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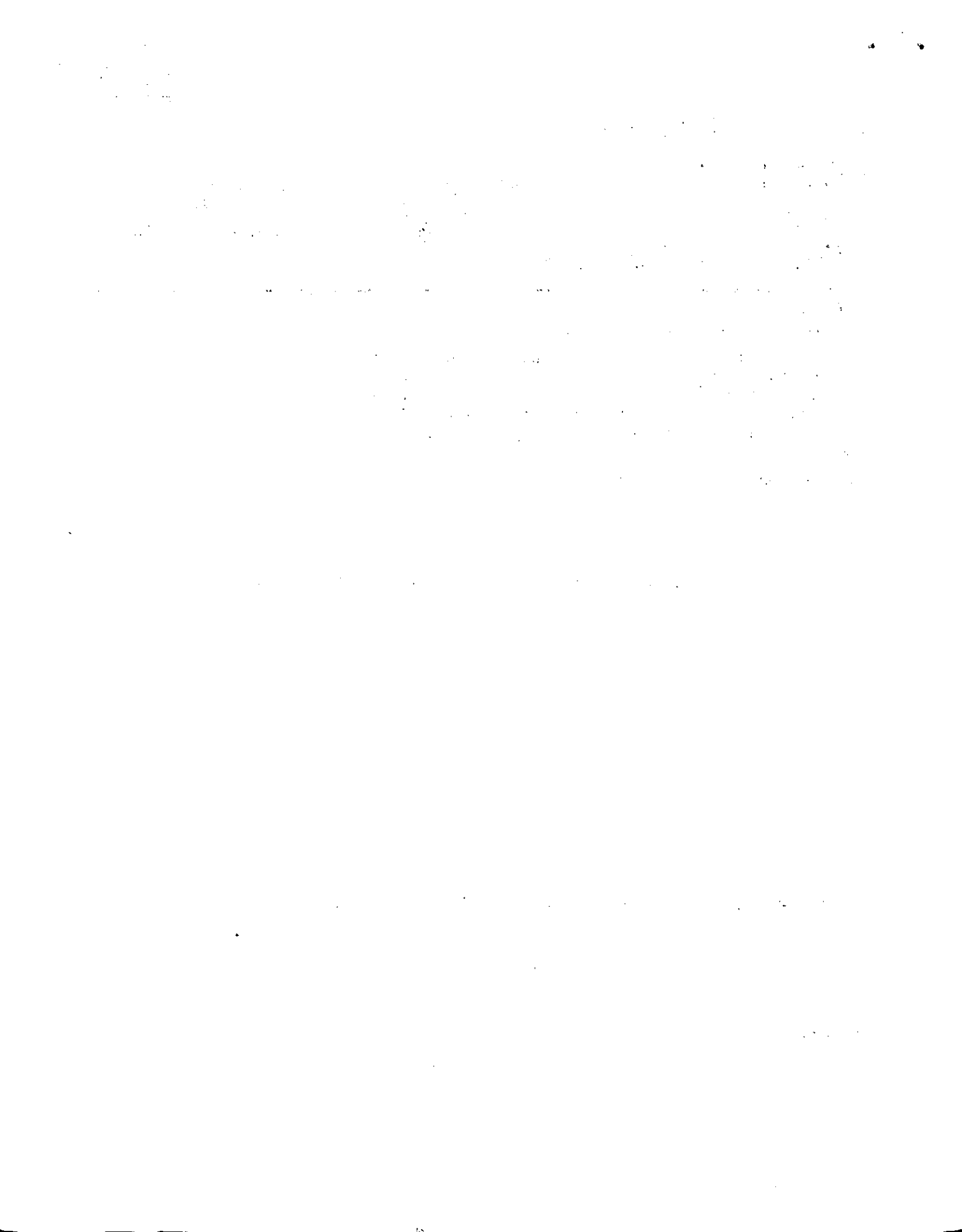
Seminar of Experts on Comparisons between the System of National Accounts and the System of Balances of the National Economy in Latin America, organized by CEPAL with the support of the Institute for Ibero-American Co-operation of Spain and under the auspices of the Government of Cuba

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ESTIMATE OF NET MATERIAL PRODUCT OF PERU FOR 1969 */

*/ Paper prepared for the Seminar by Mr. Y. Ivanov, United Nations Statistical Office.



Introduction

1. The purpose of this paper is to introduce briefly the estimate of net material product of Peru for 1969, which has been prepared by the United Nations Statistical Office in co-operation with the Central Statistical Office of Peru in the framework of the project on study of SNA/MPS links pursued by the United Nations Statistical Commission. The estimate was prepared in accordance with the recommendations of the Statistical Commission, which urged the United Nations Statistical Office to carry out illustrative calculations of GDP for selected countries using MPS and Net Material Product (NMP) for selected countries using SNA.

2. The estimate was produced on the basis of the methodology of intersystem comparisons approved by the Commission, the basic principles of which are set out in the United Nations publication entitled Comparisons of the System of National Accounts and the System of Balances of the National Economy, Part I, Conceptual Relationships (Sales No. E.77.XVII.6). Yet the major purpose of the estimate was to demonstrate an applicability of the conceptual framework of intersystem comparisons and, for this reason, the estimate is to be considered a tentative one.

3. It should be noted that the work on studying SNA/MPS links represents an important element of the overall project dealing with the international comparability of national income data and similar aggregates. As is known, the last two or three decades witnessed a tremendous increase in the demand for internationally comparable data on national income. Two factors are responsible for this increase: the growing interdependence of the economies of different countries and the activities of various economic organizations which need internationally comparable data for solving numerous practical tasks confronting them. These tasks vary from the computation of weights of countries -needed for the calculation of regional and world index numbers- to the determination of the share of each country in common outlays of organizations; the data are also used for the co-ordination of economic plans and programmes and for the allocation of funds to developing countries for development assistance.

4. To facilitate the solution of these tasks, the Statistical Commission moves in a number of directions, and one of which is to improve the conceptual framework of SNA/MPS comparisons. The Statistical Commission outlined in broad terms the basic directions for such improvement. They include improvement of the schemes of the conversion tables which constitute a core of the methodology, the introduction of a number of additional adjustments needed for the derivation of GDP for countries using MPS and NMP for countries using SNA, the introduction of two separate sets of conversion tables one being reserved for the computation of GDP for centrally planned economies and the other for the computation of NMP for market economies, etc.

5. This conceptual work is expected to be based on a series of illustrative calculations of GDP/NMP for selected countries. The purposes of these illustrative calculations can be described as follows:

- testing conversion tables which show the exact steps needed for intersystem comparisons;
- accumulating certain experience in collecting and processing the primary data needed for the calculation;

/- evaluating

- evaluating the quantitative importance of individual adjustments and analysing the factors responsible for the differences between the respective SNA and MPS categories;
- ensuring the input for further conceptual work in this area;
- ensuring as accurately as possible the estimates of GDP and NMP.

Thus, the illustrative calculations of GDP and NMP represent an important part of the work in the improvement of the conceptual framework of SNA/MPS comparisons.

6. Now we can turn to a discussion of the estimates of net material product of Peru for 1969, the sources of data used for this purpose and the methods of processing them. The net material product of Peru has been computed in three different conversion tables, based on (a) final demand data, (b) value added data and (c) gross output and intermediate consumption data. The conversion of GDP into NMP has been achieved with the help of a number of adjustments (additions and subtractions) which eliminate the most significant differences between the concepts, definition and classifications of SNA and MPS. The major adjustments relate of course, to different definitions in both systems of economic production. Some other adjustments have been introduced in the conversion tables to accommodate so-called "incidental differences" between the system, i.e., differences which reflect peculiarities in traditions and in national practices in countries using SNA and MPS, in sources of data used for the compilation of national accounts and balances and the application of data to planning and management.

7. The basic source of the estimates of net material product is the input-output tables published by the National Institute of Planning in its publication Relaciones Interindustriales de la Economía Peruana, Tabla Insumo-Producto, 1969.

It should be noted that in principle input-output tables are found to be the most suitable sources of information for the intersystem comparisons of national income and similar aggregates. First of all, they are, as a rule, conceptually and statistically co-ordinated with the national accounts. Secondly, the scheme of input-output table facilitates identification of the adjustments needed for the conversion of GDP into NMP and vice-versa. Thirdly, the information contained in input-output tables makes it possible to carry out comparisons on the basis of different but consistent type of data. However, for intersystem comparisons national input-output tables are expected to be modified and adjusted. This consists largely in isolating the flows of material goods from the flows of non-material services as well as in isolating the incomes originated in production of material goods from the incomes originated in the production of non-material services; some other rearrangements may be needed in order to adapt input-output tables for intersystem comparisons, e.g., some rearrangements concerning secondary products (non-material services) produced by industries of the material sphere and vice-versa, etc.

8. The input-output table of Peru for 1969 embraces all main activities of the national economy and major groups of commodities produced. It should, however, be noted that the estimates of gross domestic product in the input-output table was condensed into 11 productive sectors consisting of seven branches of the material sphere and four branches of the non-material sphere.

9. Additional information from various statistical publications of the Dirección Nacional de Estadística y Censos and Banco Central de Reserva have been used to obtain data on selected material services, shown in the original input-output tables combined with non-material activities. These adjustments were made outside

/the conversion

the conversion tables in order to preserve the consistency among the interrelated items of the conversion tables.

Since the original table does not show consumption of fixed assets as a separate item, it was assumed that the share of depreciation of fixed assets in gross value added was constant.

Now we can turn to conversion tables which contain the estimates of net material product of Peru. The schemes of these conversion tables are standard and by and large in consistency with the Comparisons of the System of National Accounts and the System of Balances of the National Economy, Part 1, Conceptual Relationships. The adjustment contained in the conversion tables eliminates the differences between GDP and NMP which are result of the differences in definition of economic production in the two systems. Some brief comments dealing with identification of GDP in the input-output table as well as with derivation of NMP are given below.

Derivation of gross domestic product
in the conversion tables

10. Gross output in SNA sense, shown in conversion table 1, is computed as the difference between "total output" recorded in the condensed input-output table and imports; the figures on disposition of goods in the input-output tables include both domestic output and imports. Intermediate consumption SNA sense shown in the same conversion table was taken equal to the "total intermediate consumption" in the condensed input-output table reduced by imports.

Derivation of net material product

11. The adjustments included in the conversion tables are standard. A few comments with regard to the calculation of certain adjustments are given below.
12. Gross output of non-material services shown in conversion table 2 is taken equal to the difference between "total output" of the industries producing non-material services shown in the condensed input-output table and imports of non-material services "transferred" to the industries where such services are normally produced as characteristic products; data on the latter item is identified in the condensed input-output table.
13. Net exports of non-material services is computed as the difference between exports of non-material services shown in a separate column of the final demand section of the condensed input-output table and imports of non-material services recorded in the cells at the intersection of the row for imports and the industries producing non-material services.
14. A final estimate of net material product is obtained by adjusting the figures derived in the conversion tables by the data on value-added of selected material services collected from sources other than input-output tables. This estimate, in million soles is as follows:

$$142\ 907.3 + 3\ 379.4 = 146\ 286.7$$

Table 1

DERIVATION OF NET MATERIAL PRODUCT FROM DATA ON VALUE-ADDED, PERU, 1969
(Million of soles)

		Gross domestic product	Consumption of fixed assets	Net domestic product (1-2)	Value added in the non-material sphere	Value of non-material services consumed in the material sphere	Net material product (3-4+5)
	Code	1	2	3	4	5	6
Agriculture, hunting, forestry and fishing	1	28769.8	891.7	27878.1		375.2	28253.3
Mining and quarrying	2	14603.4	452.7	14150.7		1274.4	15425.1
Manufacturing	3	45941.1	1355.2	44585.9		6068.9	50654.8
Construction	4	8278.0	256.6	8021.4		-	8021.4
Electricity	5	2421.8	75.1	2346.7		56.8	2403.5
Trade	6	24336.0	754.4	23581.6		2574.8	26156.4
Transport and communication	7	10798.9	334.8	10464.1		1528.7	11992.8
I. Material sphere		135149.0	4120.5	131028.5		11878.8	142907.3
Education and health	8	16201.4	502.3	15699.1	15699.1		
Finance and insurance	9	6103.9	189.2	5914.7	5914.7		
Dwellings	10	9910.0	307.2	9602.8	9602.8		
Personal services	11	7509.8	232.8	7277.0	7277.0		
II. Non-material sphere		39725.1	1231.5	38493.6	38493.6		
III. Total (I + II)		174874.1	5352.0	169522.1	38493.6	11878.8	142907.3

/Table 2

Table 2

DERIVATION OF NET MATERIAL PRODUCT FROM DATA ON FINAL USES, PERU , 1969

(Million soles)

Categories of the SNA	Final expenditure on non-material services	Consumption of fixed assets	Material inputs in the non-material sphere	Consumption of fixed assets in the non-material sphere	Categories of the MPS		
	1	2	3	4	5	6	
Final consumption expenditure	146754.7	33019.0		4726.6	1231.5	119693.8	Personal and other final consumption (1-2+4+5)
Gross fixed capital formation	16056.7		5352.0			10704.7	Net fixed capital formation (1-3)
Capital formation in stocks	2160.1					2160.1	Capital formation in stocks
Exports minus imports	9902.6	-446.1				10348.7	Exports minus imports (1-2)
Gross domestic product	174874.1	32572.9	5352.0	4726.6	1231.5	142903.3	Net material product (1-2-3+4+5)

Table 3

DERIVATION OF NET MATERIAL PRODUCT FROM DATA ON GROSS OUTPUT AND INTERMEDIATE CONSUMPTION, PERU, 1969

(Million of soles)

Categories of the SNA		Gross output of the non-material sphere	Intermediate consumption in the non-material sphere	Consumption of non-material services in the material sphere	Consumption of fixed assets in the material sphere		Categories of the MPS
	1	2	3	4	5	6	
Gross output	278027.7	48653.5				229374.2	Global product (1-2)
Intermediate consumption	103153.6		8928.4	11878.8	4120.5	86466.9	Intermediate material consumption including depreciation (1-3-4+5)
Gross domestic product	174874.1	48653.5	8928.4	11878.8	4120.5	142907.5	Net material product (1-2+3+4-5)

Table 4
PERU: CONDENSED INPUT/OUTPUT TABLE, 1969

(Million soles)

Code	1	2	3	4	5	6	7	8	9	10	11	(a)	Final demand					(g)	
													(b)	(c)	(d)	(e)	(f)		
	Agriculture, hunting, forestry and fishing	Mining and quarrying	Manufacturing	Construction	Electricity	Trade	Transport and communications	Education and health	Finance and insurance	Dwellings	Personal services	Total intermediate output	Final consumption	Gross fixed capital formation	Change of stocks	Exports	Total		
Agriculture, hunting, forestry and fishing	1	6 896.4		11 085.3								17 981.7	22 328.9		110.2	693.2	23 132.3	41 114.0	
Mining and quarrying	2	56.8	661.6	12 584.9	84.8							13 388.1			380.6	7 021.5	7 402.1	20 790.2	
Manufacturing	3	3 748.1	1 445.1	20 072.4	3 937.0	194.6	536.4	4 952.6	1 359.9	249.0		37 451.0	49 712.1	3 995.8	1 669.3	25 701.1	81 158.3	118 609.3	
Construction	4		95.9		3.7	333.6	62.4	47.7		1 044.8		1 588.1		12 060.9			12 060.9	13 649.0	
Electricity	5	0.6	10.1	899.6		12.3	130.3	311.4	72.8	60.2	6.5	1 611.9	1 267.0				1 267.0	2 878.9	
Trade	6	346.9	257.5	3 650.1	623.3	37.2	994.3	658.4	180.5	56.3		7 007.5	28 332.1				28 332.1	35 339.6	
Transport and communications	7		826.9		37.6	6 413.2	433.1	37.2	204.6		92.1	8 044.7	12 095.6				12 095.6	20 140.3	
Education and health	8						3.7					3.7	18 464.7				18 464.7	18 468.4	
Finance and insurance	9	167.6	195.7	667.9		27.3	1 189.7	743.3	94.1	1 611.1	140.7	5 390.3	3 336.2				3 336.2	8 726.5	
Dwellings	10												11 218.1				11 218.1	11 218.1	
Personal services	11	207.6	1 078.7	5 401.0		29.5	1 337.1	781.7	134.8	440.5	116.1	10 686.6						10 686.6	
<u>Subtotal</u>	A	<u>11 424.0</u>	<u>4 571.5</u>	<u>54 361.2</u>	<u>4 645.1</u>	<u>342.2</u>	<u>10 934.6</u>	<u>7 946.6</u>	<u>1 927.0</u>	<u>2 621.7</u>	<u>1 308.1</u>	<u>3 071.6</u>	<u>103 153.6</u>	<u>146 754.7</u>	<u>16 056.7</u>	<u>2 160.1</u>	<u>33 495.8</u>	<u>198 467.3</u>	<u>301 620.9</u>
Imports	B	920.2	1 615.3	18 307.0	725.9	114.9	69.0	1 394.8	340.0	0.9		105.2	23 593.2						
Total intermediate consumption	C	12 344.2	6 186.8	72 668.2	5 371.0	457.1	11 003.6	9 341.4	2 267.0	2 622.6	1 308.1	3 176.8	126 746.8						
Value added	D	28 769.8	14 603.4	45 941.1	8 278.0	2 421.8	24 336.0	10 798.9	16 201.4	6 103.9	9 910.0	7 509.8	174 874.1						
Total inputs	E	41 114.0	20 790.2	118 609.3	13 649.0	2 878.9	35 339.6	20 140.3	18 468.4	8 726.5	11 218.1	10 686.6	301 620.9						

