

REGIONAL ACCOUNTS: THEORETICAL AND PRACTICAL PROBLEMS ENCOUNTERED IN THE RECENT EXPERIENCE OF ARGENTINA

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This paper examines some problems in the recent experience with regional accounts in Argentina. In Section I a detailed exploration of the possibility of an adaptation of the UN System of National Accounts to any one regional division of a country is presented. The proposal is introduced in matrix form, compatible with the SNA. In Section II selected problems in the definition of the concept of residence and their implications, particularly in the production accounts, are discussed. The presentation is based upon examples for the construction sector, interregional transport, the services of public administration, and the branches of public enterprises resident outside the region. In Section III the principal conclusions of the usefulness, possibility and priorities of regional accounts in Argentina are noted.

INTRODUCTION

In Argentina concern for the regional performance of the economy is a topic as old as the country itself. It is thus not surprising that there exists a long series of research work aimed at setting forth the structural features of the economy and their conjunctural performance from a regional point of view.

From the point of view of accounts the picture is somewhat different. Although isolated research on regional structure has existed since the last century,¹ it is only since the end of the 1950s that systematic endeavours aimed at establishing continuing systems of regional accounts have been undertaken. In this context mention may be made of the work of the Consejo Federal de Inversiones and of the Instituto Nacional de Estadística y Censos.

It was due to the initiative of the Consejo Federal de Inversiones (founded in 1958) that the already classic study "Relevamiento de la Estructura Regional de la Economía Argentina" appeared. This study was the work of the Centro de Investigaciones Económicas of the Instituto di Tella and its five volumes appeared in 1961. Also due to this initiative was the promotion of the opening of accounts offices at the provincial level, to be responsible for these calculations and to be co-ordinated from the methodological viewpoint and supplied with technical assistance by the Consejo itself.

In view of the changes in the planning system as from 1969, the work of promoting accounting at the provincial level came to be the responsibility of the Instituto Nacional de Estadística y Censos (INDEC). The policy of INDEC was directed at three basic objectives:

¹See for example: M. G. and E. T. Mulhall, *Handbook of the River Plate, 1885*; Alejandro Bunge, *Una Nueva Argentina*, Buenos Aires, 1940; A. Llorens and E. Francioni, *Ritmo de la economía Argentina en los últimos treinta años*, Buenos Aires, 1941.

1. The creation within the provincial statistical systems of areas responsible for calculating the regional product.
2. The creation within INDEC of a group for the supply of methodological and technical assistance, linked with the team responsible for the estimates at the national level.
3. The systematization of the data available, and its evaluation and dissemination.

At present, accounts sections already exist in the statistical offices of most of the provinces and the availability of continuing estimates of the gross product by the production method has become a fact.²

In this context, the province of Córdoba, which generates around 8 percent of the domestic product of the country and has 9 percent of the population (both these figures are exceeded only by the province of Buenos Aires, the Federal Capital, and the province of Santa Fé), decided to introduce programmes for the improvement of its accounting systems, by endeavouring to set up a system of accounts in line with existing international recommendations. The author of the present document took part in this task as a consultant and it is from the experience acquired there that the present comments have emerged.³

The rest of this document is organized as follows: Section I gives descriptive outlines of the operation of the national economy, subdivided by regions; Section II discusses selected practical problems in the definition of concepts of residence; and Section III presents some of the author's conclusions as regards these problems.

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I. DESCRIPTIVE OUTLINES OF THE FUNCTIONING OF THE NATIONAL ECONOMY FROM A REGIONAL VIEWPOINT

1. *General Considerations*

The definition of methods which will enable an orderly quantitative description to be made of the main aspects of the economic and social structure of a specific region, of the way in which these vary in the course of time, and of the features that can be compared, both at the structural level and at the level of its variations in time, with other provinces, the nation or other countries, is one of the basic objectives of work in regional accounts.

The accounts, on a national or regional scale, have close links with a specific economic theory which enables them to bring out the economic phenomena or functions that need to be observed and the main groups which act in the different markets. This topic will not be discussed here; the criterion to be followed will rather be an attempt to adapt the recommendations generally accepted today as regards national accounts at the regional level. The recommendations which are

²INDEC, *Producto bruto interno provincial*, 1970.

³Juan V. Sourrouille, *Manual de recomendaciones para trabajos de contabilidad nacional en la provincia de Córdoba*, Buenos Aires, Consejo Federal de Inversiones, mimeographed, 1972.

taken as a basis for the discussions which follow are those included in the System of National Accounts (SNA) prepared by the Statistical Office of the United Nations,⁴ the basic criteria of which are at present being applied nationally and regionally in Argentina.

It is well known that the degree of consolidation of systems of accounts may vary according to the objectives pursued; as a result of these ideas it is possible to distinguish accounting systems based on single indicators of the level of activity (the national, domestic or regional product) on the one hand, and on the other complex accounting systems based on the recognition of various groupings of economic entities with different criteria of aggregation as regards their economic functions.

By way of example, it may be noted that the systems traditionally used in the province of Córdoba and in all the accounts calculations at the level of the provinces in Argentina may be included under the first of these systems. In fact, it is possible to assume the existence of an accounting system based on a single indicator of its level of activity—i.e., the product—which in turn corresponds to the income generated by this same level of activity. This highly simplified accounting system is accompanied by a group of complementary tables, the central objective of which is to show the product classified by the industrial sectors in which it originates.

The present document aims at broadening the scope of the system followed today, and we will therefore leave this line of thought and concern ourselves with more complex systems of social accounts. The following examples will be an attempt to show an accounting system for the quantification of economic relations in and among regions, accepting at least the following assumptions:

- (a) There are n regions.
- (b) There are no limitations on the acceptance of the money issued by the national public administration, while at the same time the regions are not authorized to issue their own money.
- (c) Three basic economic operations are distinguished: production, consumption (or utilization of income), and accumulation.
- (d) The regions form a closed economy. As a result, no accounts with the rest of the world are established.⁵

Using the traditional matrix presentation, in which each pair of corresponding rows and columns constitutes an account, and accepting the convention of using the columns for the expenditure and the rows for the income, a complete system of this type for three regions may be seen in Table 1, where the intra-regional transactions appear in the blocks situated in the main diagonal and the interregional transactions elsewhere.

The transactions are defined as: Y —gross income, C —consumption of goods and services, I —gross capital formation, S —saving, D —depreciation, X —exports, Y —factor incomes, T —current transfers, B —the balance in current accounts.

⁴See United Nations, *A System of National Accounts*, ST/STAT/SER.F/2/Rev. 3.

⁵These indications follow to a considerable extent the work of R. Stone, "Social Accounts at the Regional Level," published in *Regional Economic Planning*, OECD, Paris, 1961, and UN. "A System of National Accounts" (proposals for the revision of SNA, 1952), E/CN.3/320, 1965, Ch. VII.

TABLE 1
 INTRA- AND INTERREGIONAL ACCOUNTS FOR THREE REGIONS
 ARRANGED BY REGION AND TYPE OF ACCOUNTS

	Region 1			Region 2			Region 3			
	P	C	K	P	C	K	P	C	K	
Region 1	P	0	C_{11}	I_{11}	X_{12}	0	0	X_{13}	0	0
	C	Y_{11}	0	$-D_{11}$	Y_{12}	T_{12}	0	Y_{13}	T_{13}	0
	K	0	S_{11}	0	0	0	B_{12}	0	0	B_{13}
Region 2	P	X_{21}	0	0	0	C_{22}	I_{22}	X_{23}	0	0
	C	Y_{21}	T_{21}	0	Y_{22}	0	$-D_{22}$	Y_{23}	T_{23}	0
	K	0	0	B_{21}	0	S_{22}	0	0	0	B_{23}
Region 3	P	X_{31}	0	0	X_{32}	0	0	0	C_{33}	I_{33}
	C	Y_{31}	T_{31}	0	Y_{32}	T_{32}	0	Y_{33}	0	$-D_{33}$
	K	0	0	B_{31}	0	0	B_{32}	0	S_{33}	0

It is obvious that this system may be rearranged in terms of operations, subclassified by regions, as may be seen from Table 2.

TABLE 2
 INTRA- AND INTERREGIONAL ACCOUNTS FOR THREE REGIONS
 ARRANGED BY TYPE OF ACCOUNTS AND REGION

	Production			Consumption			Accumulation			
	1	2	3	1	2	3	1	2	3	
Production	1	0	X_{12}	X_{13}	C_{11}	0	0	I_{11}	0	0
	2	X_{21}	0	X_{23}	0	C_{22}	0	0	I_{22}	0
	3	X_{31}	X_{32}	0	0	0	C_{33}	0	0	I_{33}
Consumption	1	Y_{11}	Y_{12}	Y_{13}	0	T_{12}	T_{13}	$-D_{11}$	0	0
	2	Y_{21}	Y_{22}	Y_{23}	T_{21}	0	T_{23}	0	$-D_{22}$	0
	3	Y_{31}	Y_{32}	Y_{33}	T_{31}	T_{32}	0	0	0	$-D_{33}$
Accumulation	1	0	0	0	S_{11}	0	0	0	B_{12}	B_{13}
	2	0	0	0	0	S_{22}	0	B_{21}	0	B_{23}
	3	0	0	0	0	0	S_{33}	B_{31}	B_{32}	0

Despite the fact that no distinction may have been made within the classes of resident economic agents, theoretical systems of the type given in Tables 1 and 2 presuppose an accumulation of information quite different from present possibilities as far as interregional transactions are concerned.

There are various simplifying systems which spring to mind for possible practical adaptation; for example, one consists of consolidating into a single region all the regions other than that under observation, while another consists of presenting interregional transactions in net form in addition to this hypothesis. In the lines of Tables 1 and 2 the second example may be expressed in algebraic form, for region 1, as follows:

$$X_1 = X_{12} + X_{13} - X_{21} - X_{31},$$

$$T_1 = T_{12} + T_{13} - T_{21} - T_{31},$$

$$Y_1 = Y_{12} + Y_{13} - Y_{21} - Y_{31},$$

$$B_1 = B_{12} + B_{13} - B_{21} - B_{31},$$

where, in addition to the terms already defined, X_1 is the trade balance of region 1, T_1 is the net balance of current transfers for residents of region 1, Y_1 is the net balance of income from factors of production, and B_1 is the balance in current accounts in region 1.

In this system the income generated by the economic units resident in region 1 (Y_{G1}) may also be defined as follows:

$$Y_{G1} = Y_{11} + Y_{21} + Y_{31}$$

and the disposable income for the residents in 1 (Y_{D1})

$$Y_{D1} = Y_{G1} + Y_1 + T_1 - D_1.$$

As may be seen in these examples, the requirements for the breakdown of the data needed become increasingly small. The complete simplified system may be expressed in algebraic form, for region 1, as follows:

$$Y_{G1} = X_1 + C_{11} + I_{11}$$

$$C_{11} + S_{11} = Y_{G1} + Y_1 + T_1 - D_1$$

$$I_{11} - D_1 = S_{11} + B_1$$

$$X_1 + Y_1 + T_1 + B_1 = 0$$

which represent the traditional equations of a Keynesian system for an open economy and reflect the basic structure of the classic systems of national accounts.

2. *The United Nations System of National Accounts at the Regional Level*

The systems considered up to now enable the basic principles of any system of regional accounts to be illustrated simply and clearly. As we have already seen, these basic principles are compatible with those generally accepted, such as for example those postulated in the SNA mentioned above. It is consequently possible and useful to envisage an adaptation of the SNA in order to facilitate the systematic description of an economic system made up of several regions. An attempt in this direction was presented in the first draft of the revision of the

SNA.⁶ Another possibility is the proposal included in Chapter IX of the SNA under the title of "Adaptation of the full system to the developing countries." Under the assumption that development does not take place in a uniform manner or pace throughout a developing country and may accentuate the differences among the various parts of a country, this chapter suggests the desirability of the developing countries compiling special tabulations of their national accounting data in respect of selected urban and rural areas, or even all of the rural and urban portions, of their economy. The information is organized in terms of a simplified system of accounts and supporting tables. The recommendations relate to the possible treatment of a rural area in which the traditional modes of production and subsistence production are predominant.

This document presents a more detailed exploration of the possibility of a systematic description that will be applicable to any one division in terms of which the regional accounts will be presented.

The proposal, in matrix form, is given in Tables 3 and 4. It was constructed on the same principles as Table 2.17, "Symbolic representation of the system" of the SNA.⁷

The system is designed as a breakdown of the nation's accounts in terms of two traditional regions and one fictitious for the central government. The definition of the resident economic units involved and the specific treatment of the governmental activities of certain services used in this scheme of reference are dealt with in the next section.

Table 3 gives the accounts for any region, showing in detail their relation with the central public administration and the rest of the world both as regards their position in terms of assets and liabilities and as regards the activities of production, consumption, accumulation and transaction with non-residents in the region.

The description of the transactions in the table enables a clear understanding to be gained of the economic significance of the different entries. As is obvious, in this type of presentation each pair of rows and columns represents an account, with the money income in the rows and the expenditure in the columns, while the totals by ordered pairs of rows and columns are equal and the transactions appear at current market values.

For its practical implementation this presentation obviously requires a set of basic data which are not currently available in Argentina and probably in any other country at the regional level. It is also obvious, on the other hand, that an accounts system based on these features would solve the majority of the data problems which can be anticipated in the medium-term as regards the analysis of the functioning of provincial economic systems, and would be very useful for the co-ordination of the statistical activities at the regional level.

Table 4 gives the accounts of the central public administration in detail, showing its relations with other areas of the country and the rest of the world. In accordance with the principles given below it is assumed that in the "Central Public Administration" region there are no individuals, households, industrial establishments or institutional sectors, except for the organs of the administration itself.

⁶E/CN.3/320, 1965, Ch. VII.

⁷SNA, *op cit.*, p. 35.

II. SELECTED PRACTICAL PROBLEMS IN THE DEFINITION OF THE CONCEPTS OF RESIDENCE

As already stated, the systems of national accounts are based on the definition of the economic agents taking part in the transactions and the relevant economic functions.

At the level of the country as a whole, this type of formulation is clearly explained in the SNA. Working at the regional level, the possibility should be considered of adapting this system to the conditions, structure and requirements of a specific region. The features of such an adaptation will emerge from an evaluation of the basic principles on the basis of which the entities and functions are currently defined.

At present, it is accepted that economic entities need to be classified from two clearly differentiated viewpoints. On the one hand there are the units of production, i.e., those where production decisions are basically taken, and on the other hand there are the financial units, where the main decisions to be made concern the financing of current and capital transactions.

As a result of this distinction, the categories of classification normally used in the activities of production, consumption and capital formation aim at grouping transactors according to the manner in which they participate in the production and use of goods and services. The categories used are industries, producers of government services, producers of services for non-profit private institutions, domestic services provided by members of households, and households as consumers. In turn, in order to distinguish the industries according to their main type of activity and to separate the activities of the producer households from the consumer households, these major categories of transactors have to be divided into more precisely defined classes in which the use of the definition of establishments as statistical data units enables the producers to be arranged according to the classes of goods which they produce or offer, and the services provided by the government and the non-profit institutions to be classified according to the aims pursued.

Precise definitions of industries, producers of services of non-profit private institutions, domestic services and households as consumers are dealt with in detail in Chapter V of the SNA and will not be touched upon here.

In the case of the financial units, which are the typical transactors in the distribution and use of income, capital accumulation and its financing, and the disposal of wealth, the definition of classes is based on the recognition of the institutional differences between sectors according to their role in the economic process and their legal character.

These classifications of the units of production and the financial units need to be complemented by definitions of the concept of residence of the different economic agents if a regional accounting system is to be established. This has perhaps been one of the main problems to be overcome in the construction of accounts systems at the regional level, because of the difficulties met with from both the economic and the legal point of view in defining economic units for observation at the sub-national level.

In the SNA, the accounts of the system for a specific country all refer to the transactions of resident agents. The accounts for the production of goods and

TABLE 3. MATRIX EXPRESSION OF ACCOUNTS FOR REGION 1, SHOWING ITS RELATIONS

Opening assets		Financial assets	1
		Net tangible assets	2
PRODUCTION	Commodities	Commodities, basic value	3
		Net taxes on commodities	4
	Activities	Industries	5
		Producers of government services	6
		Non-profit institutions and domestic services	7
CONSUMPTION	Expenditure	Household goods and services	8
		Government purposes	9
		Purposes of non-profit institutions	10
	Income and expenditure	Value added	11
		Institutional sector of origin	12
		Forms of income	13
		Institutional sector of receipt	14
ACCUMULATION	Increase in stocks	Industries	15
		Producers of government services	16
	Fixed capital formation	Industries	17
		Producers of government services	18
		Non-profit producers	19
	Capital financing	Capital formation	20
		Capital transfers	21
		Financial assets	22
		Institutional sectors	23
NON-RESIDENTS	Rest of country	Current transactions	24
		Capital transactions	25
	Central public administration	Current transactions	26
		Capital transactions	27
	Rest of world	Current and capital transactions	28
	Revaluations		Financial assets
Net tangible assets			30
Closing assets		Financial assets	31
		Net tangible assets	32

TABLE 3 (cont.) MATRIX EXPRESSION OF ACCOUNTS FOR REGION 1, SHOWING ITS RELATIONS

Opening assets		Financial assets	1
		Net tangible assets	2
PRODUCTION	Commodities	Commodities, basic value	3
		Net taxes on commodities	4
	Activities	Industries	5
		Producers of government services	6
		Non-profit institutions and domestic services	7
CONSUMPTION	Expenditure	Household goods and services	8
		Government purposes	9
		Purposes of non-profit institutions	10
	Income and expenditure	Value added	11
		Institutional sector of origin	12
		Forms of income	13
		Institutional sector of receipt	14
ACCUMULATION	Increase in stocks	Industries	15
		Producers of government services	16
	Fixed capital formation	Industries	17
		Producers of government services	18
		Non-profit producers	19
	Capital financing	Capital formation	20
		Capital transfers	21
		Financial assets	22
		Institutional sectors	23
NON-RESIDENTS	Rest of country	Current transactions	24
		Capital transactions	25
	Central public administration	Current transactions	26
		Capital transactions	27
	Rest of world	Current and capital transactions	28
Revaluations		Financial assets	29
		Net tangible assets	30
Closing assets		Financial assets	31
		Net tangible assets	32

WITH REST OF COUNTRY, CENTRAL PUBLIC ADMINISTRATION AND REST OF WORLD

17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
						T1.23		T1.25		T1.27	T1.28				
			T2.23												
T3.17	T3.18	T3.19					T3.24		T3.26		T3.28				
T4.17	T4.18	T4.19					T4.24		T4.26		T4.28				
							T8.24				T8.28				
						T11.23									
							T13.24		T13.26		T13.28				
			T15.20												
						T16.23									
			T17.20												
						T18.23									
						T19.23									
						T20.23									
						T22.23		T22.25		T22.27	T22.28				
				T23.21	T23.22							T23.29	T23.30	T23.31	T23.32
				T25.21	T25.22		T25.24					T25.29	T25.30	T25.31	T25.32
				T27.21	T27.22			T27.26				T27.29	T27.30	T27.31	T27.32
				T28.21	T28.22						T28.28	T28.29	T28.30	T28.31	T28.32
						T29.23		T29.25		T29.27	T29.28				
						T30.23									
						T31.23		T31.25		T31.27	T31.28				
						T32.23									

The entries in Table 3

- T1.23 Portfolio of financial assets of the institutional sectors resident in region 1 at the beginning of the accounting period.
- T1.25 Portfolio of financial assets issued by institutions resident in region 1 in the possession of institutions resident in the rest of the country at the beginning of the accounting period.
- T1.27 Portfolio of financial assets issued by institutions resident in region 1 in the possession of the central public administration at the beginning of the accounting period.
- T1.28 Portfolio of financial assets issued by institutions resident in region 1 in the possession of the rest of the world at the beginning of the accounting period.
- T2.23 Net tangible assets of the institutional sectors resident in region 1 at the beginning of the accounting period. All the tangible assets located in region 1 are in the possession of resident economic agents. Non-residents do not appear as possessing tangible assets; they own financial assets representing such possession.
- T3.5 Inputs of commodities, calculated in basic values, used in the productive activity of the industries resident in region 1.
- T3.6 Inputs of commodities, calculated in basic values, used in the productive activities of the producers of services of the State and local public administration of region 1.
- T3.7 Inputs of commodities, calculated in basic values, used in the activities of the producers of non-profit services resident in region 1.
- T3.8 Commodities, calculated in basic values, included in the consumption expenditure of all households, resident or not, in the domestic market of region 1.
- T3.15 Additions to stocks of commodities, calculated in basic values, of the industries resident in region 1.
- T3.16 Additions to stocks of commodities, calculated in basic values, of the State or local public administration producers of region 1.
- T3.17 Commodities, calculated in basic values, included in the gross fixed capital formation of the industries resident in region 1.
- T3.18 Commodities, calculated in basic values, included in the gross capital formation of the producers of services of the State or local public administrations of region 1.
- T3.19 Commodities, calculated in basic values, included in the gross capital formation of the producers of non-profit private services provided to households resident in region 1.
- T3.24 Exports of commodities to the rest of the country (excluding the central public administration), calculated in basic values.
- T3.26 Exports of commodities to the central public administration, calculated in basic values. These included purchases, less sales, of surpluses and other secondhand goods and waste, supplies, equipment and other goods and services, by agencies of the central public administration located in region 1.
- T3.28 Exports of commodities to the rest of the world, calculated in basic values.
- T4.5 Net taxes on commodities affecting inputs used in the productive activities of industries. T3.5 + T4.5 represent the inputs of commodities at producers' prices.
- T4.6 Net taxes on commodities affecting inputs of State or local public administration producers of services in region 1.
- T4.7 Net taxes on commodities affecting inputs of producers of non-profit private services provided to households.
- T4.8 Net taxes on commodities entering in the consumption expenditure of the households in the domestic market.
- T4.15 Net taxes on commodities entering into industrial stocks.
- T4.17 Net taxes on commodities entering into the gross fixed capital formation of industries of region 1.
- T4.18 Net taxes on the commodities entering into the capital formation of producers of services of the State and local public administrations of region 1.
- T4.19 Net taxes on commodities affecting the capital formation of producers of non-profit private services provided to households.
- T4.24 Net taxes on commodities affecting exports to the rest of the country.
- T8.14 Net taxes on commodities affecting exports to the central public administration.
- T4.28 Net taxes on commodities affecting exports to the rest of the world.
- T5.3 Production of commodities, calculated in basic values, of the industries resident in region 1.
- T5.4 Net taxes on commodities affecting the production of the industries resident in region 1. T5.3 + T5.4 equals the value of domestic or internal output of commodities in region 1 at producers' prices.
- T6.3 Production of commodities, calculated in basic values, by the producers of services of the State and local public administrations of region 1.
- T6.8 Other goods and services of the State or local public administrations included in household consumption expenditure in the domestic market of region 1.
- T6.9 Other goods and services produced by the State or local public administration for their own consumption.
- T7.3 Production of commodities, calculated in basic values, by the producers of non-profit private services.
- T7.8 Domestic services and non-profit private services included in household consumption expenditure in the domestic market of region 1.
- T7.10 Other goods and services produced by non-profit private institutions for their own consumption.
- T8.14 Final consumption expenditure on goods and services by resident households.
- T8.24 Final consumption expenditure on goods and services in the domestic market of region 1 by households resident in the rest of the country.
- T8.28 Final consumption expenditure on goods and services in the domestic market of region 1 by residents in the rest of the world.
- T9.14 Final consumption expenditure of State and local public administrations.
- T10.14 Final consumption expenditure of non-profit private institutions.
- T11.3 Protective duties on imports.
- T11.4 Other duties on imports.
- T11.5 Value added by the productive activity of industries.
- T11.6 Value added by the productive activity of the producers of services of the State and local public administrations.
- T11.7 Value added by the productive activity of the producers of non-profit private services provided to households and of domestic service.
- T11.23 Allocations for fixed capital consumption (with minus sign).
- T12.11 Compensation of employees and operating surplus generated in the productive activities of producers of region 1 in the domestic market, classified by institutional sectors of origin (value added at factor cost).

- T13.12 Value added in the domestic market, at factor cost, classified by form of income. The rows in this sub-matrix are wages and salaries, employers' contributions, income of the enterprise, operating surplus, property income, direct income taxes, social security contributions, current transfers by the enterprises, social security benefits, social assistance donations, other current transfers by the public administrations, current transfers by households, current transfers by the rest of the country and current transfers by the rest of the world.
- T13.14 Current transfers of income, including transfers of property income, paid by institutional sectors, to residents in region 1.
- T13.24 Current transfers of income, including transfers of property income, paid by residents in the rest of the country to residents in region 1.
- T13.26 Current transfers of income, including transfers of property income, paid by the central public administration to residents in region 1.
- T13.28 Current transfers of income, including transfers of property income, paid by residents in the rest of the world to residents in region 1.
- T14.11 Indirect net taxes paid by producers resident in region 1 to the State and local public administrations of region 1.
- T14.13 Gross income of the institutional sectors of region 1 (as receiving sectors).
- T15.20 Increase in stocks of commodities of the industries resident in region 1.
- T16.23 Financing by the State and local public administration of region 1 of increases in stocks of the producers of services of the State and local public administrations of region 1.
- T17.20 Total gross fixed capital formation of the industries resident in region 1.
- T18.23 Financing by the State and local public administration of region 1 of the gross fixed capital formation of the producers of services of the State and local public administrations of region 1.
- T19.23 Financing by the non-profit institutions serving households of the gross fixed capital formation of the producers of non-profit services provided to households resident in region 1.
- T20.23 Financing by the institutional sectors resident in region 1 of the capital formation of the industries resident in region 1 and of the net purchases by these sectors of land and intangible assets other than financial assets.
- T22.23 Net variation in the portfolio of financial assets of the institutional sectors resident in region 1.
- T22.25 Net variation in the portfolio of financial assets, issued by institutions resident in region 1, in the possession of residents in the rest of the country.
- T22.27 Net variation in the portfolio of financial assets, issued by institutions resident in region 1, in the possession of the central public administration.
- T22.28 Net variation in the portfolio of financial assets, issued by institutions resident in region 1, in the possession of the rest of the world.
- T23.1 Financial liabilities of the institutional sectors resident in region 1 at the beginning of the accounting period.
- T23.2 Net worth of the institutional sectors resident in region 1 at the beginning of the accounting period.
- T23.14 Savings of the resident institutional sectors.
- T23.21 Net income of the resident institutional sectors from capital transfers from the central public administration, the rest of the world and the rest of the country.
- T23.22 Net issues of financial liabilities made by the resident institutional sectors.
- T23.29 Revaluation of financial liabilities of the resident institutional sectors.
- T23.30 Revaluations of the net worth of the resident institutional sectors.
- T23.31 Financial liabilities of the resident institutional sectors at the end of the period.
- T23.32 Net worth of resident institutional sectors at the end of the period.
- T24.3 Imports of commodities from the rest of the country, at CIF values at the frontier of region 1.
- T24.8 Final consumption expenditure by households resident in region 1 in the rest of the country.
- T24.13 Current transfers of income, including transfers of property income, paid by residents in region 1 to residents in the rest of the country.
- T25.1 Financial liabilities, issued by residents in the rest of the country, in possession of the institutional sectors resident in region 1 at the beginning of the period.
- T25.2 Net worth, at the beginning of the accounting period, of residents in the rest of the country deriving from their relations with region 1. Equivalent to the net indebtedness of the rest of the country with this region, with a minus sign.
- T25.21 Net income of residents in the rest of the country from transfers of capital paid by residents in region 1.
- T25.22 Net issues of financial liabilities, made by residents in the rest of the country, acquired by institutional sectors resident in region 1.
- T25.24 Balance of payments surplus on current account of the rest of the country with respect to region 1.
- T25.29 Revaluations of financial liabilities, issued by residents in the rest of the country, in the possession of the institutional sectors resident in region 1.
- T25.30 Revaluations of the net worth of residents in the rest of the country deriving from their relations with region 1.
- T25.31 Financial liabilities, issued by residents in the rest of the country, in possession of institutional sectors resident in region 1 at the end of the period.
- T25.32 Net worth, at the end of the period, of residents in the rest of the country, deriving from their relations with region 1.
- T26.3 Imports of commodities from the central public administration, at CIF values at the frontier of region 1.
- T26.8 Final consumption expenditure by residents of region 1 on commodities supplied *in situ* by the central public administration.
- T26.11 Net indirect taxes paid by industries resident in region 1 to the central public administration.
- T26.13 Current transfers of income, including transfers of property income, paid by residents in region 1 to the central public administration.
- T27.1 Financial liabilities, issued by the central public administration, in possession of institutional sectors resident in region 1 at the beginning of the period.
- T27.2 Net worth at the beginning of the accounting period, of the central public administration, deriving from its operations with region 1.
- T27.21 Net income of the central public administration from transfers of capital paid by residents in region 1.
- T27.22 Net issues of financial liabilities, by the central public administration, acquired by institutional actors resident in region 1.

- T27.26 Balance of payments current account surplus of the central public administration with respect to region 1.
- T27.29 Revaluations of financial liabilities, issued by the central public administration, in the possession of the institutional sectors resident in region 1.
- T27.30 Revaluations of the net worth of the central public administration deriving from its relations with region 1.
- T27.31 Financial liabilities, issued by the central public administration, in the possession of institutional sectors resident in region 1 at the end of the period.
- T27.32 Value at the end of the period of the net worth of the central public administration deriving from its relations with region 1.
- T28.1 Financial liabilities, issued by residents in the rest of the world, in the possession of institutional sectors resident in region 1 at the beginning of the period.
- T28.2 Net worth at the beginning of the accounting period, of residents in the rest of the world, deriving from their operations with region 1.
- T28.3 Imports of commodities from the rest of the world, at CIF values at the frontier of region 1.
- T28.8 Final consumption expenditure by households resident in region 1 in the rest of the world.
- T28.13 Current transfers of income, including transfers of property income, paid by residents in region 1 to residents in the rest of the world.
- T28.21 Net income of residents in the rest of the world from transfers of capital paid by residents in region 1.
- T28.22 Net issues of financial liabilities, by residents in the rest of the world, acquired by institutional sectors resident in region 1.
- T28.28 Balance of payments current account surplus of the rest of the world with respect to region 1.
- T28.29 Revaluations of financial liabilities, issued by residents in the rest of the world, in the possession of institutional sectors resident in region 1.
- T28.30 Revaluations of the net worth of residents in the rest of the world deriving from their relations with region 1.
- T28.31 Financial liabilities, issued by residents in the rest of the world, in the possession of institutional sectors resident in region 1 at the end of the period.
- T28.32 Value at the end of the period of the net worth of residents in the rest of the world deriving from their relations with region 1.
- T29.23 Revaluations of financial assets of institutional sectors resident in region 1.
- T29.25 Revaluation of financial assets, issued by residents in region 1, in the possession of residents in the rest of the country.
- T29.27 Revaluation of financial assets, issued by residents in region 1, in the possession of the central public administration.
- T29.28 Revaluations of financial assets, issued by residents in region 1, in the possession of residents in the rest of the world.
- T30.23 Revaluations of net tangible assets of the institutional sectors of region 1.
- T31.23 Portfolio of financial assets of the institutional sectors resident in region 1 at the end of the accounting period.
- T31.25 Portfolio of financial assets, issued by institutions resident in region 1, in the possession of residents in the rest of the country at the end of the accounting period.
- T31.27 Portfolio of financial assets, issued by institutions resident in region 1, in the possession of the central administration at the end of the accounting period.
- T31.28 Portfolio of financial assets, issued by institutions resident in region 1, in the possession of residents in the rest of the world at the end of the accounting period.
- T32.23 Not tangible assets of the institutional sectors resident in region 1 at the end of the accounting period.

services only refer to the transactions of all the resident producers, and consequently use the concepts of domestic production and domestic product. The accounts on the use of goods and services also refer to the transactions of resident economic agents, although it should be mentioned that use is also made of the concept of the final consumption expenditure of resident and non-resident households in the domestic market. Finally, the capital formation accounts also deal only with the activities of resident producers.

The resident economic agents may receive remuneration both as a result of their participation in the country's production and in that of the rest of the world, while some of the income originating in the production of the country in question is paid to non-resident economic agents.

In the capital finance accounts the transactions are institutional units whose operations are recorded in the system in so far as they comply with residence requirements.

Generally speaking, these principles regarding residence can be transferred to regional accounts without major problems of theoretical interpretation. A number of conflicts arise, however, when an attempt is made to put them into

practice, since the cases of producers operating in different regions within a single country increases significantly in proportion as the number of regions considered increases.

The treatment of this problem is included in this paper in reference to the production accounts with the presentation of recommended criteria for the treatment of economic agents operating in construction, transport, public enterprises and central public administrations in the light of the experience in empirical work in Argentina already cited.

1. *Construction*

According to the ISIC,⁸ this sector includes the production activities of contractors primarily engaged in contract construction and units of enterprises primarily engaged in construction work for the parent enterprises, which can be separately reported. To these must be added own-account construction of dwellings, non-residential buildings and other projects carried out by households and by organs of the public administration. Construction work by establishments classified outside this major division and sold on the market will be included in these sectors as a secondary activity.

For calculating the production account there are two alternative approaches as regards the definition of the establishment, depending on whether this is defined according to "class of activity," which would identify the contractor enterprise, or whether it is defined by "site of construction," which would identify the projects or construction permits considered individually. On the basis of these principles it is possible to define production as the sum of the value of the current income of all the establishments engaged in construction resident in the region, or as the sum of the value of all the construction projects carried out in the region.

The results of both methods would differ to the extent that producers (contracting enterprises) resident in other regions work in the region in question and producers resident in the region work outside it.⁹

The sources of information for measuring production will also be different. In the first case, the basic source would be a survey of resident construction contracting enterprises and would require from them details of the geographical location of the various contracts completed, while a survey would also have to be made of non-resident enterprise units working in the region, which would need to be defined as branches. In the second case, the basic source would be information on construction permits or projects carried out (normally found in administrative records). Since this latter is the information normally available, it was suggested that the criterion of "construction sites" should be used as a basis for the work.

The method of calculation used at the regional level in Argentina, defined according to the nature of the information available, consists of valuing the dwellings and other construction carried out under permit by the private sector, calculating the construction work (mainly infrastructure) carried out by organs of

⁸International Standard Industrial Classification.

⁹This problem could be solved if, in accordance with the recommendations of the SNA, statistical units were defined which corresponded to contracting enterprises isolated for each geographical area (see SNA, paragraph 5.20).

TABLE 4 MATRIX EXPRESSION OF CENTRAL PUBLIC ADMINISTRATION ACCOUNTS,

Opening assets		Financial assets	1
		Net tangible assets	2
PRODUCTION	Commodities	Commodities, basic value	3
		Net taxes on commodities	4
	Activities	Industries	5
		Producers of government services	6
		Non-profit institutions and domestic services	7
CONSTRUCTION	Expenditure	Households goods and services	8
		Government purposes	9
		Purposes of non-profit institutions	10
	Income and expenditure	Value added	11
		Institutional sector of origin	12
		Forms of income	13
		Institutional sector of receipt	14
ACCUMULATION	Increase in stocks	Industries	15
		Producers of government services	16
	Formation of fixed capital	Industries	17
		Producers of government services	18
		Non-profit producers	19
	Capital financing	Capital formation	20
		Capital transfers	21
Financial assets		22	
Institutional sectors		23	
NON-RESIDENTS	Rest of country	Current transactions	24
		Capital transactions	25
	Rest of world	All transactions	26
Revaluations		Financial assets	27
		Net tangible assets	28
Closing assets		Financial assets	29
		Net tangible assets	30

TABLE 4 (cont.) MATRIX EXPRESSION OF CENTRAL PUBLIC ADMINISTRATION ACCOUNTS,

Opening assets		Financial assets	1
		Net tangible assets	2
PRODUCTION	Commodities	Commodities, basic value	3
		Net taxes on commodities	4
	Activities	Industries	5
		Producers of government services	6
		Non-profit institutions and domestic services	7
CONSTRUCTION	Expenditure	Households goods and services	8
		Government purposes	9
		Purposes of non-profit institutions	10
	Income and expenditure	Value added	11
		Institutional sector of origin	12
		Forms of income	13
		Institutional sector of receipt	14
	ACCUMULATION	Increase in stocks	Industries
Producers of government services			16
Formation of fixed capital		Industries	17
		Producers of government services	18
		Non-profit producers	19
Capital financing		Capital formation	20
		Capital transfers	21
		Financial assets	22
		Institutional sectors	23
NON-RESIDENTS		Rest of country	Current transactions
	Capital transactions		25
	Rest of world	All transactions	26
Revaluations		Financial assets	27
		Net tangible assets	28
Closing assets		Financial assets	29
		Net tangible assets	30

SHOWING THEIR RELATIONS WITH REST OF COUNTRY AND REST OF WORLD

16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
							T1.23		T1.25		T1.26			
							T2.23							
T3.16		T3.18						T3.24		T3.26				
T4.16		T4.18												
							T11.23	T11.24						
								T13.24		T13.26				
							T16.23							
							T18.23							
							T22.23		T22.25	T22.26				
					T23.21	T23.22					T23.27	T23.28	T23.29	T23.30
					T25.21	T25.22		T25.24			T25.27	T25.28	T25.29	T25.30
					T26.21	T26.22				T26.26	T26.27	T26.28	T26.29	T26.30
							T27.23		T27.25	T27.26				
							T28.23							
							T29.23		T29.25	T29.26				
							T30.23							

The entries in Table 4

As will readily be seen, the meanings of the various ordered pairs of rows and columns of Table 4 are similar to those of Table 3. According to the definitions of residence, only the organs of the central public administration possess physical assets (T2.23); all the goods of industrial origin are imported (T24.3 + T26.3); the indirect taxes paid by residents in the rest of the country (T26.11 of Table 3) now appear symmetrically in T11.24; the current transfers of income paid by residents in the rest of the country (T26.13 of Table 3) appear in T13.24; the transfers of income paid to residents in the rest of the country appear in T24.13 (T13.26 in Table 3); the indirect taxes of the central public administration appear in T14.11 and are the same as T11.24 except that the administration itself is included in the tax system.

The remaining transactions are equivalent to those detailed in Table 3 and the layout of this table has been retained so as to simplify the comparison.

the provincial and municipal public administration, and calculating separately the work done by the private sector without permission from the competent authorities. This latter would cover construction infringing the law, and also work such as frames for barns, sheds, mills and the erection of wire fences in rural areas, together with the construction of dwellings in such areas when these do not require public authorization.

The construction costs of public projects are given explicitly in the respective investment accounts, although in some cases, particularly where the work is complex, it will be necessary to consult detailed records on the expenditure to find out how the investment was split up between construction work and the purchase of machinery and equipment.

According to the general principles on residence the own-account construction activity by agencies of the national administration not considered as enterprises will not be considered as part of the product generated in the region, although such work carried out there through contractors will be so considered.

2. Transport

This sector includes the activities defined in major groups 711, 712 and 713 of major division 7 of the ISIC. Its regional treatment raises some specific problems, particularly in the case of interjurisdictional transport.

In interjurisdictional transport the decisive point is the definition of the resident economic unit for which the estimates are made. Two typical alternative approaches may be envisaged for this problem. The first consists of defining an imaginary region in which the enterprises whose limits are defined by the coverage of their services are situated. As in the case of the central public administration, this region will have no resident individuals, households, or other enterprises, and its system of accounts will include accounts for production, income and expenditure, capital financing, and transactions with residents of other regions. For the region under discussion, this approach implies that all transport services required by residents in the region are dealt with through the external transactions account, which keeps a current record of imports in the form of transport and tickets purchased by residents, and exports in the form of the goods and services purchased by the enterprises (fuel, repairs, construction of terminals, purchases of vehicle or bodywork in the province, etc.). The entries for the remuneration of employees and for the income of property and the enterprise will record the income received by the residents of the region working in or owning these enterprises. Consequently, there will be no establishments or enterprises in this

sector in the region studied, and the production and value added by this sector will be nil. Although this method is attractive from the point of view of its simplicity, it obviously does not really reflect the economic activity that takes place in the territory of the region under discussion.

The second method is the definition within the region of resident economic units of the establishment type for the production accounts, and of the corporate or quasi-corporate type (according to whether they are the head office or branches) for the income and expenditure and capital financing accounts. This method, which will more adequately reflect the activities of these enterprises in different parts of the country, entails the adoption of the methodological principles of estimation used in the nation's balance of payments and the definition of resident units included in the SNA.

If the principles recommended there are applied by analogy at the regional level, the production and income of enterprises operating in various regions should be ascribed to the region in which the goods are produced. It is therefore necessary to define resident production units in the various regions connected by the interjurisdictional service, which will be classified as industries producing transport services in the production and capital formation accounts, and as quasi-corporations (branches) in the income and expenditure and capital financing accounts. Capital formation in the region should be allocated to these units, except in the case of transportable assets, which should be ascribed to the area of residence of the head office. The transactions of these quasi-corporations should include a proportional part of the common costs of providing the service throughout the system, and the whole income obtained from them, adjusted for any proportion actually retained, should be transferred to the region where the head office is located. It should also be borne in mind that, in line with the general principles of the system these quasi-corporations would be considered as branches of enterprises not resident in the region and would be able to save, a fact which would be recorded in a special item of their balance of payments account. The production account in a specific region—except the region where the head office is located—should record the total sales in terms of passenger and freight transport *exclusively within that region*, irrespective of the residence of the buyer (in the case of households, these entries are compatible with the definition of expenditure on consumption of goods and services in the domestic market). The branch located in a specific region cannot sell services outside that region; therefore, any passage purchased by a resident which goes beyond the region's boundaries should be divided into two parts, the transaction covering the territory outside the region being considered as an imported service provided by branches of enterprises located in other areas and sold by their agencies in the region concerned (in the case of households, this entry makes it possible to define the final consumption expenditure of residents).

Only in this way will there be an adequate relation between the factors in each branch and the income produced by them.

This procedure is, however, very difficult to apply in practice, since the type of information required is incompatible with the way in which the service is provided and its accounts are kept, and a substantial change in the information mechanisms cannot be considered possible or really necessary. Intermediate procedures

deriving from this conception which might feasibly be implemented would be based on the definition of resident units of the same kind as those in the previous example in which current income and expenditure are determined by different methods. One such method might be the registration of each region as that corresponding to all sales in respect of passenger and freight transport in the region concerned (irrespective of the distance involved), with estimates of total inputs based on costs per kilometre covered or other standard transport unit, calculated on the basis of the average cost of the service. As in the previous case, the operating surplus plus net income from ownership should be transferred as a withdrawal of company income to the region where the head office is located. This method has obvious disadvantages, the most important one being the fact that in not computing through traffic, the volume of traffic in the interior regions is underestimated, and the estimates of intermediate consumption, compensation of employees, and depreciation and surplus calculated on this basis do not reflect the real use of goods and services in the region concerned.

The practical difficulties in preparing theoretically acceptable estimates of the production account and the conceptual problems inherent in the traditional methods used suggest the advisability of including interregional transport in an imaginary region and considering all the different uses of these services by residents in the region as imports.

3. *Public Administration*

Generally speaking, according to theoretical and practical tradition in this field, it may be said that the definition of the administrative level of the regions chosen will bring with it the need to divide public administrations into two classes: those whose administrative standing is equal or inferior to the regional division adopted, and those whose status is higher. For example, if the regional classification is made at the level of the jurisdiction of State administrations, the central administration will require special treatment. If the classification is made at the level of local governments, both the State and the central administrations will require this treatment.

From the point of view of accounts, there are two classical possible ways of dealing with the problem of recording data on the regional accounts of the public administration, the difference between them lying in the definition of residence for the central (or State) administration.

The first approach consists in adopting a kind of extraterritorial status for the central (or central and State, etc.) administration by creating a region in addition to those already existing, to include the activities of the producers of government services as regards production, consumer expenditure and capital formation, and the activities of the public administrations as regards income and expenditure on financing capital. Using this criterion, the territory occupied by these administrative organs in any region is considered as a sort of extra-territorial enclave within the region, and their production is therefore not included in the definition of domestic production adopted for the region. Furthermore, this special region, which may be called the central (State, etc.) public administration, will consume the goods and services produced on current account in the name of the national

community. All public administration capital financing activities will also be imputed to this region. It may be noted that in accordance with this proposal, the public administration region has no resident individuals, households, enterprises nor industries, and consequently the treatment to be given to its employees is that of residents in the region where the administrative units are situated (if this is in fact their normal place of residence and constitutes their centre of interest).

An alternative solution consists in assigning the production and the capital formation of the different administrative units to the regions where the various organs of the administrations are situated, while also imputing a part of the expenditure on goods and services produced in other areas, on the basis of the principle of the distribution of national (State, etc.) government activities over the whole territory where they are of influence. The disadvantage of this method is obvious if an analysis is made of the increasing imputations which would be necessary in order to reflect the income and expenditure of the central units, and the only very relative validity of the concept of savings and of transfers of income which this method implies. The first criteria must consequently be the basic point of departure for the work to be done at the regional level.

4. Branches of Public Enterprises Resident Outside the Region

National public enterprises provide services in different parts of the country even though their headquarters are in the Federal Capital. The definition of production accounts for their branches at the regional level raises the problem of the correct distribution at that level of general expenditure on the management of the service at the national level. Possible alternative methods would be to ascribe the whole of this expenditure to the region where the central administration is located, or to distribute it in accordance with some practical criterion to each of the regions in which the enterprise is operating. With the first method the value added would be underestimated in the region where the head office is located and overestimated in the rest. With the second method, which would obviate this disadvantage, some problems would arise with respect to the balance of payments account. In view of this kind of difficulty other methods could consist of making an overall estimate for administrative services, treated as a commodity, which would appear theoretically as exports in the region where the head office is located and as imports in those where the various branches are operating, so that the value added at the head office would not change, but would decrease in the branches; or of calculating each of the components of the total inputs to be distributed, on the assumption that the head office operates as an agency of the branches in supplying goods and factors of production for their administration, which means a change in the value added both at head office (an increase) and in the branches (a decrease). Owing to the practical and conceptual difficulties involved in these last two systems of calculation, the criterion recommended in these cases (which includes by analogy all cases in which the head office of the establishment and the administration are not in the same region) is the accounting of total inputs actually paid for, with no calculations of any kind for the individual regions, so that the administrative costs would be included in the region where the head office is located.

III. CONCLUSIONS

The following are the most important conclusions I have drawn from my work on regional accounting:

1. Although in practice it is impossible, at any rate in Argentina, to prepare complete systems of accounts at the regional level, their conceptual development is a task of fundamental importance for the rational organization of activities in this area, for the gradual integration of existing statistics, and for all kinds of analytical work.

2. The identification of a synthetic concept as an indicator of the level of economic activity, such as the product at the national level, is a difficult matter whatever the method chosen to accomplish it (consolidation of production, income and expenditure or commodities and other goods and services accounts).

3. The calculation of production accounts, at current and constant prices, for goods-producing establishments resident in the region presents fewer problems than the design of accounts aimed at measuring the production of services.

4. It is desirable to give more emphasis to the use of household surveys in order to obtain data on resident household income and expenditure, which, together with similar accounts for the provincial public administration, financial institutions and corporations, would complete the picture of the disposal of income. The calculation of aggregate indicators of regional performance on the basis of the sum of the income accruing from the factors of production seems a genuinely interesting alternative to the traditionally used method of approximation through production accounts. The main practical problem in this field is the treatment of owners of agricultural establishments not normally resident in the region.

5. On the same statistical bases as those commented on in the previous paragraph, it is feasible to consider the establishment of capital finance accounts, even though the statistical difficulties will be greater.

6. The calculation of the interregional balance of payments seems a very difficult goal to achieve, but the prospects are somewhat more favourable for the current account, and within this context for the movements of goods.

7. The difficulties discussed in Part II suggest that it is best not to include in the production accounts of the regions concerned the services provided outside them, but rather to create ideal regions not limited by space to which these services may be imputed.