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**Eurostat and UNSD**

DOCUMENT RELATING TO

**SESSION 7**

**Case studies: Developing a complete system of NA; quality of  
basic data – Statistical problems**

# **Brazil – SNA reference 2000**

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## **I. INTRODUCTION**

The Coordination of National Accounts of IBGE (CONAC) published in March 2007 a revision of Brazilian System of National Accounts (SCN) for the period from 1995 until 2006. The “New Series of SCN – reference 2000” is the result of more than four working years, where the SCN has been updated in terms of concepts and procedures. The main feature of this update was the integration with the new surveys developed by IBGE in the last decade and with the fiscal data from the Ministry of Economy (business tax declaration - DIPJ). This article presents, in a brief way, what was involved on this that process and the changes accomplished in the figures of the SCN.

The details of this process are in a series of methodological notes, available at IBGE`s site in the Internet in the following address:

<http://www.ibge.gov.br/english/estatistica/indicadores/pib/defaultcnt.shtm>

## **II. A SHORT HISTORY – SNA IN BRAZIL**

The first record of a work about Social Accounting in Brazil was in September 1948 with the publication of the book “National Income” of Professor Antônio Dias Leite in a thesis presented to the Engineering School of the University of Brazil.

The first initiative in the organization of technical staffs started to measure macro-economic aggregates departed from Fundação Getúlio Vargas do Rio de Janeiro - FGV, with the creation, in 1947, of the "Economy Nucleus", that aimed at the calculation of the National Income. The first estimate of the Net National Income, at factor cost, was concluded in 1949 and revised in 1950, being right after that published, presenting data until 1946.

After four years of work, with several methodological adaptations, the "Economy Nucleus" was transformed in a "Group of Studies of National Income” (Equipe de Estudos da

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Renda Nacional), followed by the creation in 1951, of the Center of National Accounts (CCN) in the Brazilian Institute of Economy (Instituto Brasileiro de Economia IBRE). The CCN was the body responsible for the elaboration of the Brazilian National Accounts until, December 1986, when the responsibility was officially transferred to the Brazilian Institute of Geography and Statistics (IBGE). The transfer to IBGE in 1986 meant an enormous advance in the elaboration of the Brazilian National Accounts. The production of the basic statistics and the elaboration of the national accounts at the same institution is a factor that allows the complete integration between the databases and the SCN.

## **II.1 REVISIONS IN THE SERIES OF BRAZILIAN SNA**

In Brazil, during the whole period of national accounts compilation, several revisions were accomplished. The series publication of gross and net product date of 1953 with data for 1947 – 1952. Already in 1956 the system is adequate, as possible, to SNA's recommendations of 1953. In 1962, new revision in the series was accomplished by FGV. Since then, several changes had to be accomplished caused by changes in the available statistics. In 1973, while maintaining the structure of 1953 manual, FGV incorporated some recommendations of the SNA 1968. The transition to the 1968 recommendations was finished in 1984. The series is benchmarked each five years whenever the economic and agriculture census is published by IBGE.

In December 1997, with the publication of a SCN based in SNA-1993, IBGE did a radical revision in the SCN, breaking with the called System of Consolidated Accounts that had been published since the FGV period. The new modus operandi published a SCN according to the more recent international recommendations (SNA 93). In this revision there is, indeed, a fundamental rupture in SCN's structure, passing itself to publish a set of wider and more complex tables. It introduced the Supply and Use Tables (SUT), the Integrated Economic Account by Institutional Sector (IEA) as well as it changed the calculation of the constant values, with prices from the previous year.

The 2007 revision has a character worth to point out. There was no rupture in SCN's framework. The Brazilian SCN was maintained unaffected structurally, as it remained publishing SUT, IEA and maintaining the previous year as reference (mobile base). It essentially incorporated a new statistical base and the updating of procedures.

### **III. THE NEW SERIES OF THE SCN WITH REFERENCE TO 2000**

The Brazilian system of statistics organization changed during the last decade. Since the middle of the 90's, IBGE moved from a census based system to an annual survey system. Until 1985, the statistical system was census based on every 5 years. For different reasons, the 1990 census was cancelled and the new surveys could only be used in the SNA by the end of the 90's.

#### **III.1 The Revision of the Economic Statistics Program**

The first quarter of the 1990's was a period of intense structural changes in the Brazilian economy due to the increasing opening of the economy, the intensification of the industrial restructuring process, the large dissemination of information and communication technologies and the multiple extension of outsourcing practices. In such environment, it was natural to increase the demand for updated and diversified economic data. It became clear the inadequacy of the Brazilian traditional economic statistics system to respond to this demand. The proposed solution was the rationalization of the system with the wide use of sampling surveys and the articulation with administrative files and data.

As the main aim of economic statistics is the measurement of the economic activity, it became clear that the design of economic surveys should take into account the uneven weighting in the business universe. Census operations surveying all enterprises are inevitably expensive and long lasting, but not necessarily the most efficient way to provide updated data on the structure of the economy. The crucial question was then how to develop and maintain an updated statistical business register covering the universe of enterprises to serve as central frame for sample design.

Articulation with administrative files covering the universe of enterprises of the country was essential. Since the 1970's, the Federal Government started the process of computerizing their administrative files and records. A consequence was the improving of the effectiveness in the coverage of the business universe. Since the 1980's IBGE has had access to individual business information from administrative files of the Labor Ministry, but not on a regular basis so far.

The Program of Modernization of the Economic Surveys was then designed and implemented by IBGE, involving the transition to an integrated system of business surveys whose sample design is based on a central business register including all business units in the country, systematically updated by the merging of data from IBGE surveys and from

administrative files. The Program's main objective has been to improve the capacity and efficiency – in terms of quality, time and cost – to answer the growing and diversified demand of economic information.

One question was object of special attention in this process. A more effective attention has been given regarding standardization, aiming at enlarging the articulation among national sources of data, including economic data coming from administrative sources, and to promote the harmonization with international patterns, given the growing need of international comparability. In this respect, a special objective has been the definition and implementation of standard national classifications and the definition of statistical units aligned to legal units definitions used in administrative records, corresponding to the ISIC revision 3 statistical definition of enterprise and local unit.

The economic surveys are organized into four subsystems referred to Industry (Mining and Manufacturing), Trade (Wholesale and Retail); Construction; and Services. Each subsystem covers the universe of enterprises that have their principal activity included in the productive segment it is comprised. The central nucleus of the surveys is composed by the annual surveys that provide structural data in substitution of the census data and the monthly surveys that are the basis for the construction of short-term indicators.

The developed surveys are:

**Economic Surveys**

Annual Survey of Mining and Manufacturing Industries - Enterprise (PIA - Empresa)  
Annual Survey of Mining and Manufacturing Industries - Product (PIA - Produto)  
Annual Survey of Construction Industry (PAIC)  
Annual Survey of Commerce (PAC)  
Annual Survey of Services (PAS)

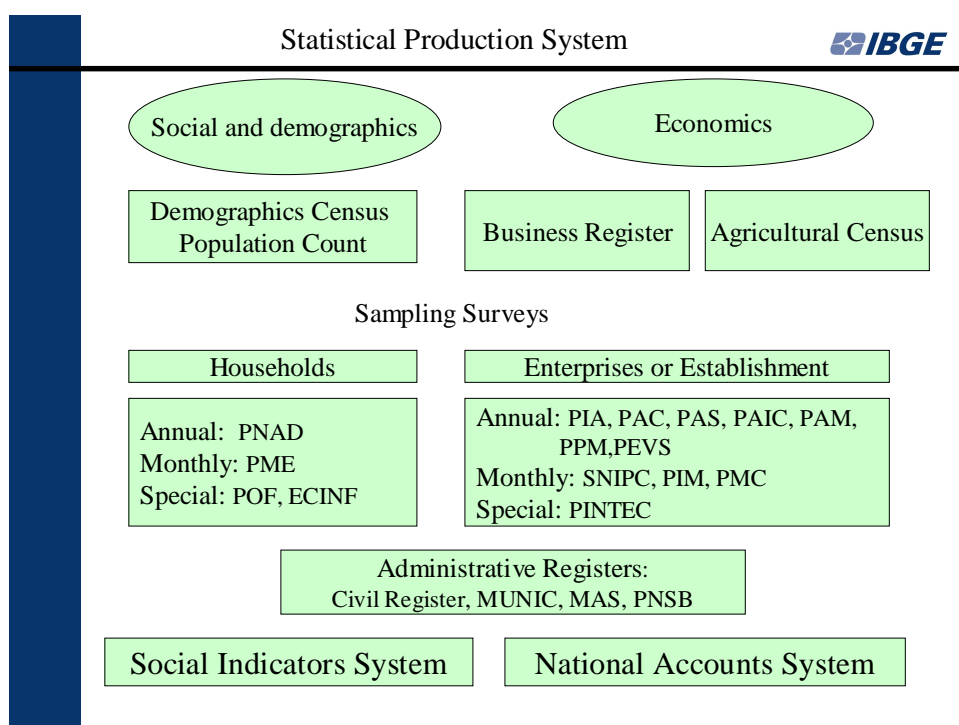
**III.2 Other statistical basis**

Besides this change in the economic statistics system, the introduction of fiscal data from the business economic-fiscal information (Declaração de Informações Econômico-Fiscais da Pessoa Jurídica DIPJ) allowed not only to complement the information of the economic surveys but also to improve the system's data base quality, especially related to institutional sectors analysis in the IEA.

A set of household surveys, that were already done by IBGE, were improved during the 1990's and complement the SCN's data base: National Household Sample Survey (PNAD); Expenditure Household Survey (POF); Urban Informal Sector Survey and Monthly Employment Survey. These surveys offers information about income, consumption and employment, among others, and improved the IEA analysis of the family sector.

Other structural sources with different objectives, like the Demographic Census, the Population Count, Agricultural Census and the administrative registers, were still useful in the construction of the SCN new series.

The new organization of the statistical system is presented below:



A change of this significance in the statistical system of a country has a direct impact in the SCN. It established the need to incorporate the new surveys in the SCN. However, this process should be accomplished in a certain year and introducing all the changes simultaneously. This was the fundamental characteristic of the revision of the SCN published as “Brazilian New Series of the SCN – reference 2000”.

The “reference 2000” refers to when it was initiated the integration with the annual surveys of IBGE and with the fiscal data (DIPJ). The expression “base change” was avoided considering the size of the change introduced.

This new series proceeded incorporating the National Classification of Economic Activities 1.0 (CNAE), integrated with the ISIC Rev. 3, the annual surveys of the IBGE. With the incorporation of the CNAE, it was possible to introduce the fiscal data. As IBGE cannot have access to DIPJ's identified declarations, the adoption of the CNAE in the national accounts allowed the integration of these data in the database of the national accounts. This enlarged database enabled comparative analyses for economic activity and the data improvement of several activities as the non-profit institutions, private education and private health.

The series of SCN published in 2007 is characterized by the amplitude of the introduced updates, because, besides the factors cited in the previous paragraphs, it accomplished an evolution from a SCN, basically estimated through the extrapolation of volume and price indices to a system that is referenced by surveys and business registers. Now, with annual data available, the SCN has an annual "benchmark" that allows a control over the series evolution, thus avoiding the characteristic bias of the use of volume and price indices for long periods.

The reference 2000 SCN series incorporates in its compilation the following actions:

- I) New classification of products and activities, integrated with CNAE 1.0 and ISIC Rev. 3.
- II) Enlargement of the number of activities and products in the SUT
- III) IEA updated with data from DIPJ's.
- IV) Availability of the annual surveys accomplished by IBGE.
- V) Introduction of the 2002 Expenditure Household Survey as a family consumption reference.
- VI) Introduction of data from the Agricultural Census of 1995/6.
- VII) Jobs disaggregation for production function, what enables the estimate considering the characteristics of productive units.
- VIII) Methodology calculation and development of the consumption of fixed capital by the Government and Non Profit institutions.
- IX) Distribution of the Financial Intermediation Services Indirectly intermediary consumption by activity, enabling the elimination of the fictitious sector Financial Dummy.

X) Update of the methodology for estimating volume indices. Mostly for public administrations and financial intermediation that, in the previous series, were extrapolated by the demographic growth and by the economy average, respectively.

XI) Disaggregation the Non-profit Institutions from Household Institutional Sector in the final consumption and in the IEA.

## **IV. STRUCTURE OF THE SCN**

### **IV.1 Quarterly Accounts (QNA)**

The new series of the Brazilian System of Quarterly National Accounts were released in March 2007, following the reformulation of the Annual System. QNA are disseminated in: current prices, chain-linked volume indices (1995=100) and rates of changes. QNA presents data of GDP for 12 economic activities and for components of final expenditures (final consumption expenditures from households, final consumption expenditures from government, gross fixed capital formation, changes in inventories, imports and exports of goods and services).

The data are released for the following activities:

- Agriculture, forestry and fishing;
- Industry: Mining, Manufacturing, Utilities and Construction;
- Services: Commerce, Transportation, Information Services, Rental, Financial Institutions, Public Administration and Other Services.

Quarterly series are adjusted to annual data with a Denton type method. The data for GDP, Agriculture, Industry, Services and expenditures components, except changes in inventories, are seasonally adjusted. The X-12 ARIMA is used for seasonal adjustment.

### **IV.2 Annual Accounts**

Supply and Use Tables (SUT): The Supply and Use Tables are constructed in a working level of 293 products and 149 activities, while in the publication level those are data available for 110 products and 55 activities.

Integrated Economic Account by Institutional Sector (IEA): In the IEA table it is presented the sequence of current accounts, capital and financial accounts of the SCN., by institutional

sector: Non-financial Corporations; Financial Corporations; General Government; Households; Non-profit institutions serving households; Rest of the world. The sequence of accounts is:

**Current Accounts:**

**I. Production**

**II. Distribution and use of income accounts**

**II.1 Primary distribution of income**

**II.1.1 Generation of Income**

**II.1.2 Allocation of primary income**

**II.2 Secondary distribution of income**

**II.3 Redistribution of income in kind**

**II.4 Use of Income Account**

**II.4.1 Use of Disposable Income**

**II.4.2 Use of Adjustable Disposable Income**

**Accumulation Accounts:**

**III.1 Capital Account**

**III.2 Financial Account**

In the subnational level, the Regional Accounts publication presents the Production Account for the 27 states of the federation. The SCN also publishes the Gross Domestic Product in current values for all 5,564 Municipalities. There are still four satellite accounts in different stages of development: Satellite Accounts of Health and Tourism, which have already well defined projects each one; and the Culture, and Research & Development, in the beginning of the process .

## **V. DISSEMINATION**

The series with the SUT and IEA was published from 2000 until 2005. In 2006, the preliminary version obtained by the sum of the quarters was published. In this case, a SUT with just 12 economic activities was published.

The data availability establishes the scope and the phase displacement for each version of the SCN. The annual surveys of the IBGE and the DIPJ, key sources for a definitive estimate, are available for CONAC 15 months after the end of the year.

Considering this data availability the dissemination routine is:

- In March of year T, the GDP is published along with the demand components and the value added from the previous year with base in quarterly data for 12 economic activities in current values and volume indices, annual variation.
- In the second semester, the definitive version of T-2 is published with a complete (110 products and 55 activities) SUT and an IEA. A preliminary version of T-1 with a small SUT (12 activities) is also published.

The quarterly data are published 70 days after the end of each quarter. In the QNA a SUT is estimated for each quarter, however only the added value from 12 economic activities is published. In each quarter IBGE publishes: chained volume indices, seasonally adjusted volume indices and the current values for the GDP, the components of the final demand and the value added for 12 economic activities and an integrated economic account for the country, including the financial account.

## **VI. NEXT STEPS**

The revision recently finished in the Brazilian SCN has an atypical and extremely important character: it was the moment where, after more than 20 years, it was possible to integrate the IBGE statistics system and fiscal registers with the national accounts.

By 2012, with reference to 2010, a new revision will be presented. This time with the incorporation of the first SNA 93 revision, a new CNAE, coherent with the ISIC Rev. 4, and the specific surveys accomplished in the period as the new Expenditure Household Survey 2007 and the Agricultural Census of 2007.

## Annex: Main changes in the new reference year

Performance Indicators	(%)											
	2000		2001		2002		2003		2004		2005	
	Old Series	Ref. 2000	Old Series	Ref. 2000	Old Series	Ref. 2000	Old Series	Ref. 2000	Old Series (2)	Ref. 2000	Old Series (2)	Ref. 2000 (2)
Volume Variation – GDP	4,4	4,3	1,3	1,3	1,9	2,7	0,5	1,1	4,9	5,7	2,3	2,9
Compensation of Employees / GDP	37,9	40,5	37,0	40,6	36,1	39,8	35,6	39,5	NA	39,3	NA	NA
Gross Operation Surplus + Gross Mixed income / GDP	46,0	45,4	45,9	44,5	46,5	45,3	47,5	45,9	NA	45,3	NA	NA
Gross saving/ GDP	17,3	14,0	16,8	13,5	18,5	14,7	20,4	16,0	23,2	18,5	22,2	17,1
Gross saving / Gross disposable income	17,8	14,3	17,4	14,0	19,2	15,1	21,0	16,4	23,9	19,0	22,8	17,6
Saving / Gross capital formation	89,8	83,1	86,0	79,4	101,1	89,6	114,6	104,4	108,9	114,8	108,0	105,3
Gross fixed capital formation / GDP	19,3	16,8	19,5	17,0	18,3	16,4	17,8	15,3	21,3	16,1	20,6	16,3
Net lending / GDP	4,2	4,2	4,5	4,5	1,1	1,4	(-) 0,7	(-) 0,3	(-) 2,0	(-) 1,4	(-) 1,7	(- 1,2
Taxes / GDP)(1)	31,6	30,4	33,4	31,9	34,9	32,3	34,0	31,9	..	32,8	..	..

Fonte: IBGE, Diretoria de Pesquisas, Coordenação de Contas Nacionais.

### Goods and Services Account - 2000

Resources (1 000 000 R\$)		Operations		Uses (1 000 000 R\$)	
Old series	Ref. 2000			Old series	Ref. 2000
2 001 880	2 003 571	Output			
134 079	138 492	Imports of goods and services			
119 394	161 947	Taxes on products			
	(-) 4 113	Subsidies on products			
		Intermediate consumption		1 020 019	981 923
		Final consumption		880 655	985 026
		Gross Fixed Capital Formation		212 384	198 151
		Changes in inventories		24 871	17 106
		Exports of goods and services		117 423	117 691
<b>2 255 353</b>	<b>2 299 897</b>	<b>Total</b>		<b>2 255 353</b>	<b>2 299 897</b>

Activities	Participation on VA (%)	
	2000	
	Old Series	Ref. 2000
01 Agriculture, forestry and fishery	7,7	5,6
Industries (02+03+04+05)	36,1	27,7
02 Mining	2,5	1,6
03 Manufacturing	21,6	17,2
04 Electricity, gas and water	3,3	3,4
05 Construction	8,7	5,5
Services	56,3	66,7
06 Trade	7,1	10,6
07 Transport and storage	2,6	4,9
08 Information services	2,6	3,6
09 Financial Intermediation	5,2	6,0
10 Rental	12,2	11,3
11 Other services	10,8	15,4
12 Government	15,7	14,9
VA basic prices	100,0	100,0
Net taxes on products	12,2	15,4
GDP	112,2	115,4

Fonte: IBGE, Diretoria de Pesquisas, Coordenação de Contas Nacionais.  
(1) Resultado das Contas Nacionais Trimestrais.

Activities	VA volume variation (%)	
	2001/2000	
	Old series	Ref. 2000
VA	1,2	1,4
01 Agriculture, forestry and fishery	5,9	6,1
02+03+04+05	(-) 0,6	(-) 0,6
02 Mining	3,8	2,2
03 Manufacturing	0,7	0,7
04 Electricity, gás and water	(-) 5,9	(-) 6,2
05 Construction	(-) 2,8	(-) 2,1
Services	1,8	1,9
06 Trade	0,4	(-) 0,0
07 Transport and storage	1,7	2,4
08 Information services	10,9	5,3
09 Financial Intermediation	0,8	1,2
10 Rental	2,1	4,5
11 Other services	1,8	(-) 0,6
12 Government	0,9	3,2

Fonte: IBGE, Diretoria de Pesquisas, Coordenação de Contas Nacionais.  
(1) Resultado das Contas Nacionais Trimestrais.

GDP components	Volume variation (%)	
	2001	
	Old Series	Ref. 2000
GDP	1,3	1,3
Final consumption	0,6	1,2
Households <sup>(1)</sup>	0,5	0,7
Government	1,0	2,7
NPISF	...	1,1
Gross Fixed Capital Formation	1,1	0,4
Exports goods and services	11,2	10,0
Imports of goods and services	1,2	1,5

Fonte: IBGE, Diretoria de Pesquisas, Coordenação de Contas Nacionais.