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STATISTICAL COMMITTEE OF ARMENIA (ARMSTAT)

Country experience: the implementation of
SNA 2008 into the
national accounts of Armenia

UNESCAP (SIAP)

22-23 February 2023

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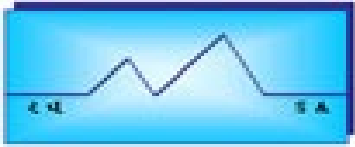
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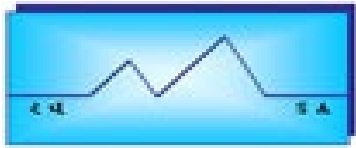
Outline

- ❖ The strategic program on 2008 SNA implementation
- ❖ Main steps of 2008 SNA implementation
- ❖ The main changes from 1993 SNA to 2008 SNA and their impacts to the main SNA aggregates
- ❖ ADB Knowledge Support and Technical Assistance (KSTA) 9624 and development of SUT



The strategic program on 2008 SNA implementation

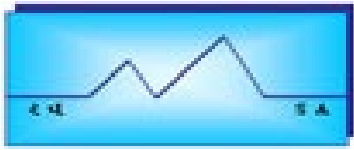
- Compilation and dissemination of statistical data are governed by the terms and conditions of the Law On Official Statistics of the Republic of Armenia, approved by the National Assembly of the Republic of Armenia on March 21, 2018 that serves as the legal basis for the organization of official statistics. The Law determines the order of organization of state statistics in the Republic of Armenia and regulates the relations involving collection, processing, accumulation, summarizing, storing, as well as the analysis and exchange of statistical data
- Provisions of the Law On Official Statistics, the Resolution No. 61-N of the State Council on Statistics (SCS) "On Five-Year Statistical Program" and the other normative and legal acts adopted by the SCS of the Republic of Armenia (Supreme body of governance of the Statistical Committee of RA) serve as the regulatory legal base for statistics
- The Five-Year Statistical Program for 2019-2023 was adopted by the SCS of the Republic of Armenia on October 31, 2018.



The strategic program on 2008 SNA implementation

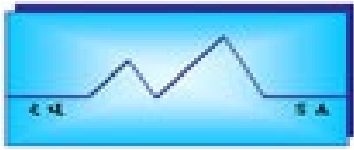
The strategic program for 2019-2023 assumes implementation the following measures:

- 1) Improvement of National Accounts of Armenia at the level of whole economy, as well as institutional sectors of the economy according to the “System of National Accounts - 2008” and “European System of Accounts - 2010” international methodologies.
- 2) Implementation of works on retrospective reviews on the absolute values and volumes of gross domestic product, based on the “System of National Accounts - 2008” methodology.
- 3) Completion and improvement of the information sources according to the requirements of the “System of National Accounts - 2008” with a purpose to improve calculations of the indicators of the System of National Accounts of Armenia.
- 4) Maintenance of value-added statistics (by production approach) of sectors of financial and non-financial organizations by sub-sectors



The strategic program on 2008 SNA implementation

- 5) Maintenance of the statistics of Armenia's National Accounts according to the “Armenian Classification of Types of Economic Activities” and Classifications defined by the “System of National Accounts – 2008”.
- 6) Improvement of the estimation methodology of sizes and calculations of the non-observed economy by applying “Tabular approach” principle of Eurostat, including implementation of "illegal activities" evaluation.
- 7) Implementation of works on the compilation of “supply-use” tables in the System of National Accounts with possible involvement of additional resources.
- 8) Improvement of the estimation methodology of indirectly measured services on financial intermediation jointly with the Central Bank of the Republic of Armenia.



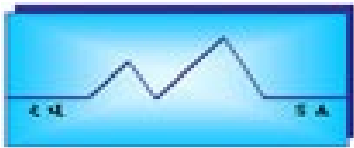
The strategic program on 2008 SNA implementation

- 9) Maintenance and improvement of statistics on national wealth components.
- 10) Improvement of the estimation methodology on the consumption of fixed capital in the National Accounts of Armenia.
- 11) Evaluation on “indirectly calculated rental value of owner-occupied dwellings” by applying “the user-cost approach”.
- 12) Maintenance of statistics of gross value added according to the types of economic activity and organization size determined by the number of employees.
- 13) Implementation of regional GDP estimation.



Main steps of 2008 SNA implementation

- Inclusion of the 2008 SNA implementation in national statistical strategic programm
- Identification of outstanding issues with 1993 SNA
- Clarifying the main changes from the 1993 SNA to the 2008 SNA and their impact on the main aggregates
- Developing institutional agreement and implementation plan
- Prioritization based on user needs and available resources
- Adoption of detailed implementation action plan for 2015
- Adoption of classifications and other improvements in business statistics and business registers
- Improving business survey questionnaires to collect data for 2008 SNA implementation purposes
- Adaptation of administrative data sources to the new requirements
- IT and other changes
- Development of National Accounts and changeover to 2008 SNA

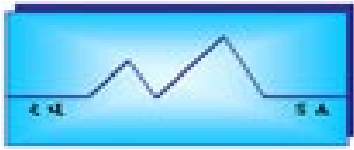


Main steps of 2008 SNA implementation

Inclusion of the 2008 SNA implementation in national statistical strategic programs for 2019-2023, 2016-2018, 2013-2015 periods

With the Special Press Releases for National Accounts Data Users (13 December 2013 <https://www.armstat.am/en/?nid=134&id=372>) NSS RA announced about *The introduction of the System of National Accounts 2008 (2008 SNA) in Armenia's National accounts, illustrating:*

- The background and importance of the methodological changes and the main changes from 1993 SNA to 2008 SNA and their impacts to the main aggregates
- Identification of outstanding issues with 1993 SNA:
 - *supply and–Use tables*
 - *balance sheet*
 - *financial account*
 - *some of the components of the methodological developments and improvements that have taken place after the adoption of 1993 SNA.*



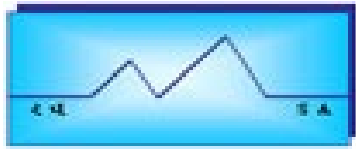
Main steps of 2008 SNA implementation

In 2014 the Institutional trilateral agreement between NSS, CB and MoF has been signed with purpose to develop implementation plan and create working groups.

The prioritization for 2008 SNA implementation plan was based on user needs and available resources. Improving the quality of annual and quarterly GDP and implementation of the 2008 SNA which mostly affect GDP and its main components was agreed as the main priority. Detailed action plan was adopted for 2015.

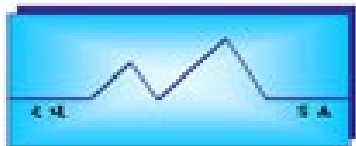
The updated classifications (NACE Rev.2, CPA 2008) and other improvements in business registers and business statistics, changes in business statistics surveys and questionnaires to collect the necessary source data were adopted.

Development of national accounts and changeover to the 2008 SNA in 2015. First data were published with explanations on the major changes and their influence to the values and volumes of GDP and its components.



The main changes from 1993 SNA to 2008 SNA and their impacts to the main SNA aggregates

- The main changes from 1993 SNA to 2008 SNA:
 - *research and development expenses are treated as an expenditure on fixed capital formation in the 2008 SNA, instead of what was previously treated as intermediate consumption expenditure in the 1993 SNA*
 - *military expenditures according to the 2008 SNA are considered as expenditures on the accumulation of fixed capital which according to the 1993 SNA were considered as intermediate consumption expenditures in the general government sector*
 - *Central bank operations are considered as non-market production rather than market production*
 - *financial intermediation services indirectly measured (FISIM): only on the operations for deposits and loans on the bases of reference rate; distribution of the FISIM between the consumers (intermediate consumption, final consumption and exports)*
 - *external economic transactions on goods for processing are considered as export/import of services*
 - *imputed cost of owner-occupied dwelling services based on the “user cost method” developed by OECD*
 - *Illegal activity*



The main changes from 1993 SNA to 2008 SNA and their impacts to the main SNA aggregates

According to the work program for 2015, on the basis of available resources the annual indicators of GDP for 2012-2014 have been revised and the quarterly figures for 2013-2014.

Links to the corresponding publications:

https://www.armstat.am/file/article/sv_04_15r_112.pdf ;

https://www.armstat.am/file/article/sv_05_15r_112.pdf

Changes in the nominal value and real volume index of GDP as a result of major methodological changes in the 2008 SNA:

	Changes in the nominal value of GDP , %			Changes in the real volume index of GDP , %	
	2012	2013	2014	2013	2014
<i>Military expenditures</i>	0.0	0.0	0.0	0.0	0.0
<i>Goods for processing</i>	0.0	0.0	0.0	0.0	0.0
<i>Central Bank operations</i>	-0.3	-0.4	-0.1	-0.2	0.3
<i>FISIM</i>	0.4	0.8	0.6	0.4	-0.1
<i>imputed cost of owner-occupied dwelling services</i>	5.9	5.6	5.7	-0.3	-0.2
<i>research and development expenses</i>	0.2	0.1	0.1	-0.1	0.0
<i>Illegal activities (production and trade of drugs)</i>	0.2	0.2	0.3	0.0	0.0
<i>Other changes</i>	0.2	0.2	0.3	0.0	0.1
<i>Total changes</i>	6.6	6.5	6.9	-0.2	0.1



The main changes from 1993 SNA to 2008 SNA and their impacts to the main SNA aggregates

Armenian National Accounts data are available

- According to SNA-93

ANNUAL accounts (at the level of the total economy and institutional sectors) for 1990 - 2013 period

QUARTERLY accounts for 1992 - 2013 period

- According to SNA 2008

ANNUAL accounts (at the level of the total economy and institutional sectors) from 2012 to 2020 period

QUARTERLY accounts from 2014 to 2022 period

All accounts are compiled.

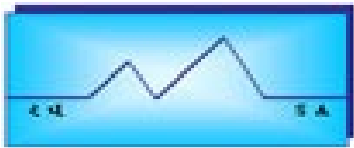
The financial account and the balance sheet of financial assets and liabilities of the Republic of Armenia for 2019 published for the first time on 05 May 2022.

GDP data include estimates by 3 methods:

- production (currently by NACE rev.2, in current and constant prices)
- expenditure (income use, in current and constant prices)
- income generation (only for annual data, in current prices)

Link to the Armstat National accounts databases:

<https://www.armstat.am/ru/?nid=82&id=1672>



ADB KSTA 9624 and development of SUT

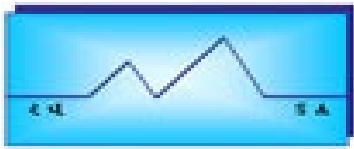
Implementation of SNA 2008 is continued.

The supply and use tables form one of the recommended tables under the “minimum recommended data set”, (MRDS) included in the scope of the compilation of 2008 SNA tables and accounts.

Compilation of Supply and use tables for 2017 under ADB technical assistance is conducted for the first time.

ADB team during the **First Mission** (14-25 October 2019) conducted the following activities:

- Comprehensive review of the processes, data sources, and methods related to SUT compilation
- Identified critical gaps in data in the SNA and issues in the compilation process
- Identified preliminary solutions for treatment of FISIM, housing services, holding gains, gross fixed capital formation, financial services, inventories, government expenditure, taxes and subsidies, and gross value-added
- Training on Input-Output (IO) analysis and techniques



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Second Mission: 24 February – 6 March 2020

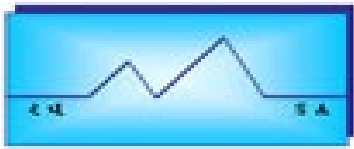
- Allocation of agriculture and trade data, as well as government sector's production and consumption, via product classification (CPA) and industry classification (NACE)
- Comparison of intermediate consumption total between ADB-derived totals and National Accounts Division (NAD) totals
- ADB presented to the NAD and Central Bank (CBA) calculations and allocation of financial intermediation services indirectly measured (FISIM)



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Online Correspondences: March 2020 to December 2021

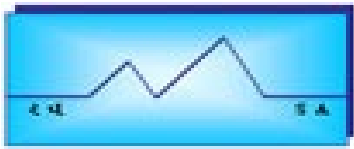
- Requests for additional data and recalculations of updated information
- Mapping of multi-sourced data in respective CPA and NACE classifications
- Online clarifications and repeated balancing sessions
- Balanced GDP by expenditure and by product approaches
- Balanced total Supply and total Use
- Online correspondences with Armstat and State Revenue Committee
- Construction of Value-Added Tax Matrix and preliminary-balanced SUT
- Balanced each product through automated and manual efforts and constant consultation with Armstat



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Third Mission: 4-15 July 2022

- Presentation of the 2017 Current Price Supply and Use Table
- Presentation of the 2017 Social Accounting Matrix
- Compilation of the 2018 Current Price SUT
- Mapping of available data to 2017 SUT framework



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Sources and Methods of Data Compilation

Domestic Production Matrix

- **Data:** 2017 1-TG Enterprise Survey, non-observed economy, non-market output, industry production, published output statistics from Armstat divisions:
 - National Accounts Statistics Division
 - Agriculture and Food Security Statistics Division
 - Trade and Other Services Division
- **Method:** Dataset was basis for calculating value-added
- **Output:**
 1. Output matrix of production for own use
 2. Output matrix of market production of sectors
 3. Output matrix of non-market production of sectors
 4. Output matrix of non-observed economy



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Trade Margins

- **Data:**

- 2017 1-TG Enterprise Survey reported the following:
 - Margin and non-margin service of wholesale and retail trade
 - Margin service of other services
- 2017 Retail Sales Survey – provided derived trade margins and information on products sold
- 2008 one-off sample survey on trade and transport margins in the trade and freight transportation organizations

- **Method:**

- Trade margin by activity was assigned to particular product/s based on its Supply structure
- Trade margins of retail trade activities (G47) and sale of motor vehicles and motorcycles (G45) were allocated based on derived trade margins from 2017 Retail Sales Survey and were multiplied to product margin ratios from the one-off sample survey.
- Product allocation of trade margins of wholesale trade activities (G46) is based on assumptions on goods and/or services sold by the trade activity.

- **Reference:**

- Eurostat-OECD 2017 Manual – main reference in calculating trade margins



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Taxes on Products

- **Data:**
 - 2017 State Budget, taxes and subsidies data from the State Revenue Committee
- **Method:**
 - Derive taxes from the Use table
 - VAT: use isolation rate to isolate VAT embedded within the purchaser's price of each product used

Subsidies on Products

- **Data:**
 - Reported income in the State Budget of the Republic of Armenia for 2017, published by the Ministry of Finance
 - Subsidies on goods and services provided by Armstat



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Imports

- **Data:**
 - Imports of goods at cost, insurance, and freight (CIF) provided by Foreign Trade Statistics Division of Armstat
 - Balance of Payment from CBA and Foreign Trade Statistics Division of Armstat – bases to disaggregate imports of services by product
 - Debit of Travel item: direct purchases of residents abroad
 - United Nations COMTRADE data – to disaggregate imports of goods and imports of services
- **General Method:** disaggregate totals of imports of goods and services using Foreign Trade Statistics Division and United Nations COMTRADE data



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Intermediate Consumption (IC) Matrix

- **Data:**

- 2016 1-ATs Enterprise Survey on cost of production and sales – more detailed survey (572 products) provided initial information on products. Used for allocation to construct the intermediate consumption structure.
- 2017 1-TG Enterprise Survey – processed and summed across activities. Formed as basis of 2017 IC and compared to published totals.

- **General Method:** Total IC by activity estimated by NAD by multiplying ratio of IC to Gross Output (GO) reported in the 2017 1-TG Enterprise Survey to the total output by activity



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Intermediate Consumption

- **Data:**

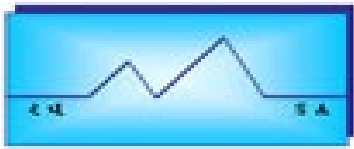
- Financial statements for supply of gas, electricity and water – NACE 35-36
- Energy Report of Armenia – natural gas, crude oil, petroleum
- Financial Intermediation Services Indirectly Measured (FISIM) datasets –the allocation of FISIM to industries:
 - Allocation of FISIM based on data on loans by institutional sector
 - Allocation by aggregate industries (2-digit) using CBA data
 - Further broken down by activity using share of IC (3-digit) to total IC at 2-digit level
 - Explicit financial expenses were allocated using GVA share, IC share, and interest expense.



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Household Final Consumption Expenditure (HFCE)

- **Data:** International Comparison Program (ICP), Household Final Consumption Expenditure Survey, Ownership of Dwellings
- **Methods:**
 1. Use HFCE data based on household survey, adjusted to annual values
 2. Use the HFCE data reported in the ICP
 3. Structures of both methods were compared
 4. HFCE was further refined using advise and additional information provided by Armstat
- **Ownership of dwellings:** utilized Armstat's calculations except of mortgage loans



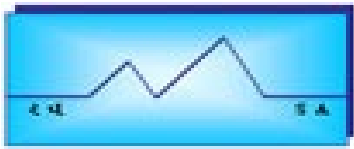
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NPISH FCE

- **Data:** NPISH Survey in 2016: non-market output of NPISH provided by Armstat

Government Final Consumption Expenditure (GFCE)

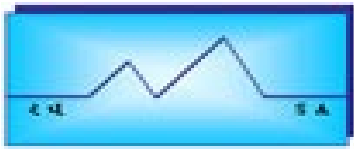
- **Data:** Non-market output of government provided by Armstat
- **Method:** GFCE was split between collective consumption and individual consumption based on the nature of activity
 - Collective: agriculture, electricity and water, transportation, monetary services, professional services, public administration
 - Individual: education, health and social work, cultural services, sporting services, and services furnished by membership organizations



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Gross Fixed Capital Formation (GFCF)

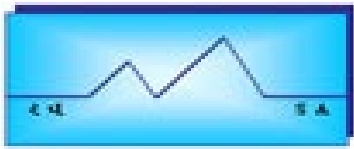
- **Data:** Imports data from UN COMTRADE
- **Method:**
 - Imports categorized to Harmonized System (HS) commodity code was mapped to CPA 2008
 - Products aggregated to 3-digit CPA level and classified by broad economic category (intermediate goods, consumption goods, capital goods)
 - Imports of capital goods was supplemented with GFCF for buildings and construction works (CPA 41.2 – 43.9), which was derived using the output of the construction industry
 - Additional refinements were performed to check plausibility of figures



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Changes in Inventories (CII)

- **Data:** 2017 1-TG Enterprise Survey
- **Method:**
 - Beginning and ending inventories reported by activities in enterprise survey allocated by product using:
 - Supply Table Structure – finished goods and work-in-progress
 - Preliminary Use Table Structure – inventories of raw materials
 - Inventories of goods for resale – assumed that sectors resell goods similar to their primary product/s
 - Holding gains removed
 - Published totals broken down using this allocation



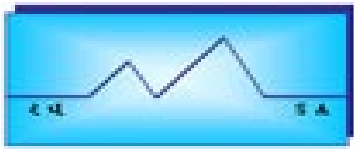
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Exports

- **Data:**

- Exports of goods and services at free on board (FOB) prices – Customs statistics and Trade Division of Armstat
- United Nations COMTRADE and Foreign Trade Statistics Division data – to disaggregate exports of goods
- Balance of Payment from CBA – exports of services by product classification
 - Credit of Travel item: direct purchases of non-residents in domestic market

- **General Method:** exports of goods were broken down using data from UN COMTRADE and Foreign Trade Statistics Division. Exports of services obtained from BOP.



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- **Dimensions:**
 - 310 products (rows) and 221 industries (columns)
- **Final use:**
 - Households
 - NPISH
 - Government Final Consumption
 - Government expenditure for collective consumption
 - Government expenditure for individual consumption
 - Gross Capital Formation
 - Gross Fixed Capital Formation
 - Changes in Inventories
- **Imports and Exports:**
 - Goods
 - Services
 - Travel-related business and personal services



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Balancing the Supply and Use Tables

- Adhering to GDP identities, Supply and Use identity, and product balances
- Limited product discrepancies to less than 5%
- Adjusted products with negative total final demand to accommodate for IOT transformation
- Checked for any negative intermediate inputs and final consumption (none, except in CII)
- Reviewed the use structure of Armenia: IC and final demand structures, product-level and industry-level
- Implemented automated and manual balancing to adhere to control totals
- Aggregated the 314 x 221 SUT into 64 product x 64 industry SUT



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Prospective outputs for national accounts statistics of Armenia:

- *2017 Input-Output Tables and series revision*
- *2018 Current Price SUT*
- *2018 Constant Price SUT at previous year's prices*



Thanks for your attention

Շնորհակալություն ուշադրության համար

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