



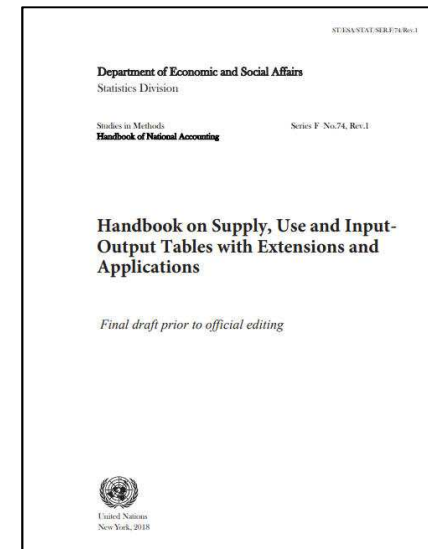
# Overview of Supply and Use Tables and their statistical production process

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- SUTs introduction
  - Structure of Supply-Use Tables
  - Valuation (Prices)
  - Classifications
  - Statistical units
- Statistical production process
  - Main stages of the productions process
  - Link with the compilation of the national accounts
  - Main recommendations
- Questions?





# What Are Supply-Use Tables?

United Nations Statistics Division

- SUTs consists of two interlinked tables:
  - the Supply Table
  - the Use Table
- The **Supply Table** describes how goods and services become available in an economy during a certain period of time. Products are either produced in the domestic industry or imported.
- The **Use Table** shows how goods and services are used in the economy during a certain period of time. Products can be used either as intermediate consumption or as final use.
- Furthermore the SUTs show the income generated in the production process.



# Simplified Supply and Use Table

United Nations Statistics Division

## Supply table

Products \ Industries	Industries				Imports	Total
	Agriculture, forestry, etc.	Mining and quarrying	...	Services		
Agriculture, forestry, etc. Ores and minerals; etc. ... Services	Output by product by industry				Imports by product	Total supply by product
Total	Total Output by Industry				Total imports	Total supply

## Use table

Products \ Industries	Industries				Final uses			Total
	Agriculture, forestry, etc.	Mining and quarrying	...	Services	Final consumption	Gross capital formation	Exports	
Agriculture, forestry, etc. Ores and minerals; etc. ... Services	Intermediate consumption by product and by industry				Final uses by product and by category			Total use by product
Value added	Value added by component and by industry							Value added
Total	Total Output by industry				Total final uses by category			

Empty cells by definition



# Simplified SUTs - Main Identities (1)

United Nations Statistics Division

Supply table

		Industries			Output	Imports	Total supply
		Agriculture	Manufact. and Construction	Services			
Products	Agriculture	270	30	50	350	20	370
	Manufacturing	6	380	87	473	42	515
	Construction	4	50	13	67	8	75
	Trade, transport and communication	10	15	210	235	7	242
	Finance and business services	6	17	240	263	11	274
	Other services	4	8	100	112	12	124
	Total	300	500	700	1 500	100	1 600

## Main identities (1) Supply = Use

Output + Imports =  
Intermediate consumption +  
Final consumption + capital  
formation + Exports

e.g.

For product 'agriculture'

$$350 + 20 =$$

$$370$$

$$= 34 + 59 + 93 + 131 + 21$$

$$+ 32$$

For the whole economy:

$$1500 + 100 =$$

$$1600$$

$$= 210 + 290 + 229 + 561$$

$$+ 185 + 125$$

Use table

		Industries				Final use			Total use
		Agriculture	Manufact. and Construction	Services	Total	Final consumption expenditure	Gross capital formation	Exports	
Products	Agriculture	34	59	93	186	131	21	32	370
	Manufacturing	97	107	57	261	122	73	59	515
	Construction	9	12	4	25	17	30	3	75
	Trade, transport and communication	42	24	11	77	140	20	5	242
	Finance and business services	14	53	42	109	116	31	18	274
	Other services	14	35	22	71	35	10	8	124
	Total	210	290	229	729	561	185	125	1 600
GVA		90	210	471	771				
Total		300	500	700	1 500				



# Simplified SUTs - Main Identities (2)

## Supply table

	Products	Industries				Imports	Total supply
		Agriculture	Manufact. and Construction	Services	Total		
	Agriculture	270	30	50	350	20	370
	Manufacturing	6	380	87	473	42	515
	Construction	4	50	13	67	8	75
	Trade, transport and communication	10	15	210	235	7	242
	Finance and business services	6	17	240	263	11	274
	Other services	4	8	100	112	12	124
	<b>Total</b>	<b>300</b>	<b>500</b>	<b>700</b>	<b>1 500</b>	<b>100</b>	<b>1 600</b>

Main identities (2)  
Output = Input

Output = Intermediate consumption + GVA

e.g.

For Industry 'Agriculture'

$$300 = 210 + 90$$

For the whole economy:

$$1500 = 729 + 771$$

## Use table

	Products	Industries				Final use			Total use
		Agriculture	Manufact. and Construction	Services	Total	Final consumption expenditure	Gross capital formation	Exports	
	Agriculture	34	59	93	186	131	21	32	370
	Manufacturing	97	107	57	261	122	73	59	515
	Construction	9	12	4	25	17	30	3	75
	Trade, transport and communication	42	24	11	77	140	20	5	242
	Finance and business services	14	53	42	109	116	31	18	274
	Other services	14	35	22	71	35	10	8	124
	<b>Total</b>	<b>210</b>	<b>290</b>	<b>229</b>	<b>729</b>	<b>561</b>	<b>185</b>	<b>125</b>	<b>1 600</b>
	<b>GVA</b>	<b>90</b>	<b>210</b>	<b>471</b>	<b>771</b>				
	<b>Total</b>	<b>300</b>	<b>500</b>	<b>700</b>	<b>1 500</b>				



# Simplified SUTs - Main Identities (3)

United Nations Statistics Division

## Supply table

		Industries				Imports	Total supply
		Agriculture	Manufact. and Construction	Services	Total		
Products	Agriculture	270	30	50	350	20	370
	Manufacturing	6	380	87	473	42	515
	Construction	4	50	13	67	8	75
	Trade, transport and communication	10	15	210	235	7	242
	Finance and business services	6	17	240	263	11	274
	Other services	4	8	100	112	12	124
	Total	300	500	700	1 500	100	1 600

## Main identities (3)

GVA production =  
GVA income

Output-Intermediate consumption =  
Compensation of employees + Gross operating surplus + Other taxes/subsidies on production

## Use table

		Industries				Final use			Total use
		Agriculture	Manufact. and Construction	Services	Total	Final consumption expenditure	Gross capital formation	Exports	
Products	Agriculture	34	59	93	186	131	21	32	370
	Manufacturing	97	107	57	261	122	73	59	515
	Construction	9	12	4	25	17	30	3	75
	Trade, transport and communication	42	24	11	77	140	20	5	242
	Finance and business services	14	53	42	109	116	31	18	274
	Other services	14	35	22	71	35	10	8	124
	Total	210	290	229	729	561	185	125	1 600
GVA		90	210	471	771				
Compensation of employees		50	120	200	370	=			
Operating surplus / Mixed income		30	60	171	261				
Other Taxes less subsidies on production		10	30	100	140				
Total		300	500	700	1 500				

For industry 'Agriculture':

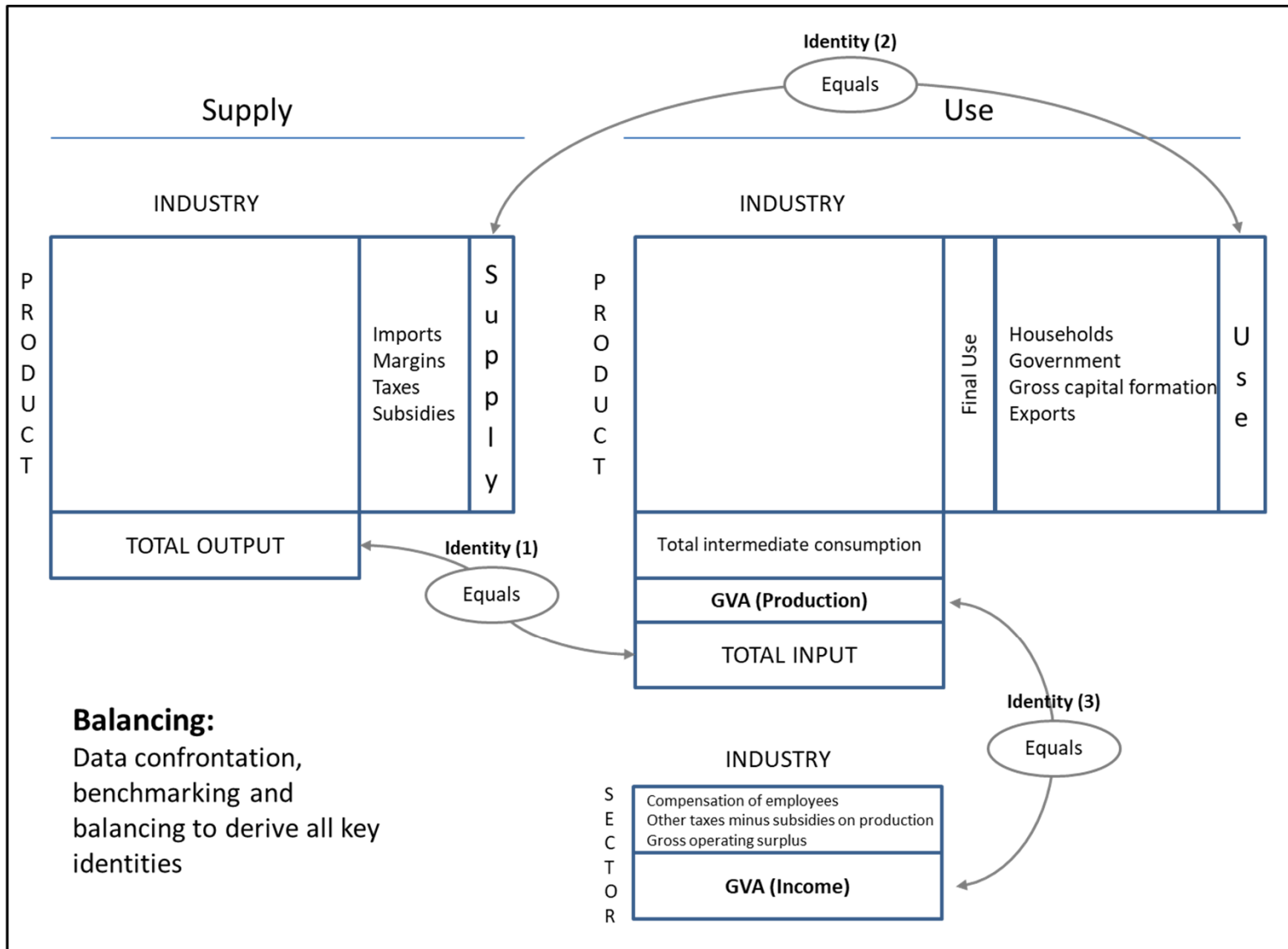
$$300 - 210 =$$

90

$$= 50 + 40$$



# Summary of the main identities







- Supply and use tables serve primarily statistical purposes and provide an integrated framework for checking [consistency](#) and [completeness](#) of data
  
- In order to make GDP calculations more reliable, statisticians use three different methods: [production](#), [income](#) and [expenditure](#)
  - GDP by production:  $GDP = Output - Intermediate\ consumption + Taxes/subsidies\ on\ products$
  - GDP by income:  $GDP = Compensation\ of\ employees + Gross\ operating\ surplus\ (incl.\ mixed\ income) + Taxes/subsidies\ on\ production$
  - GDP by expenditures:  $GDP = Final\ consumption\ expenditure + Gross\ capital\ formation + Exports - Imports$
  
- These three methods may generate different results. In order to eliminate those differences and to find the most [accurate](#) result, statisticians use supply-and-use tables as a balancing framework that [reconciles](#) the three methods of GDP



- The balanced estimates produced are used to benchmark the National Accounts. Using the SUT to produce benchmarks provides rigor:
  - Exhaustive and complete coverage
  - Make the best use of all available data
  - Correct for coverage and other data source issues
  - Produce three coherent measures of GDP



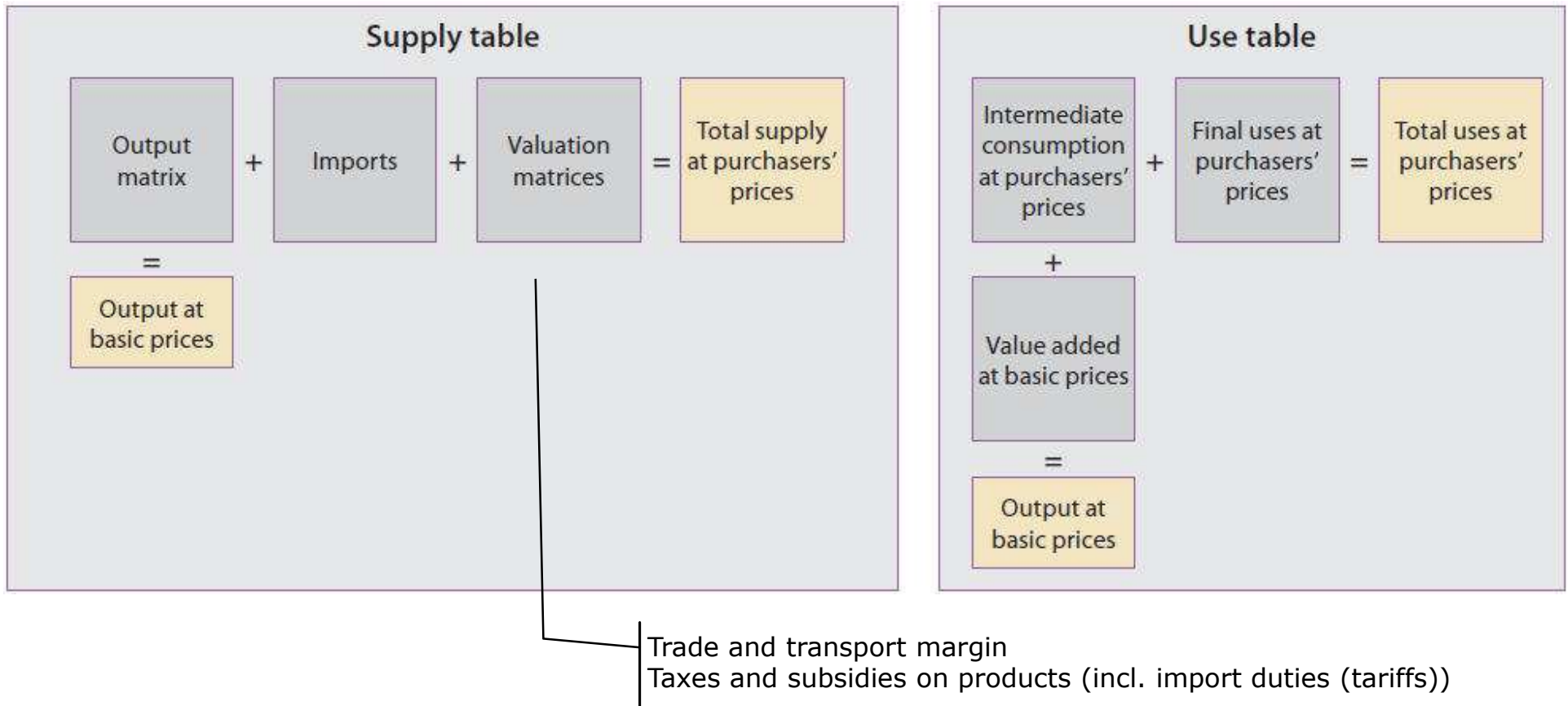
# Valuation



- The SNA distinguishes between the following prices:
  - Basic prices
 

*“The basic price is the amount receivable by the producer from the purchaser for a unit of a good or service produced as output minus any tax payable, and plus any subsidy receivable, by the producer as a consequence of its production or sale. It excludes any transport charges invoiced separately by the producer.”* (2008 SNA, 6.51)
  - Producers prices
  - Purchasers prices

Purchasers' prices	<i>equals</i>	producers' prices
	<i>plus</i>	any non-deductible VAT or similar tax payable by the purchaser
	<i>plus</i>	transport costs paid separately by the purchaser and not included in the producers' price.
	<i>plus</i>	trade margins
Producers' prices	<i>equals</i>	basic prices
	<i>plus</i>	taxes on products excluding invoiced VAT
	<i>minus</i>	subsidies on products



- Compile Valuation matrices to obtain SUTs on a common price basis



# Valuation considerations

United Nations Statistics Division

## Supply table

		INDUSTRIES			Output at basic prices	Imports CIF	Total supply at basic prices	VALUATION MATRICES					Total supply at purchasers' prices	
		Agriculture	Manufacturing	Other				Trade margins	Transport margins	VAT	Taxes on products	Subsidies on products		Total
		(1)	(2)	(3)				(4)	(5)	(6)	(7)	(8)		(9)
PRODUCTS	Agriculture (1)	8 782	0	0	8 782	3 271	12 052	1 926	274	329	57	- 107	2 479	14 532
	Manufacturing (2)	796	182 982	2 627	186 405	124 590	310 995	48 838	2 540	13 175	7 866	- 49	72 370	383 364
	Construction (3)	83	961	44 227	45 272	563	45 835	0	0	1 529	13	0	1 542	47 377
	Trade (4)	1	4 773	55 413	60 187	600	60 787	- 52 341	0	575	11	0	- 51 755	9 032
	Transport (5)	13	465	25 857	26 335	8 150	34 485	0	- 2 800	558	71	- 448	- 2 620	31 865
	Communication (6)	160	1 781	46 287	48 228	6 234	54 463	1 493	9	3 375	217	- 34	5 059	59 522
	Finance and business services (7)	29	8 902	118 577	127 508	7 061	134 569	0	- 22	2 706	2 159	0	4 842	139 411
	Other services (8)	3	85	75 555	75 643	824	76 467	85	0	1 201	576	0	1 861	78 329
	Total (9)	9 867	199 950	368 543	578 360	151 293	729 653	0	0	23 447	10 969	- 638	33 778	763 431
Adjustments	CIF/FOB adjustments on imports (10)					- 97	- 97						- 97	- 97
	Direct purchases abroad by residents (11)					6 675	6 675						6 675	6 675
	Total (12)	9 867	199 950		578 360	157 871	736 230	0	0	23 447	10 969	- 638	40 356	770 009



## Use table at purchasers' prices

		INDUSTRIES										Total use at purchasers' prices (11)
		Agriculture (1)	Manufacturing (2)	Other (3)	Total (4)	Final consumption expenditure (5)	Gross fixed capital formation (6)	Changes in valuables (7)	Changes in inventories (8)	Exports (9)	Total (10)	
PRODUCTS	Agriculture (1)	2 583	6 570	470	9 623	3 595	180		- 27	1 161	4 909	14 532
	Manufacturing (2)	2 205	107 190	44 127	153 522	74 617	26 756	2 183	3 034	123 252	229 842	383 364
	Construction (3)	105	2 440	17 484	20 029	1 667	25 155		- 38	563	27 348	47 377
	Trade (4)	33	1 883	2 926	4 842	3 325	67	45		753	4 189	9 032
	Transport (5)	14	4 386	9 808	14 208	9 203				8 453	17 656	31 865
	Communication (6)	34	2 563	17 411	20 008	26 566	5 976		67	6 905	39 514	59 522
	Finance and business services (7)	457	13 578	63 395	77 430	39 843	11 170		- 178	11 145	61 981	139 411
	Other services (8)	8	382	3 439	3 829	73 712	113	107	1	567	74 500	78 329
	Total at purchasers' prices before adjustments (9)	5 440	138 991	159 061	303 492	232 528	69 418	2 335	2 859	152 800	459 939	763 431
Adjustments	CIF/FOB adjustments on exports (10)									- 97	- 97	- 97
	Direct purchases abroad by residents (11)					6 675					6 675	6 675
	Purchases in the domestic territory by non-residents (12)					- 12 945				12 945		
	Total at purchasers' prices (13)	5 440	138 991	159 061	303 492	226 258	69 418	2 335	2 859	165 648	466 517	770 009
	GVA (19)	4 427	60 959	209 481	274 868							
	Total input at basic prices (20)	9 867	199 950	368 543	578 360							



# SUTs at basic prices

- Valuation matrices (product by industries and final use) are calculated in order to derive the **Use Table at basic prices**
- Valuation matrices consists of a disaggregation of the Trade and Transport margins, and taxes and subsidies on products by industry and final use

Supply Table at purchasers' prices

	INDUSTRIES			Imports	Total supply at basic prices	VALUATION				Total supply at purchasers' prices
	Agriculture	.. Other services	Output at basic prices			Trade and transport margins	Taxes on products	Subsidies on products	Total	
PRODUCTS	Agriculture									
	Manufacturing									
	Construction									
	Trade									
	Transport									
	...									
	Other services									
	Total									

Use Table at purchasers' prices

	INDUSTRIES				FINAL USE				Total use at purchasers' prices
	Agriculture	.. Other services	Total	Final consumption expenditure	Gross capital formation	Exports	Total		
PRODUCTS	Agriculture								
	Manufacturing								
	Construction								
	Trade								
	Transport								
	...								
	Other services								
	Total								
GVA	GVA								
	Total								
Total input at basic prices									





**Supply Table at purchasers' prices**

	INDUSTRIES			Imports	Total supply at basic prices	VALUATION				Total supply at purchasers' prices
	Agriculture	..	Other services			Output at basic prices	Trade and transport margins	Taxes on products	Subsidies on products	
PRODUCTS	Agriculture									
	Manufacturing									
	Construction									
	Trade									
	Transport									
	...									
Other services										
	Total									

**Use Table at purchasers' prices**

	INDUSTRIES			FINAL USE				Total use at purchasers' prices
	Agriculture	..	Other services	Total	Final consumption expenditure	Gross capital formation	Exports	
PRODUCTS	Agriculture							
	Manufacturing							
	Construction							
	Trade							
	Transport							
	...							
Other services								
	Total							
GVA								
	Total							
	Total input at basic prices							

**Subsidies on products**

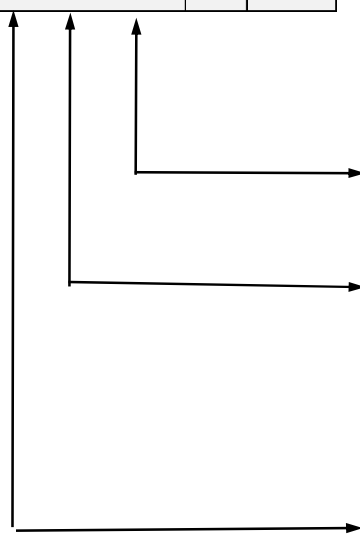
PRODUCTS	INDUSTRIES			Total	Final consumption expenditure	Gross capital formation	Exports	Total
	Agriculture	..	Other services					
Agriculture								
:								
:								
Other services								
	Total							

**Taxes on products**

PRODUCTS	INDUSTRIES			Total	Final consumption expenditure	Gross capital formation	Exports	Total
	Agriculture	..	Other services					
Agriculture								
:								
:								
Other services								
	Total							

**Trade and Transport margins**

PRODUCTS	INDUSTRIES			Total	Final consumption expenditure	Gross capital formation	Exports	Total
	Agriculture	..	Other services					
Agriculture								
:								
:								
Other services								
	Total							





# Classifications



- Recommended classification for the economic activities (industry):

## International Standard Industrial Classification of All Economic Activities (ISIC rev. 4)

The level of detail in the published/disseminated SUTs differs from that at the working level: SUTs are generally published at a more aggregated level of detail (taking into account users' needs and confidentiality).

It is recommended to use the most detailed level of classification of industry at the working level, taking into consideration user needs, the availability of data, and the level of detail used in the National Accounts.

Certain compilation aspects also influence the choice of working level such as the distinction between industries which are allowed to deduct Value Added Tax (VAT) and those that are not, the distinction between market and non-market producers, and the explicit identification of certain industry sub-divisions which are relevant for the compilation of the trade and transport margin matrices.



- Recommended classification products:

## Central Products Classification (CPC Ver. 2.1)

### Other classifications of products are

- the Harmonized System (HS 2012) (trade statistics)
- The Standard International Trade Classification (SITC) (trade statistics)
- The Classification of Broad economic categories (BEC) (trade statistics)
- The Extended Balance of Payments Services Classification (EBOPS 2010) (trade in services)
- Classification of Individual Consumption According to Purpose (COICOP)
- Classification of the Purposes of Non-Profit Institutions Serving Households (COPNI)
- Classification of the Functions of Government (COFOG)



# Functional Classifications relevant for SUTs

United Nations Statistics Division

- Final consumption expenditure by households, NPISH and Government

Use Table

		INDUSTRIES				FINAL USE					Total
		Agricul- ture	..	Other services	Total	Final consumption expenditure			Gross capital formation	Exports	
						Households	NPISH	General government			
Products	Agriculture										
	: Other services										
Value added											
Total											

- Functional classifications support the compilation of SUTs and allow for a wider range of analyses
- The difficulty often is in the concordance with CPC. Correspondence tables are available on UNSD website.



**Use Table**

		INDUSTRIES				FINAL USE					Total
		Agriculture	..	Other services	Total	Final consumption expenditure			Gross capital formation	Exports	
						Households	NPISH	General government			
Products	Agriculture										
	Other services										
Value added											
Total											

**Final consumption expenditure by households (COICOP)**

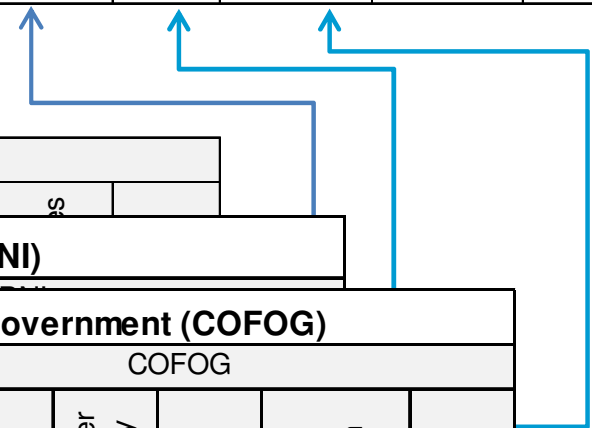
		COICOP					
		...	...	...	...	...	...
Products	Agriculture						
	Other services						
Total							

		Final consumption expenditure by NPISH (COPNI)						
		...	...	...	...	...	...	...
Products	Agriculture							
	Other services							
Total								

		Final consumption expenditure by government (COFOG)					
		COFOG					
		General public services	Defence	Public order and safety	...	Social protection	Total
Products	Agriculture						
	Other services						
Total							





# Statistical Units



- In national accounts different types of statistical units are distinguished
- Particularly relevant for SUTs are
  - An **enterprise** is defined as the view of an institutional unit as a producer of goods and services (where institutional units are economic entities that have autonomy of decision making and have clear links with the legal units).
  - An **establishment** is an enterprise or part of an enterprise that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added.
  - A **kind-of-activity** unit is defined an enterprise, or a part of an enterprise, which engages in only one kind of (non-ancillary) productive activity or in which the principal productive activity accounts for most of the value added.
- In line with the 2008 SNA the establishment is the unit that is more suitable for analysis of production => recommended unit for the compilation of SUTs
- Recommendations on partitioning vertically /horizontally integrated enterprises is provided in the Handbook



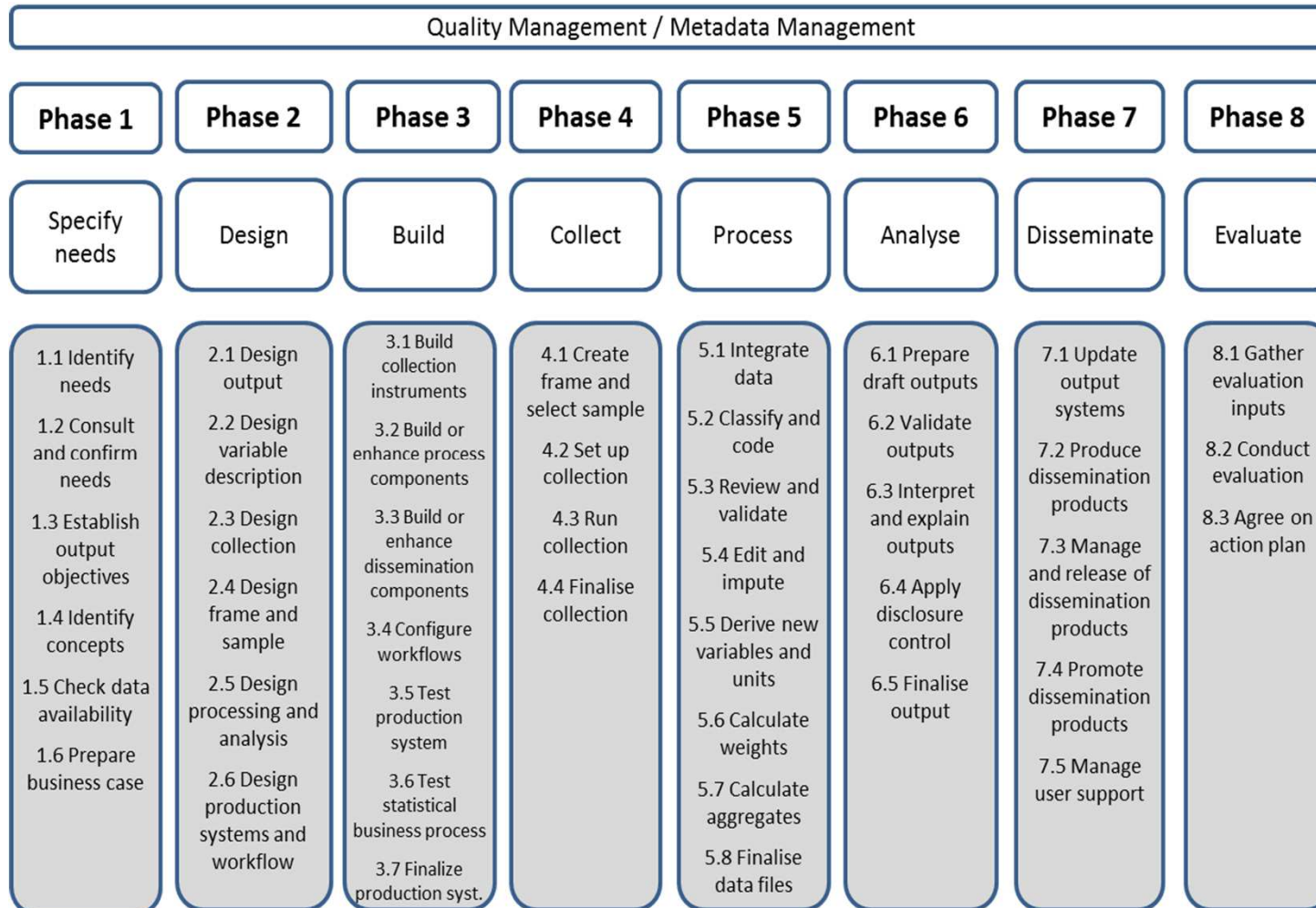


# Statistical production process

- Main stages of the production process
- Link with the compilation of the national accounts
- Main recommendations



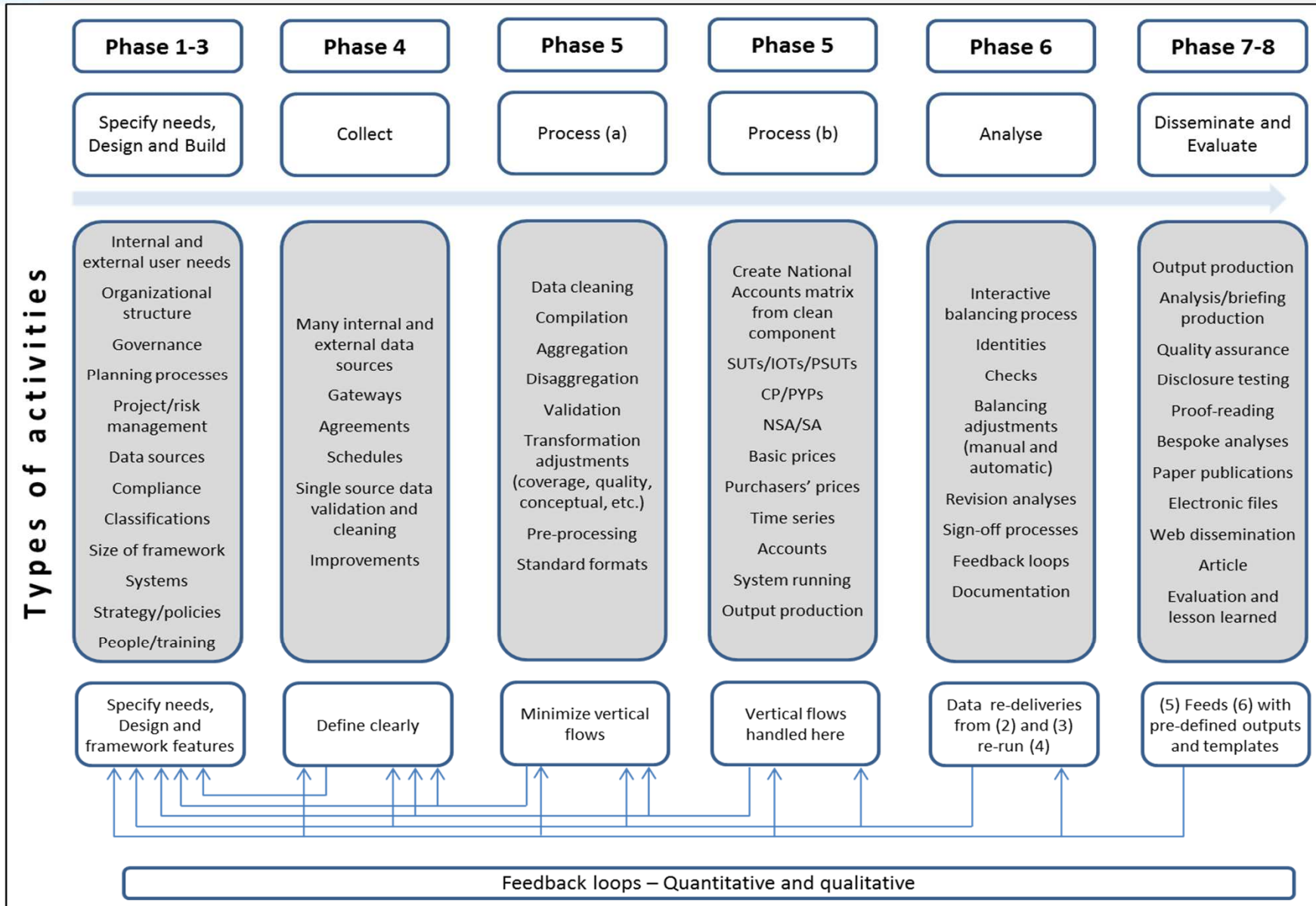
- The statistical production process can be viewed in the context of the main stages of the **Generic Statistical Business Production Model (GSBPM)** (United Nations Economic Commission for Europe, 2013)





# Main stages of the productions process of SUTs

United Nations Statistics Division





- Steps generally followed for the compilation of SUTs:
  - Step 1 - Construction of the Supply Table
  - Step 2 - Construction of the Use Table
  - Step 3 - Compilation of the valuation matrices
  - Step 4 - Compilation of the Imports Use Table and Domestic Use Table at basic prices
  - Step 5 - Compilation of the SUTs in volume terms
  - Step 6 - Linking SUTs with the institutional sector accounts
- There is a significant amount of inter-dependency between these steps in the compilation process.



# Compilation of SUTs as an integral part of the National Accounts

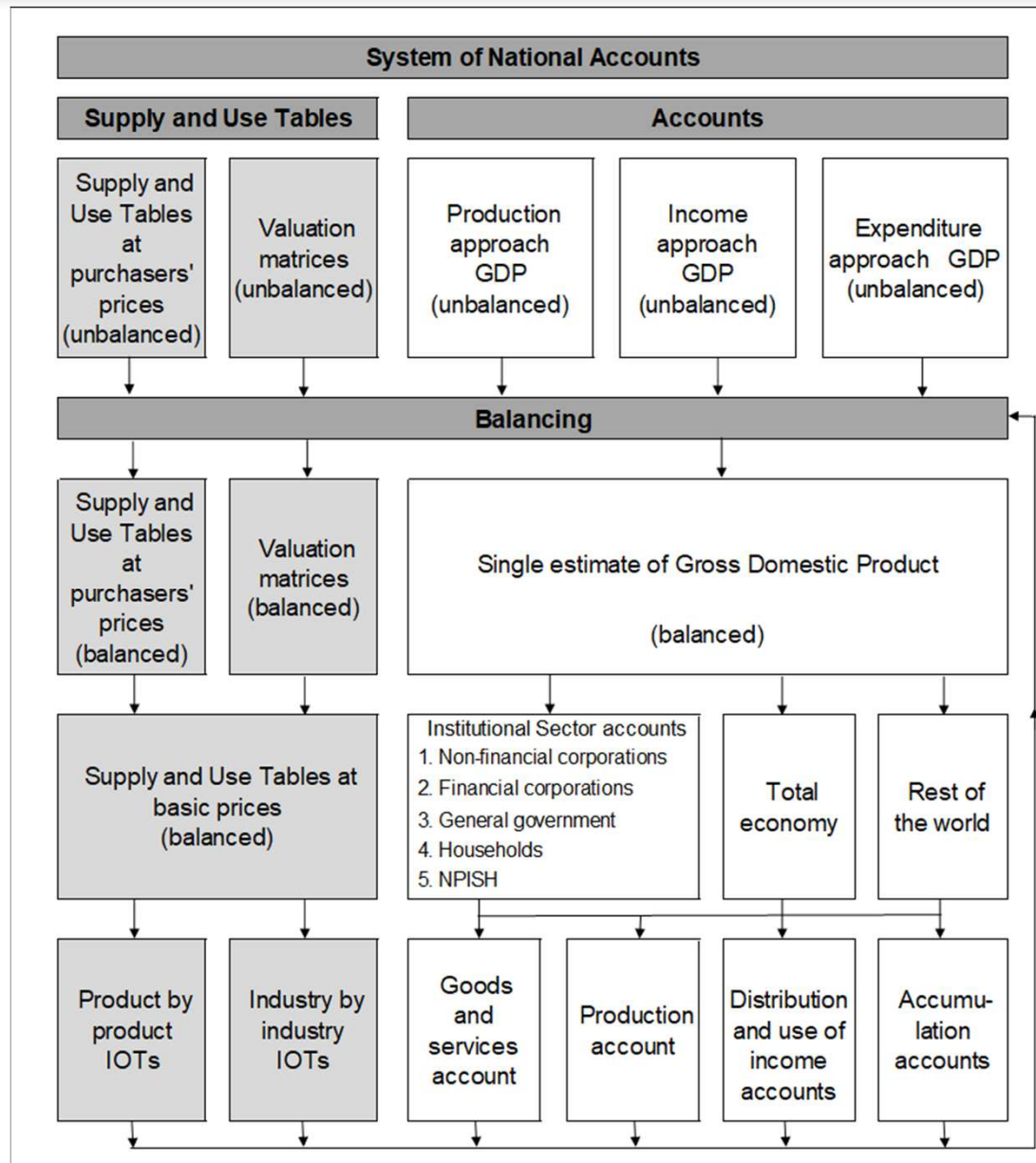
United Nations Statistics Division

- Setting up a SUTs system on an annual basis as part of the national accounts is not simple, but there are many benefits in the long run
  - Provides the ideal framework of integrating the components to the three approaches to measuring GDP
  - Allows for data confrontation of different primary sources
  - Improve the quality of the national accounts
  - Updating SUTs from the last year with information available for the preliminary year in order to have a complete set of SUTs (albeit at a more aggregated level) available that are consistent with the preliminary figures. This procedure is a good method for revealing inconsistencies in the aggregated preliminary figures at an early stage
  - Using of SUTs to incorporate new information; for example, when new detailed information on total supply and exports is available earlier, then the structure of SUTs of the previous year could be used to project SUTs for domestic output and imports



# Compilation of SUTs as an integral part of the National Accounts

United Nations Statistics Division





## Set of tables recommended for compilation

United Nations Statistics Division

- SUTs at purchasers' prices
- SUTs at basic prices
- Use table at basic price with the split of
  - Domestic Use table
  - Import Use table
- GVA by industry and by factor incomes and by institutional sector



Thank you