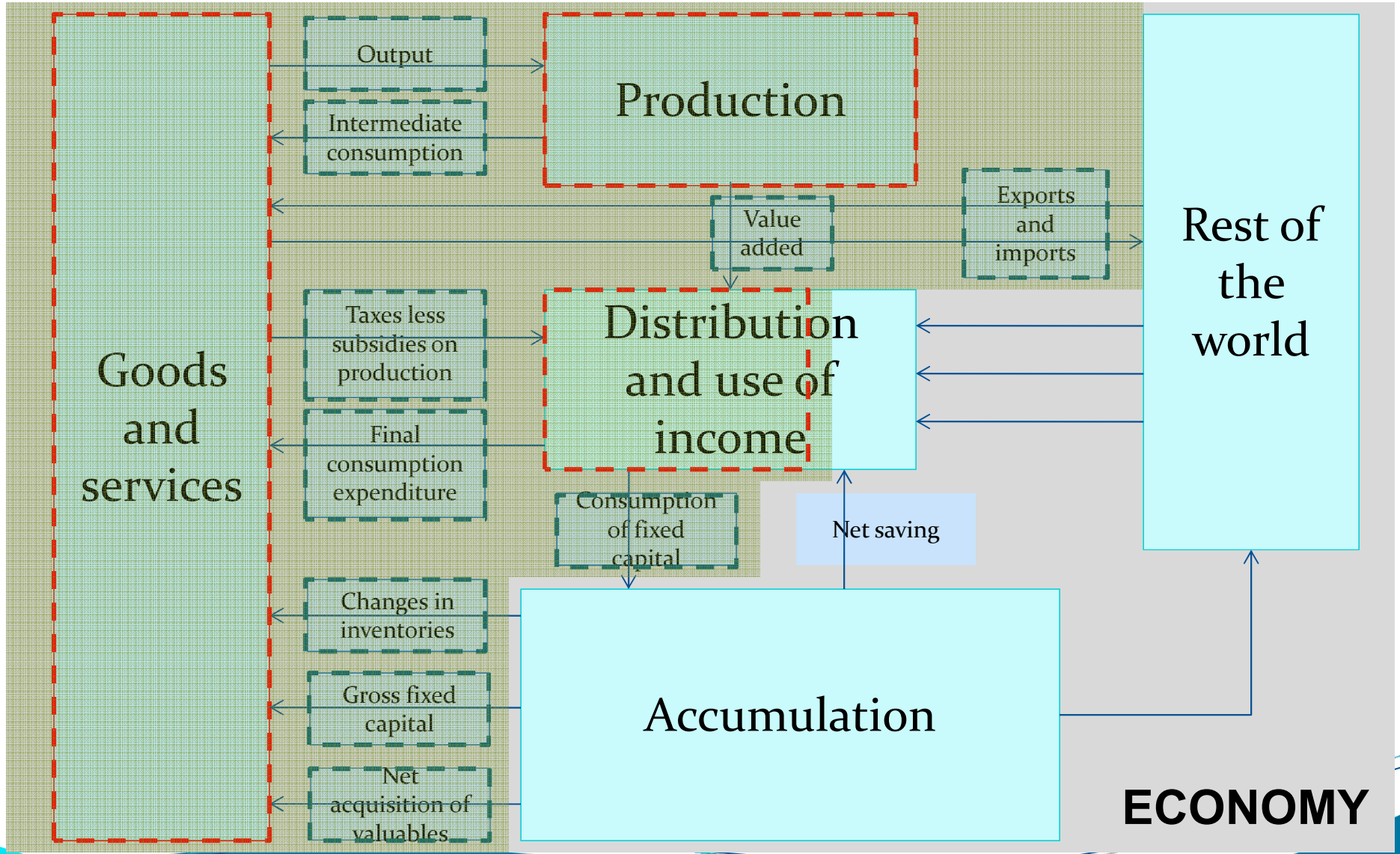
Major Aggregate Data

- Validated major aggregate data
- Metadata

Basic Heading Data

- Validated basic heading data
- Metadata
- Population and exchange rate data

Diagram of the Integrated Accounts



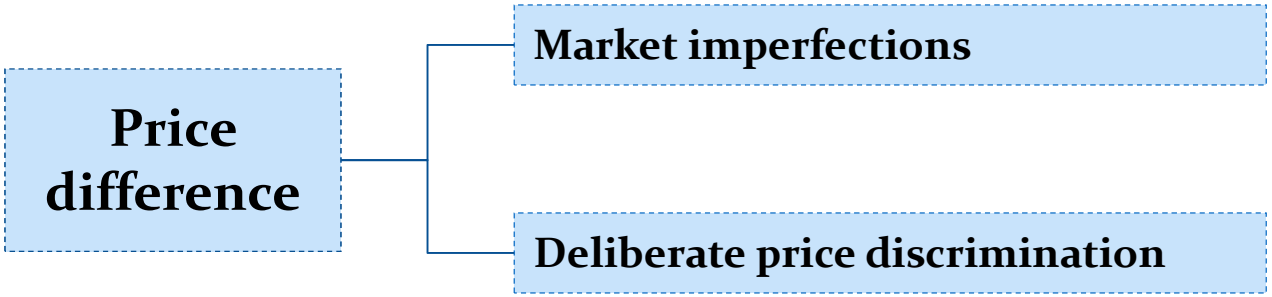
GDP Expenditure Aggregates Valuation

- Household final consumption expenditure
- Final consumption expenditure by NPISHs
- Government final consumption expenditure
  - Individual consumption expenditure by government
  - Collective consumption expenditure by government
- Gross fixed capital formation
- Change in inventories
- Net acquisitions of valuables
- Balance of exports and imports of goods and services

General rule: Transactions are valued at the market prices (or purchasers' prices).

Household Final Consumption Expenditure

- Valuation
  - Recorded as the purchasers' prices paid by households, including any taxes on products that may be payable at the time of purchase



Price collectors need to consult with the national accountants.

Non Market Services

Nonmarket production

- No market for collective services such as defense
- Differences between the types and quality of services provided when sold alongside the nonmarket services

NPISHs

Government

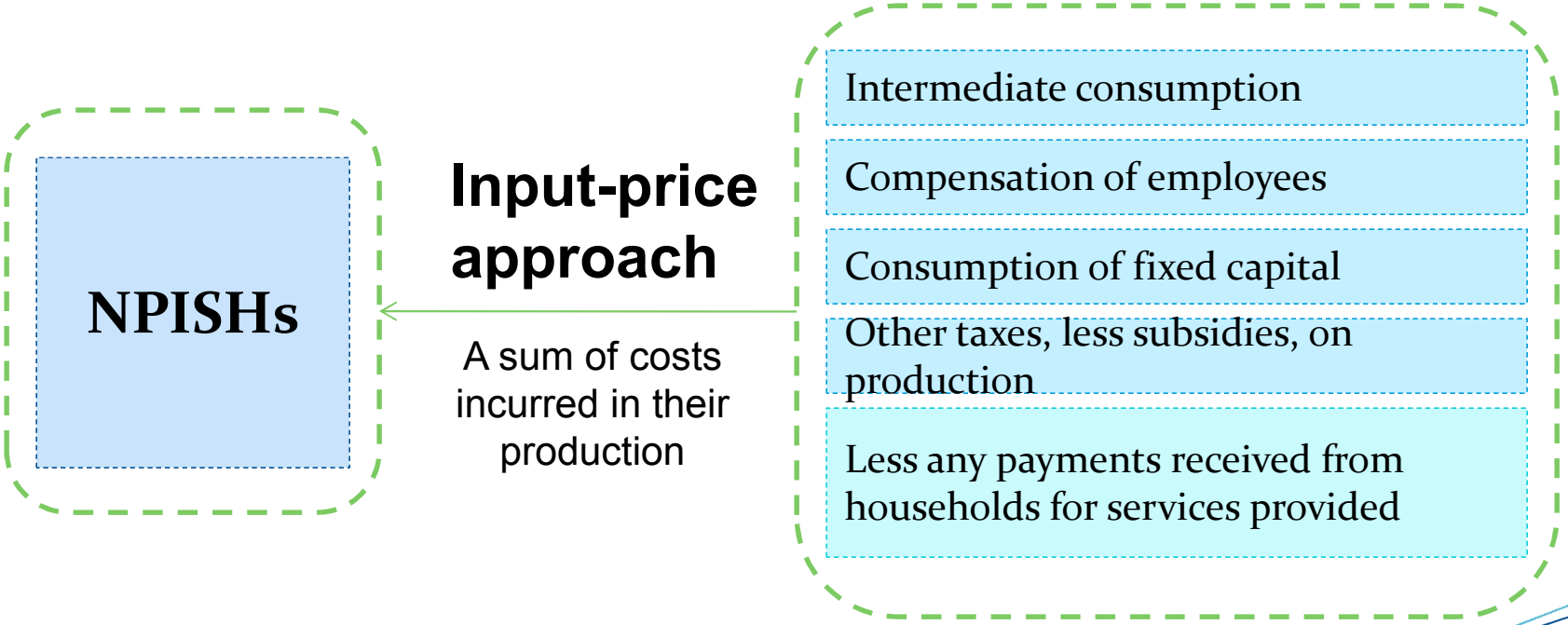
Input-price approach

A sum of costs incurred in their production

- Intermediate consumption
- Compensation of employees
- Consumption of fixed capital
- Other taxes, less subsidies, on production

Productivity differences between countries need to be carefully factored in.

- Valuation
  - Cannot be valued at the prices at which they sell their output because these prices are “not economically significant.”
  - Estimated as the sum of their costs of production



Government Final Consumption Expenditure

1. Individual consumption expenditure by government

- Valuation

Production of services by government for the benefit of individual households	Purchase by government, from other producers, of goods and services that are then passed on to households
↓	↓
Valued at cost in the same way as for NPISHs	Valued at purchasers' prices —cost to government of buying the goods and services from other producers

2. Collective consumption expenditure by government

- Valuation
  - Valued at cost using cost components similar to those listed for NPISHs

Gross Fixed Capital Formation

- Valuation
  - Valued at purchasers' prices, including the cost of transport, the cost of installation, and any fees or taxes for transfer of ownership

1	Own-account production of fixed capital assets	→	Valued at basic prices (equal to producers' prices, minus product taxes)
2	The 1993 SNA does not include R&D expenditures.	→	The 2008 SNA includes R&D expenditures as capital formation.

Comparison-Resistant Areas

Conceptually Comparison-Resistant

Government services

Practically Comparison-Resistant

Own-produced goods

Barter transactions

Income in kind

Rent of owner-occupiers

FISIM

Imputed expenditures

Health and education

Construction

Part 2

National Accounts Activities

Role of NA in the ICP

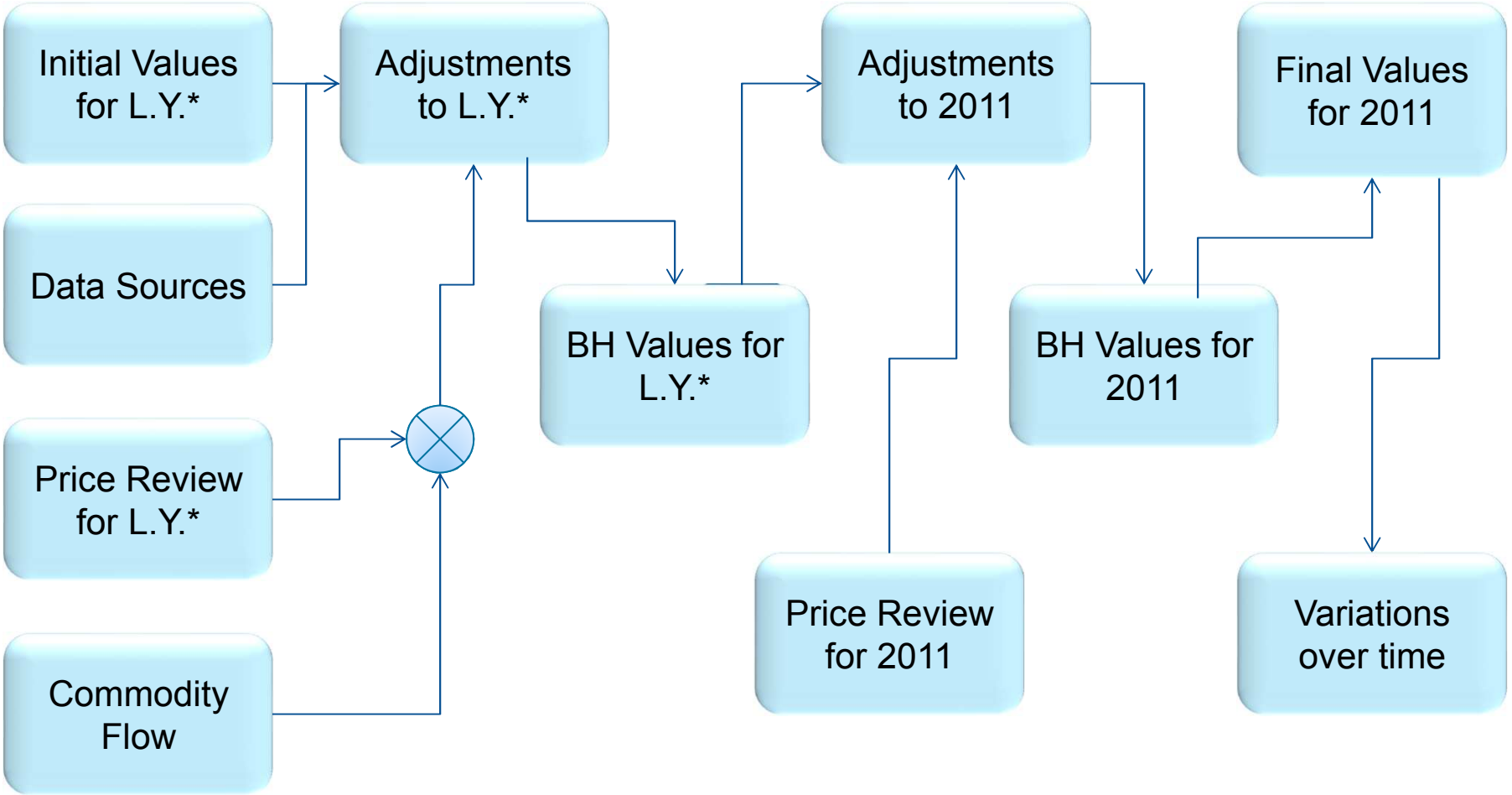
National accounts statistics

Basic Heading level data

National Accounts Activities

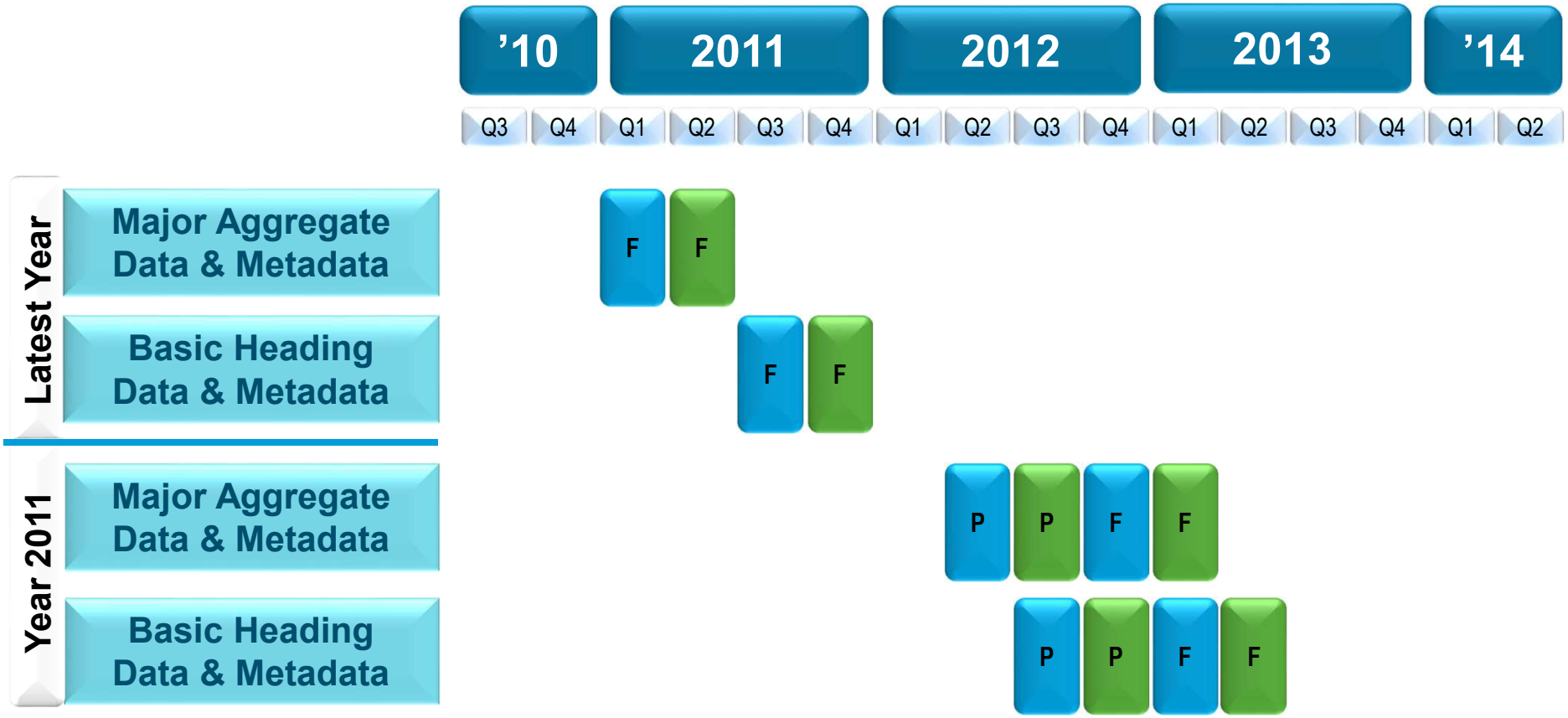
	Structure	Major Products	Prices	Final Output
Categories of activities	1 Review GDP Classification	2 Select Major Products	**Price Surveys**	13 Carry out N.A. work for comp. resistant areas
		3 Identify Data Sources for Major Products	6 Use Survey Prices in GDP	
Work Flow	8 Create Metadata Flow Chart for 2005 GDP expenditure	4 Prepare Matrix of Data Availability for Major Products	7 Use N.A. data to help edit survey prices	
	9 Update Metadata Flow Chart for latest year possible	5 Implement Commodity Flow		
	10 Early data need to identify & resolve data problems		14 Implement Price Tracking	
	11 Early Metadata Flow Chart for 2011	12 Compile GDP & Main uses for 2011		15 Develop vector of 2011 GDP expenditures

Activity Flow Chart



* L.Y. : Latest year available

Schedule of Submissions



Part 3

ICP Classifications &

Basic Headings

A Stacking of International Classifications

1	INDIVIDUAL CONSUMPTION EXPENDITURE BY HOUSEHOLDS	COICOP	Classification of Individual Consumption According to Purpose
2	INDIVIDUAL CONSUMPTION EXPENDITURE BY NPISHS	COPNI	Classification of Purposes of NPIs Serving Households
3	INDIVIDUAL / COLLECTIVE CONSUMPTION EXPENDITURE BY GOVERNMENT	COFOG	Classification of Functions of Government
4	GROSS FIXED CAPITAL FORMATION	CPA	Classification of Products by Activity

Criticality of Basic Headings

A pivotal concept used in the ICP

Lowest level at which expenditure data is available

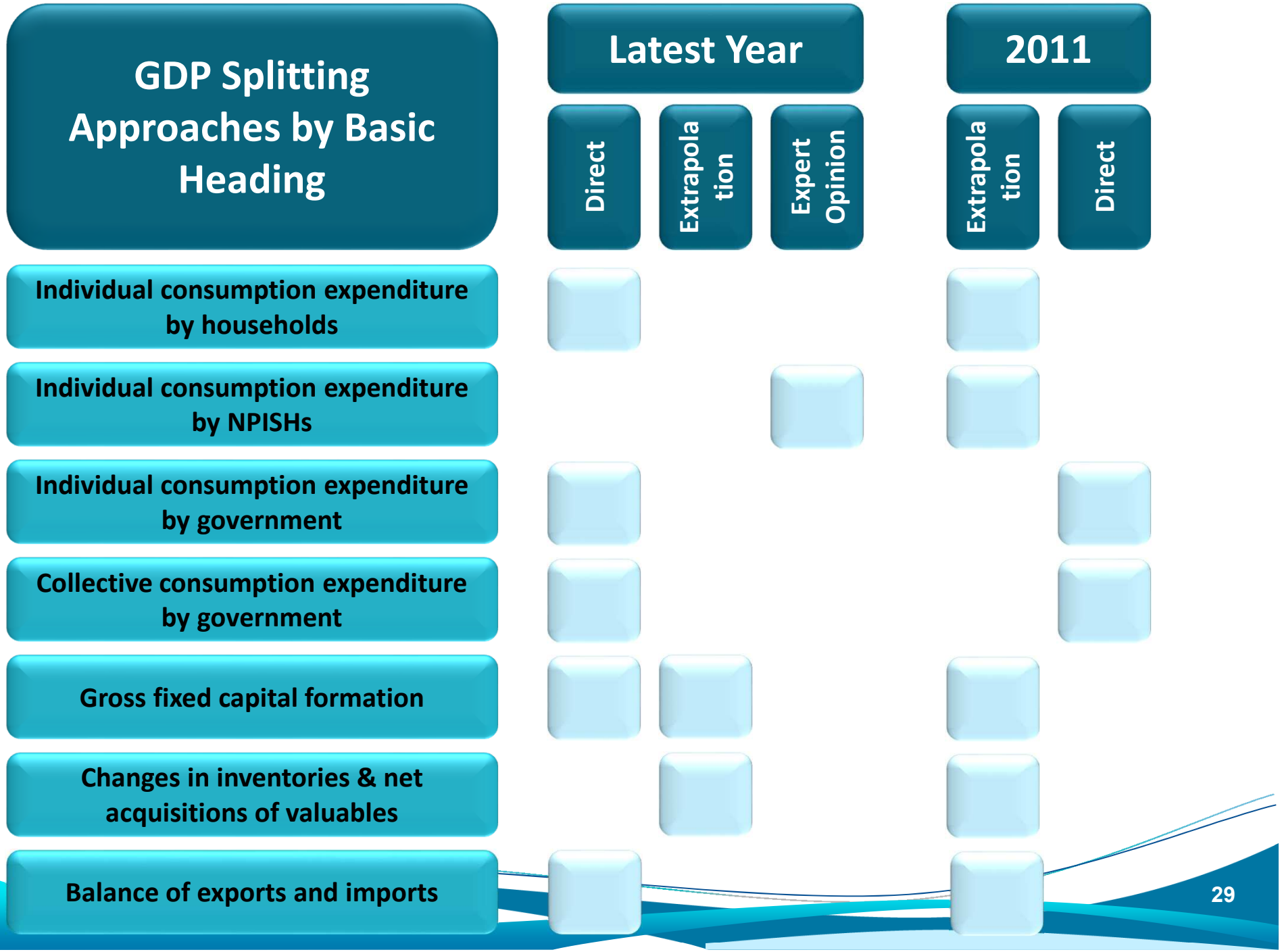
Important from the perspective of aggregation of price data

Summary of Classification levels

	Main Aggr.	Categories	Groups	Classes	Basic Headings
Gross Domestic Product	**7**	**26**	**61**	**126**	**155**
Individual consumption expenditure by households	1	13	43	90	**110**
Individual consumption expenditure by NPISHs	1	1	1	1	**1**
Individual consumption expenditure by government	1	5	7	16	**21**
Collective consumption expenditure by government	1	1	1	5	**5**
Gross fixed capital formation	1	3	6	11	**12**
Changes in inventories & net acquisitions of valuables	1	2	2	2	**4**
Balance of exports and imports	1	1	1	1	**2**

	Number of sources	Basic Heading Sources
Gross Domestic Product	25	
Individual consumption expenditure by households	20	Household Expenditure Surveys
Individual consumption expenditure by NPISHs	1	Special surveys
Individual consumption expenditure by government	8	Government Finance Statistics Household Expenditure Surveys
Collective consumption expenditure by government	1	Government Finance Statistics
Gross fixed capital formation	8	General economic surveys Imports Statistics
Changes in inventories & net acquisitions of valuables	4	General economic surveys
Balance of exports and imports	3	Balance of payments

Operational Categories of Basic Headings	Consistency	Importance	Difficulty	ICP Methods	Production Process	Reference PPPs	Negative Values
Gross Domestic Product	120	112	45	22	15	35	7
Individual consumption expenditure by households	97	86	9	1		13	1
Individual consumption expenditure by NPISHs		1	1			1	
Individual consumption expenditure by government	10	17	13	7	10	11	2
Collective consumption expenditure by government	1	3	5	1	5	4	1
Gross fixed capital formation	12	11		12			
Changes in inventories & net acquisitions of valuables		2	4			4	2
Balance of exports and imports		1				2	1


GDP Splitting Approaches by Basic Heading
Latest Year
2011
Direct
Extrapolation
Expert Opinion
Extrapolation
Direct
Individual consumption expenditure by households
Individual consumption expenditure by NPISHs
Individual consumption expenditure by government
Collective consumption expenditure by government
Gross fixed capital formation
Changes in inventories & net acquisitions of valuables
Balance of exports and imports

GDP Splitting

Extrapolation Drivers

	Demography	Supply	Health	GDP Growth	GFS	BH Correlation
	111	107	20	66	26	28
Individual consumption expenditure by households	100	94	4	22		19
Individual consumption expenditure by NPISHs						1
Individual consumption expenditure by government	10		4	21	21	8
Collective consumption expenditure by government	1			5	5	
Gross fixed capital formation		12	12	12		
Changes in inventories & net acquisitions of valuables				4		
Balance of exports and imports		1		2		

Part 4

Reporting Requirements: The MORES

How We Came Up with the MORES

1	Extensive consultation
2	5 Forms were initially developed
3	Extensive review
4	INAG recommendation
5	MORES

Reporting Requirements

I	National Accounts Quality Assurance Questionnaire
II	Eurostat “Tabular Approach to Exhaustiveness”
III	MORES

Quality Assurance Framework Questionnaires

5 groups - 30 questions

1.	**SNA 93 Compliance**	Q01; Q02; Q03; Q05
2.	**ICP Requirements**	Q07; Q26
3.	**Valuation Rules**	Q06; Q08;Q09; Q10; Q11; Q12; Q13; Q14; Q15; Q16; Q17; Q19; Q23; Q24; Q25
4.	**Price –National Accounts Consistency**	Q04; Q18
5.	**Recording Rules**	Q20; Q21; Q22; Q27; Q28; Q29; Q30

Eurostat tabular approach to exhaustiveness

GDP Exhaustiveness Questionnaire

Systematic method to identify potential sources of understatement in the NA due to omissions from the statistical source data that classify adjustments into seven types of "non-exhaustiveness"

Seven types of "non-exhaustiveness"

N1	Producer deliberately does not register (underground activities)	Typically includes small producers with income above the threshold set for registration
N2	Producer deliberately does not register (illegal activities)	…because he is involved in illegal activities
N3	Producer not required to register	…because they do not have any market output or it is below a set threshold
N4	Legal producers not surveyed	…because the register updating procedures may be slow or inadequate.
N5	Registered entrepreneurs not surveyed	…either deliberately or because the register updating sources do not include details of such person
N6	Misreporting by producers	…involves under-reporting gross output and/or over-reporting intermediate consumption
N7	Other statistical deficiencies	Data that are incomplete or cannot be directly collected from surveys, or data that are incorrectly compiled during survey processing.

Exhaustiveness checks & adjust-ments

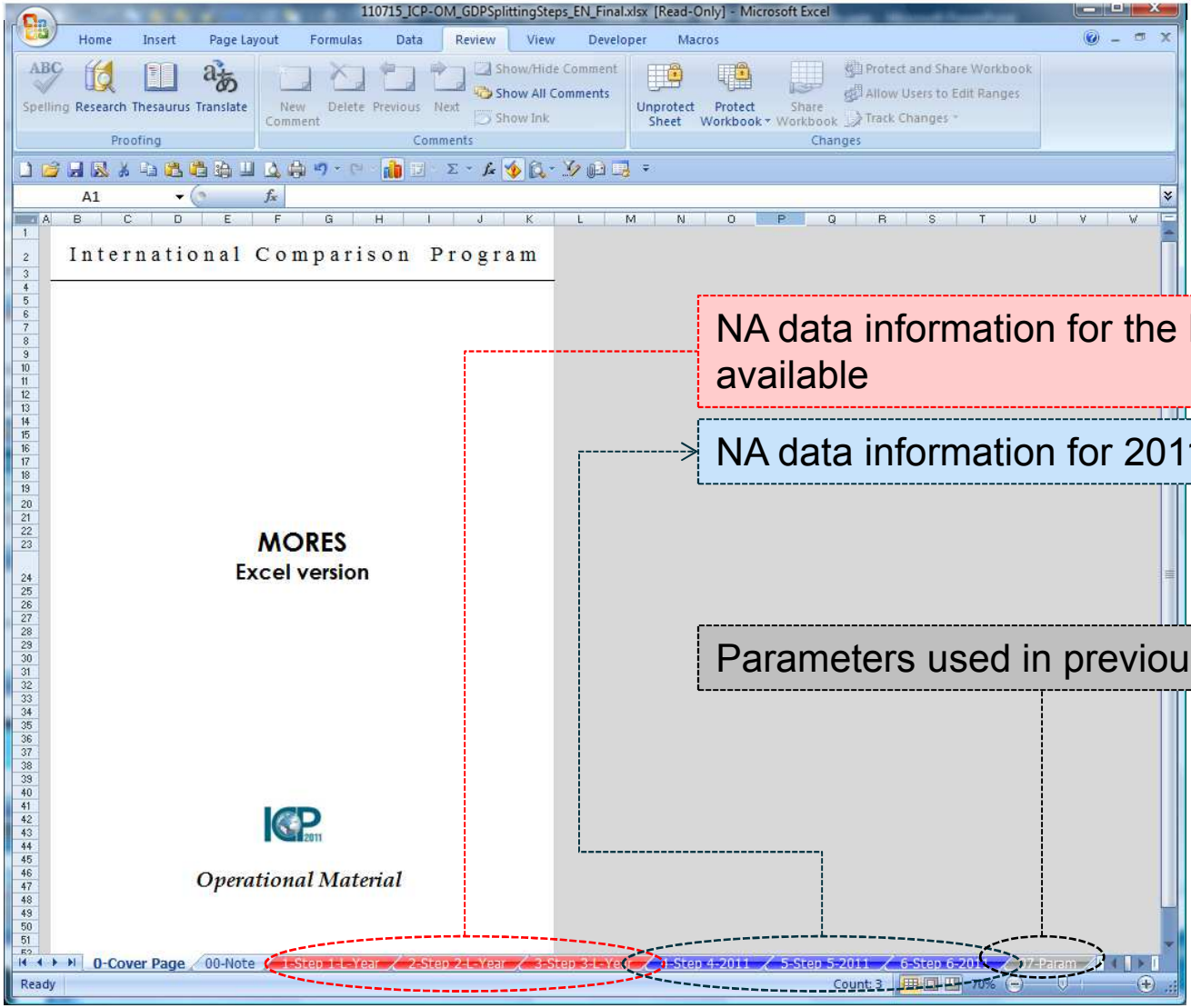
	Initial national accounts estimates	Adjustments								Final national accounts estimates
		N1	N2	N3	N4	N5	N6	N7	Total	
Production approach										
Output of goods and services (basic prices)										
Intermediate consumption (purchasers' prices)										
...										
Expenditure approach										
...										
Income approach										
...										

The Model Report on Expenditure Statistics (MORES)

The MORES aims to assist countries to compile

- Detailed **expenditure** values for each basic heading of the ICP classification.
- Information on the **splitting approach**
- Information on the **indicators** that were used/or are going to be used to estimate the expenditure values

MORES's Structure



Expanded Form 1

- Sheets 1 and 4 include initial expenditure values, estimated expenditure values and the discrepancies between those two values.

GDP Classification		Initial Expenditure Value	Estimated Expenditure Value	Discrepancies
Code	Heading	3	4	5
1	2			
100000	Gross Domestic Product			
110000	Individual Consumption Expenditure by Households			
110100	Food and non-alcoholic beverages			
110110	Food			
110111	Bread and cereals			
110111.1	Rice			
[...]	[...]			

Estimation of BH Expenditures

- Sheets 2 and 5 compile, for each BH, the detailed information of the splitting approach and for all indicators used to collect data related to National Accounts and reveals the estimated expenditure values.

MORES Template	
Code (1)	Name (2)
100000	Rice

Splitting Approach	
2	Extrapolation

# (3)	Indicator name (4)	Source name (5)	Year (6)	Value (7)	Unit (8)

Estimated Expenditure for | Code |

Final Expenditure Values

- Sheets 3 and 6 summarize the final expenditure values for the latest year available or for 2011 respectively and it will be automatically filled with the discrepancy information of the initial and estimated expen

GDP Classification		Expenditure Value
Code	Heading	
1	2	3
100000	Gross Domestic Product	
110000	Individual Consumption Expenditure by Households	
110100	Food and non-alcoholic beverages	
110110	Food	
110111	Bread and cereals	
110111.1	Rice	
[...]	[...]	

Part 5

Approaches for Splitting GDP Expenditures

Five approaches to splitting GDP

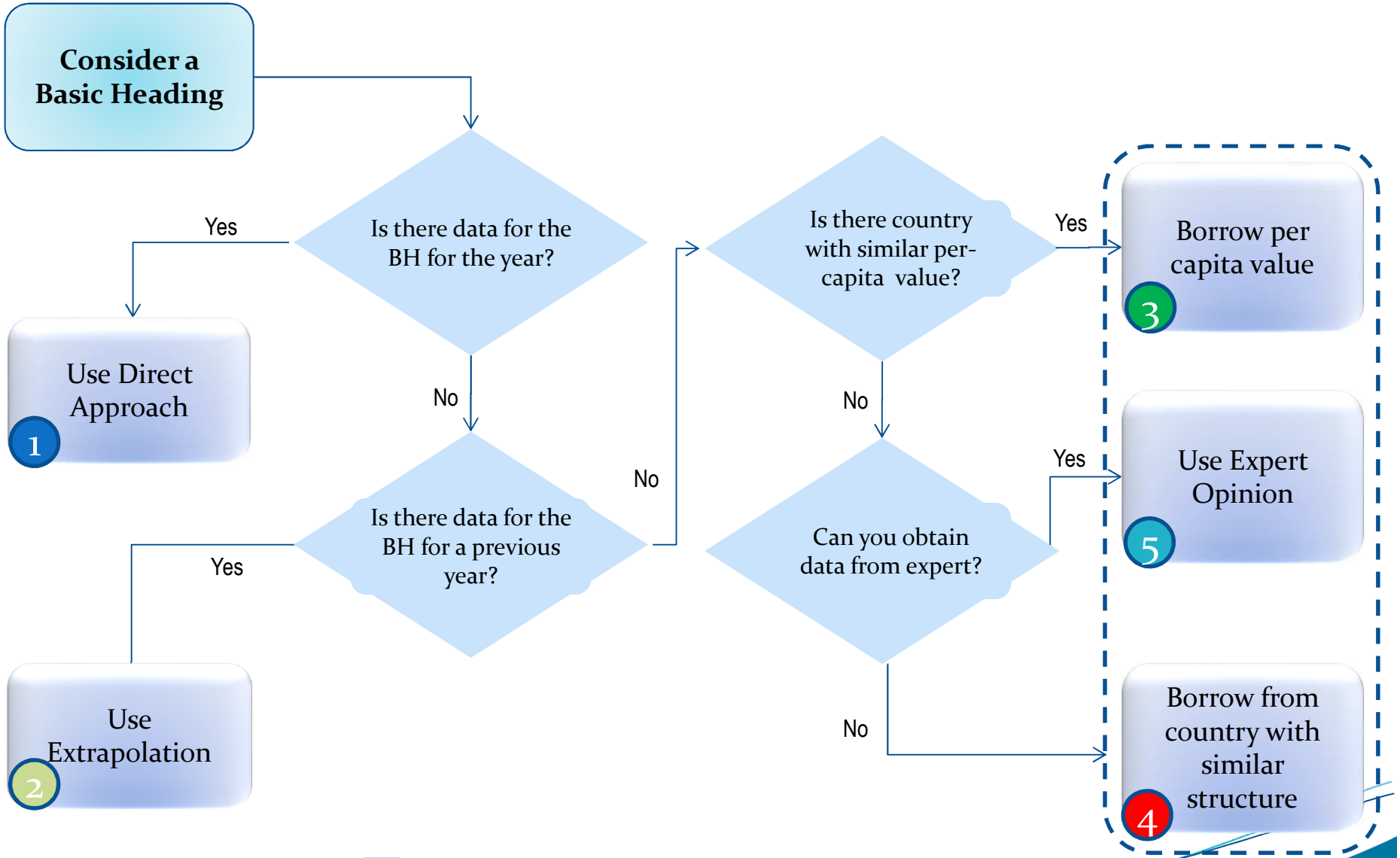
1	Direct estimation	The preferred method, if data sources exist	
2	Extrapolation	Update an earlier expenditure breakdown using assumptions on population growth, price changes etc	
3	"Borrowing" a per capita quantity or volume	Requires clustering countries for each BH or group of BHs	Multiply the per capita quantity or volume by the population of the "borrowing country" and the price level index between the two countries
4	"Borrowing" a structure		Adjust the "borrowed" structure by a vector of the price level indexes between the two countries
5	Using expert opinion	Consult retailers, manufacturers, marketing experts, chambers of commerce and other sources	

Completing the MORES in 6 Steps

	Sheets	
1	1	Complete column 3 of sheet 1 with whatever aggregate estimates are available
2	2	Apply 5 approaches
3	From 2 to 1	Column 4 of sheet 1 receives expenditures values from sheet 2
4	1	Discrepancies between columns 3 and 4 appear under column 5
5	1 or 2	Make adjustments to resolve discrepancies
6	3	Read results if discrepancies solved

GDP Classification Codes	Classification Headings Names	Initial Expenditures Values (GDP and main uses)	Basic heading values estimated using the proposed 5 approaches	Discrepancies (3)-(4)
1	2	3	4	5

A Conditional Step-by-step Process



Part 6

MORES – Case Study

Completing MORES - Example

Step 1

ICP Code	Heading	Initial Expenditure Value	Estimated11 Expenditure Values	Discrepancies
100000	**GROSS DOMESTIC PRODUCT**	168527.54	168527.54	**0**
110000	**INDIVIDUAL CONSUMPTION EXPENDITURE BY HOUSEHOLDS**	117081.29	117081.29	**0**
110100	FOOD AND NON-ALCOHOLIC BEVERAGES	59812.66	59812.66	**0.002396**
110110	FOOD	0.00	51634.63	
110111	Bread and cereals	0.00	19335.26	
1101111	Rice		6370.77	
1101112	Other cereals, flour and other products		3874.10	
1101113	Bread		3435.03	
1101114	Other bakery products		1907.83	
1101115	Pasta products		3747.53	

Complete Table1 with whatever aggregate estimates are available.

Completing MORES - Example

Step 2

	Name	#	Indicator Name	Source Name	Year	Value
	Rice	1	Sales of Rice	Retail Census	2007	5364
		2	Population increase from 2007 to 2011	Population Census	2011	5.30%
Please indicate all the approaches used in calculation of expenditure for this basic heading. Enter a number (1-5).		3	CPI price increase	CPI	2011	12.1%
		4	Adjusted expenditure for rice (1,2,3)		2011	6331.74
2	Extrapolation	5	Summation of adjusted basic heading values under "bread and cereals"		2011	19216.79
		6	Expenditure for "bread and cereals" subgroup	Household Expenditure Survey	2009	17965.00
		7	Population increase from 2009 to 2011	Population Census	2011	2.60%
		8	CPI increase for this subgroup	CPI	2011	4.90%
		9	Adjusted expenditure for "bread and cereals" (6,7,8)		2011	19335.26
				Estimated expenditure for	1101111	**6370.77**

Complete Table 2 for each basic heading using five splitting approaches.

Completing MORES - Example

Step 3

ICP Code	Heading	Expenditure Value
100000	**GROSS DOMESTIC PRODUCT**	**168527.54**
110000	**INDIVIDUAL CONSUMPTION EXPENDITURE BY HOUSEHOLDS**	**117081.29**
110100	FOOD AND NON-ALCOHOLIC BEVERAGES	**59812.66**
110110	FOOD	**51634.63**
110111	Bread and cereals	**19335.26**
1101111	Rice	**6370.77**
1101112	Other cereals, flour and other products	**3874.10**
1101113	Bread	**3435.03**
1101114	Other bakery products	**1907.83**
1101115	Pasta products	**3747.53**

Table 3 will be automatically filled once discrepancies between aggregate figures and summation of BHs have been resolved.

Fictitious country case statistics

	Approach	Count
1	Direct estimation	108
2	Extrapolation	20
3	Borrow per capita value	8
4	Borrow structure	13
5	Expert opinion	40
total		189

	Indicator	Count
1	CPI	45
2	Government final accounts	34
3	Population Census	30
4	Expert opinion	29
5	Household Expenditure Survey	24
	Summation of frequency of major indicators	162

48 indicators were used and five major indicators account for 46% (162 out of 351).

Fictitious country case statistics

	Number of sources	Case study counts
Individual consumption expenditure by households	20	13
Individual consumption expenditure by NPISHs	1	1
Individual consumption expenditure by government	8	1
Collective consumption expenditure by government	1	1
Gross fixed capital formation	8	5
Changes in inventories & net acquisitions of valuables	4	3
Balance of exports and imports	3	1

Multiple Approach Examples

	Name		Indicator Name	Source Name	Year	Value
	Actual and imputed rentals for housing	1	Expenditure value for 2008	Rental survey	2008	450.45
		2	Rents increase	CPI	2011	11%
		3	Actual rents	Own-estimation	2011	500.00
		4	Number of dwellings (no change in the number of dwellings since 1996)	Population Census	1996	1
2	Extrapolation	5	Ratio of average rent to household income	Structure of a neighboring country	2011	22%
4	Borrowing structure	6	Annual household income	Government statistics	2011	15000.00
		7	Imputed rents	Own-estimation	2011	3300.00
				Estimated expenditure for	1104111	**3800.00**

	Name		Indicator Name	Source Name	Year	Value
	Out-patient paramedical services	1	Total outpatient services	Government final accounts	2011	218
		2	Proportion of paramedical services	Expert opinion	2011	25%
1	Direct estimation	5				
5	Expert opinion	6				
				Estimated expenditure for	1302123	**54.50**

Issues

Lack of sources	Lack of overall resources, heavy dependence on expert opinions
Iterative process	Iterative process occurs when borrowing a structure from another country
Distribution of specific BHs	Distribution of specific basic headings such net expenditures abroad
Limited adoption of imputing methods	Limited adoption of imputing methods including the user cost method (housing)

Part 7

Expenditure Data Validation

Main Uses of the MORES for Validation

Countries	Regional Coordinators	Global Office
Intra-Country Validation	Review of each Country's Data & Metadata	Review of each Country's Data & Metadata
	Regional Inter-country Validation	Global Inter-country Validation
• Edit Checks • Consistency	• SNA Compliance • Consistency • Comparability	• Quality Assurance • Exhaustiveness • Consistency • Comparability • Summary of main findings

Intra-Country Validation

ICP 2011 Overview

SNA Compliance

1. Compare GDP expenditure with UNSD database
2. Completeness checks (non-zero values)
3. Check negative values
4. Make sure FISIM is allocated
5. Check allocation of net expenditures
6. Arithmetic basic checks

Price Validation

1. Implement price tracking for major products
2. Verify average price changes from 2005 to 2011
3. Consistency of PLIs across BHs within a country

Economic likelihood

1. Verify per capita BH expenditures
2. Verify BH shares of GDP

To be implemented at regional level also

Basic Edits

International Databases	Compare GDP & major aggregates with international databases
Aggregation	Check aggregations Check negative values
Completeness	Completeness checks, such as all basic headings containing non-zero values
Per Capita Checks	Deriving per capita value of real expenditures can also indicate areas that need to be examined for inconsistencies between the prices & the values

Consistency Checks

Price - Expenditures

Check Plausibility for each BH

Notional Real Expenditures = Nominal Expenditures / Geometric Mean of Prices

Temporal

Check Plausibility for each BH

The data from the 2005 ICP can be used to identify outliers that have changed significantly more than the average for all basic headings

Check Variations

Compare Variations of Per Capita Notional Real Expenditure

2005 → 2011

Regional Validation

Overview

Apply Intra-country validation processes	As per previous slides
Country Clustering	Clusters of economies according to economically-based and regionally-agreed criteria
	2005 GDP per capita will be a key indicator of the group to which an economy should be allocated
Inter-Country Evaluation	As per next slide

Inter-Country Evaluation

GDP Share	Compare shares of GDP contributed by each BH (nominal and real expenditures)
Per Capita Real Expenditures	Compare per capita real expenditures for each BH
	Variations in per capita real expenditures for each basic heading between economies in each cluster
Price Level Index (PLI)	Consistency of PLIs across basic headings within an economy
	Variation of PLIs within basic headings between the economies in each cluster

Global Validation

Overview

Apply Intra-country validation processes	Same as previously defined
Apply inter-country validation processes	Across economies within each region
	Across economies between regions
Global validation report	Main findings

THANK YOU