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ECONOMIC COMMITTEE

SOVIET GROSS NATIONAL PRODUCT:
A METHODOLOGICAL NOTE

Note by the Chairman

Members will find attached a contribution prepared by the Economic Directorate which should be considered as a methodological annex to Document AC/127-WP/540 on the assessment of Soviet GNP.

2. This analysis attempts to define and thus compare NMP and GNP concepts as applied primarily to the case of the Soviet Union, but also to the other centrally planned economies of COMECON.

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SOVIET GROSS NATIONAL PRODUCT: A METHODOLOGICAL NOTE

INTRODUCTION

1. Western and Eastern definitions of national income are widely different, difficult to reconcile, and still controversial as regards one of the great issues raised by Adam Smith two centuries ago: productive and unproductive labour. This distinction is vital to income measurement, as it lies at the root of the more familiar dichotomy between material and non-material spheres of production, the latter being excluded from calculations based on Marxian concepts. By unproductive labour, Marx probably meant whatever could not generate surplus value (politicians, bureaucrats, etc.), but he was ambiguous enough to allow for an interpretation which made it synonymous with all forms of labour other than that applied to material inputs for producing material outputs (or transporting and trading them).

2. Soviet national income is identical to the value of material production net of all the intermediate material inputs necessary to produce it: the latter includes the particular kind of intermediate consumption which refers to depreciation or "wear and tear" of capital equipment. Hence the designation of Soviet national income as Net Material Product (NMP).

THE SYSTEM OF MATERIAL BALANCES (1)

3. As the USSR has a centrally planned economy, the use of and the need for a means to measure sectoral and aggregate production - and therefore for an extensive and consistent set of macroeconomic accounts - arose in the USSR long before it did in the West. From the first attempts to outline planning procedures and during the more productive NEP years, Soviet economists laid the foundations of both the accounting system and the commodity balances for planning purposes, the latter being merely an approximation of input-output techniques.

4. As in the case of a commodity, the aggregate value of a country's production, or the Gross Social Product (GSP)(2), is the sum of three components: (1) Constant capital (C), (2) Variable capital (V), and (3) Surplus value (M). Therefore, the basic macroeconomic (and accounting) identity is:

- (1) By "System of Material Balances" it is meant the system of macroeconomic accounting adopted by the Communist countries, as opposed to the "System of National Accounts" adopted in the West.
- (2) Valovoy obshchestvennyy produkt, translated into English as Gross Social Product (GSP).

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$$(1) \text{ GSP} = \text{C} + \text{V} + \text{M}.$$

5. Constant capital is a Marxian invention and represents the value of the means of production consumed in the production of a commodity. The salient aspect of the means of production - in Marx's opinion - is that they only transmit a part of their value to the commodities they are instrumental in producing, without adding any new value. In Western accounting terms, constant capital corresponds to the sum of amortization (or depreciation) of fixed assets and intermediate consumption of raw materials and semi-manufactured goods, and is a concept seldom used except in an input-output context.

6. Constant capital is a difficult concept to grasp for those unaccustomed to Marxist definitions, as non-Marxist economists do not lump "depreciation" together with intermediate consumption; until the introduction of the Leontief model, the latter was considered as useless double-counting in the framework of macroanalysis. Nevertheless, amortization equals a form of intermediate consumption: i.e. consumption of fixed capital and, therefore, can measure this type of consumption. The algebraic difference between GSP and constant capital is what the Soviets call National Income (Natsional'nyy dokhod). Therefore, a second fundamental accounting identity may be written:

$$(2) \text{ NMP} = \text{GSP} - \text{C}.$$

7. The second basic Marxian concept, variable capital, is the Ricardian wage fund or - in modern terms - the sum of productive workers' remunerations. This leads to the problem of what is productive. To avoid misinterpreting these concepts, this paper will often quote directly from a UN publication(1) which contains a full description of the system of material balances prepared under the auspices of CMEA and adopted by its Statistical Commission.

8. In principle, to the Soviets the concept "productive" and "material" are synonymous, and productive labour is that spent in producing material goods plus those services only which make it possible for material goods to satisfy human

(1) UN, Basic Principles of the System of Balance of the National Economy, Series F, n. 17, 1971. Hereafter quoted as UNBP.

needs (wholesale and retail sector, or transport of goods - but not passengers). In the UNBP "productive labour is that expended in production and circulation of goods", whereas "material production is production and circulation of goods". On the other hand, "the non-material sphere embraces all activities directed towards rendering services to the population in order to satisfy certain personal and social needs of people". To be sure, "the global product (GSP) and national income (NMP) are produced in the material sphere. The non-material sphere creates neither product nor income; in it takes place only the process of use and redistribution of material goods and incomes produced in the sphere of material production." The following branch breakdown is established by the UNBP (pages 5-6):

A. SPHERE OF MATERIAL PRODUCTION

1. Industry
2. Construction
3. Agriculture
4. Forestry
5. Transport (total)
6. Communications (total)
7. Distributive trades
8. Other branches of material production

B. NON-MATERIAL SPHERE

1. Housing, communal services and public utilities
2. Education, culture and art
3. Health, services, social security and sports
4. Science and scientific services
5. Finance, credit and insurance
6. General government
7. Other branches of the non-material sphere.

9. Variable capital, therefore, coincides with primary incomes of the population engaged in the sphere of material production, i.e. wages and salaries of productive labour. Clear as it may seem, this concept is sometimes paradoxical and often indefinite. Indeed, to make a wooden leg is productive labour, while a doctor curing people's legs is performing an unproductive function. To quote Professor Becker: "the line between material and non-material, productive and non-productive spheres is a fine one, and the boundary is violated by various expedients. Recent discussion also suggests that the distinction will be further blurred in the future"(1). Indeed, this prevision has turned out to be

(1) Becker, "National Income Accounting in the USSR", in Trembl and Hardt, Ed's., Soviet Economic Statistics, Duke, 1972, p. 71.

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correct, as the Eastern countries introduced into their NMP an ever growing number of formerly non-productive items (e.g. passenger transport and non-trade communications); the result is that NMP shows a tendency to approach the GNP concept. However, this movement is slow and the bulk of state services as well as almost all of the private ones remain excluded from NMP.

10. The intrinsic magic of variable capital is that it produces more value than is required to replace it. In other words, the mechanism of capitalist "exploitation" is such that the worker is not given the "use value" of his work, but only its "exchange value", i.e. what is necessary to support him and his family. The latter corresponds, in terms of working time, to "necessary labour". The excess, whose value the worker does not pocket, is called by Marx surplus labour. As variable capital (V) is the value of necessary labour, surplus value (M) is the value of surplus labour. A long and inconclusive debate developed under Stalin on whether surplus value still survives under socialism. Whatever the answer, something resembling M does exist in the socialist systems and constitutes the financing source of both the non-productive sphere and investment(1). From equations (1) and (2) above the following identity may be established:

$$(3) \quad NMP = V + M$$

V, variable capital, is equivalent to primary incomes of the population, i.e. wages, salaries and related incomes(2), and M is called the primary income of the enterprises (more correctly: state and enterprises). Indeed, M may be viewed as the net material product of the units of the material sphere (which have employees) less wages, salaries and related incomes(3). "The primary incomes of these units are the source of such items as their net income, turnover taxes, contributions to social insurance, payments of taxes, fines and other compulsory items, finance of purchases of non-material services, insurance premiums, interest on bank loans and other business costs"(4).

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- (1) In a capitalist system M is equal to the sum of profits, rents, interests and taxes.
 - (2) Related incomes are: bonuses, incomes in kind, incomes from personal plots of households, incomes of self-employed craftsmen, artisans and peasants net of income taxes in this last category.
 - (3) Income taxes on craftsmen, artisans and self-employed peasants are, therefore, entered in the "enterprises" primary income with a plus sign.
 - (4) UN, Yearbook of National Accounts Statistics, Introduction, Chapter 3 of any issue.

11. To sum up, "the global product (GSP) is the value of material goods produced in the branches of material production during a given period. In its physical, tangible composition, the global product consists of means of production and consumer goods... In respect of value the global product is distributed between material input (C) and newly created value (V + M). Material input comprises the value of materials, fuel, electric power and other similar items consumed, including depreciation of fixed assets employed in the material sphere... National income (NMP) is a newly created value. In the stage of production it is measured as that part of the global product that remains after deduction of material inputs. In the stage of distribution, the national income is classified into primary incomes of the population engaged in the sphere of material production, and primary incomes of the enterprises of that sphere" (UNBP, pages 13-14).

12. The set of accounting identities which relate aggregate supply, total value added, total income and aggregate demand, is valid for Net Material Product too, with the modifications required by the criterion of material production. Indeed, NMP is identical to aggregate material supply to the extent that it is the market⁽¹⁾ value of material goods and services legally produced - and therefore offered - in any given year by a (socialist) economy. NMP is identical to total value added in the material sphere, as defined by the Soviets, in that it represents the difference between gross output and material inputs. NMP is identical to total material income in that it represents the sum of the primary incomes of the population, enterprises and state, earned in the material sphere. NMP is identical to aggregate material demand in as much as it represents the sum of final material consumption, net capital formation, net exports and that particular item of Soviet accounting called "losses". Chart 1 at Annex shows the income flow in the Soviet sense, utilizing mostly Soviet definitions.

13. The first component of aggregate material demand is final material consumption, generally called the "consumption fund" in the System of Material Balances. This consists of the consumption of material goods by the population and material inputs by institutions of the non-material sphere. "It includes both the current consumption and the consumption of non-productive fixed assets as measured by their annual depreciation" (UNBP, page 16). In other words, wear and tear of dwellings and assets of non-productive institutions are

(1) It might seem strange to talk about "market" prices in economies where most are administratively fixed. That is why some sources - mostly American - prefer to speak of "established" prices.

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considered consumption. This is a totally different approach from the West and makes the "Net" material product a partially "gross" concept, in that it is gross of depreciation of non-productive assets. This is readily seen in Table 1 at Annex, where the income and expenditure account of a socialist country is reconstructed to show how the classification procedures of the (Eastern) System of Material Balances differ from those in the (Western) System of National Accounts(1).

14. The second main component of aggregate material demand, commonly called the "accumulation fund" in COMECON, is net capital formation. This is the part of NMP utilized for the purpose of net fixed capital formation and increase of stocks. The former is the increase in value of both productive and non-productive fixed assets, while the latter comprises not only all the items commonly included in the West under this heading (e.g. increase in stocks of raw materials, fuel, spare parts, semi-manufactured goods, livestock), but also the increase in "work in progress", i.e. that part of capital investment which has not yet been translated into finished fixed assets. The distinction between finished and unfinished investments represents a complication as regards Western capital accounts. Indeed, "capital expenses" (Kapitalnyye vlozheniya) are broken down into "New fixed assets put into operation", "Increase in work in progress" and "Losses on discontinued projects". Therefore a first difference with Western methodology arises: the "capital expenses" account excludes capital repairs. However, even when this item is added and depreciation subtracted, the value obtained is different from net fixed capital formation, either Eastern or Western, because of the treatment of work in progress (included in stocks) and losses on discontinued projects. (Table 1 at Annex and related footnotes). Nevertheless, apart from the differences due to different accounting aggregation, and unlike the case of consumption, net capital formation does not show any conceptual difference from Western methodology.

15. The sum of consumption and accumulation represents a distinct concept in the System of Material Balances: NMP utilized. The difference between this and NMP "produced" - the magnitude usually analyzed - is the trade balance and losses. As the Soviets exclude non-material services from their product concept, they insert the trade balance in their NMP calculation instead of the balance of current transactions - which includes invisibles - as is customary in the System of National Accounts.

(1) As figures for the Soviet Union were not readily available, Bulgaria (1970) served as an example. No difference of methodology or classification exists between Bulgaria and the Soviet Union.

The material trade balance is the difference between material exports and imports, "both expressed in domestic currency by using current foreign exchange rates. However, in some countries the balance of trade used in compiling the balance of global product and national income is converted by using domestic selling prices of imports and domestic buying prices of exports" (UNBP). In the Soviet Union, the balance is expressed in foreign trade prices, i.e. using current exchange rates, so that both imports and exports must be converted into internal prices when assessing Soviet GNP on the basis of NMP accounting.

16. Losses are the fourth and last component of aggregate material demand. They represent capital "consumption" due to natural calamities or human errors and are covered by depreciation in Western methodology. Accordingly, Western "accumulation" or "gross investment" is the sum of net investment, allowances for wear and tear, and allowances to cover losses, the last two categories being equal to depreciation allowances. It is difficult to say why the Soviets keep the category of losses as a separate item of NMP, thus rendering this concept a little more "gross". Indeed, this part of depreciation adds to that of housing and non-productive capital already included in material consumption. Nevertheless, not all losses are included in NMP, for example those connected with current production (spoiled work or losses in storage). They are either omitted altogether (spoilage) or treated as material inputs (losses in storage) and, therefore, included in GSP, but excluded from NMP. As a result, capital losses only are part of NMP, i.e. losses for scrapped assets, losses due to natural calamities and to scrapping of unfinished construction, the last being the only type of "inventory" loss.

RECONCILIATION OF NMP AND GNP

17. The above definitions and description lead to the identification of three main differences between NMP and GNP viewed as value added, and again three differences from the aggregate demand viewpoint(1). As Soviet value added is the difference between the gross value of sectoral output and material inputs, it includes non-material intermediate consumption, i.e. inputs of non-material services by material sectors which are excluded from GNP. On the other hand, Soviet value added is only partially gross, so that it is less than GNP by the amount of depreciation other than housing, non-productive assets and amortization of losses. Finally, Soviet

(1) We omit, for the time being, the adjustment for domestic pricing of imports and exports.

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value added does not include the value added of non-material services, neither of those services which are paid for nor those offered free by the State. Therefore, the following equation can be established, referring to "Soviet" as opposed to "Western" value added:

- (4) Soviet value added - inter-industry consumption of net-mat services + depreciation adjustment + non-material sphere value added = Western (gross) value added.

18. From the aggregate demand point of view, NMP differs from GNP first of all because it includes material consumption of the non-material services sector which is intermediate, not final, for Western accountancy. On the other hand, it includes only part of depreciation. In addition, the services from the non-material sphere are excluded altogether. Therefore, the following equation can be established, linking Soviet and Western aggregate demand:

- (5) Soviet aggregate demand - material consumption of the non-material services sector + depreciation adjustment + final consumption of non-material services (including government wages and salaries) = Western aggregate demand.

19. All these equations are made explicit by the input-output scheme, as presented in Table 2 at Annex. For the sake of simplicity, losses are not presented separately and NMP-GNP are evaluated following the Soviet practice of accounting exports and imports at foreign trade prices. Not to complicate an already cumbersome scheme, the economy is divided into three material sectors only, although empirical reconstructions of the Soviet inter-industry flows are available with more than fifty producing sectors(1). The relevant items of quadrant IV must be added and the red areas of quadrant I and III must be subtracted from NMP in order to reach GNP estimates. Of course, both NMP and GNP are viewed as value added across the corresponding horizontal rows and as aggregate demand across the appropriate vertical columns. The table is self-explanatory but two remarks can be added. First, exports are sold to and imports marketed by Foreign Trade Organizations (FTOs) at domestic (administrative) prices. The value added - rather artificial - of importing FTOs is, therefore, the difference between the domestic value of imports they receive when selling and the (converted) foreign value of imports they

(1) Trembl and others, "The Soviet 1966 and 1972 Input-Output Tables", in Joint Economic Committee of the Congress of the US, Soviet Economy in a New Perspective, pages 333-376.

pay when buying abroad. Similarly, the value added of exporting FTOs is the difference between the values of exports at foreign and domestic prices. This difference covers factor remuneration(1) and an extra-profit provided by the administrative price structure of the socialist economies.

20. The second remark on Table 2 at Annex refers to a particularly misleading kind of double counting. Indeed, by putting the non-material services into the inter-industry quadrant II, only a part of the double-counting problem is resolved. Therefore, when evaluating GNP as aggregate demand, dwelling depreciation and depreciation of government capital are always subtracted as well as all material expenditures for both consumption and investment of the non-material services(2). Nonetheless, when GNP is evaluated as value-added, non-material services and government net value-added are combined; intermediate material services are then subtracted and all depreciation is finally added. But this is equivalent to duplicating housing and government assets depreciation, as shown by the equation in footnote (2), Table 2, at Annex.

21. Western recalculations of Soviet GNP, while being theoretically equivalent to the adjustments outlined above, are far more comprehensive and are based on estimating all macro-economic variables from scratch. Nevertheless, estimates of the few variables pinpointed in the above analysis help to check the results obtained through more extensive,

and rarely performed sets of calculations. Table 3 at Annex shows the reconciliation of NMP and GNP following the methodology of adjusting Soviet NMP rather than recalculating Soviet GNP(3). The adjustments are performed by manipulating NMP as aggregate demand, for Soviet statistics are more suited to this kind of approach. Personal consumption is netted from housing depreciation, and government expenditure is reduced by government capital depreciation. Total depreciation (net of losses) is then added to net capital formation on the accumulation account, which is completed by the addition of losses. The series of adjustments referring to the non-material sphere

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- (1) Intermediate inputs of FTOs are left out of the picture for the sake of simplicity, but they would not alter the analysis in any significant way. Indeed, the only modification would be to disaggregate the e(d)'s into intermediate inputs and commodities re-exported: the column total would be the same as would be the intermediate inputs subtracted from the value added.
- (2) Depreciation is already accounted for totally in the _____ column of "Gross Capital Formation".
- (3) Such recalculation is presented, for 1970, in: CIA, USSR: Gross National Product Accounts, 1970, November, 1975.

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starts by adding expenditure for non-material services to personal consumption and wages and the purchase of non-material services to the government account. Then, an adjustment is introduced to deduct the material consumption of the non-material services (sold) sector. A final rectification is required to shift exports and imports from foreign-trade to domestic prices.

22. As seen in Table 3 at Annex, the "adjusting method" gives a result quite in agreement with the "recalculating method". Moreover, it is not unlikely that the former is even more accurate than the latter, as US "recalculating" estimates are likely to include some double-counting in unfinished construction and an over-estimation of R&D.

TABLE 1

N A T O R E S T R I C T E D

ANNEX to
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SYSTEM OF MATERIAL BALANCES : INCOME AND EXPENDITURE ACCOUNT (Figures refer to Bulgaria in 1970 and are in billion current Leva)

INCOME		EXPENDITURE	
I. PRIMARY INCOME OF THE POPULATION	5415	3. CONSUMPTION FUND	7417
1.1 SOCIALIST SECTOR	5383	3.1 PERSONAL CONSUMPTION	6655
1.1.1. State Sector	(3204)	3.1.1. Goods	
1.1.2. Cooperative Sector	(1337)	3.1.2. Dwelling depreciation	
1.1.3. Personal Plots of the Households	(841)		
1.2 PRIVATE SECTOR	32	3.2 WELFARE INSTITUTIONS CONSUMPTION	465
2. PRIMARY INCOME OF THE STATE AND ENTERPRISES	5113	3.2.1 Goods	
2.1 SOCIALIST SECTOR	5113	3.2.2. Fixed Assets Depreciation	
2.1.1. State Sector	(4213)	3.1 + 3.2 CONSUMPTION OF THE POPULATION	(7119)
2.1.2. Cooperative Sector	(899)	3.3 COLLECTIVE INSTITUTIONS CONSUMPTION	297
2.2 PRIVATE SECTOR	-	3.3.1 Goods	
		3.3.2 Fixed Assets Depreciation	
		4. ACCUMULATION FUND	3060
		4.1 Net Fixed Capital Formation	1948
		4.1.1. New Fixed Assets put into use	(3190)
		4.1.2. Capital repairs	
		4.1.1.+4.1.2. Gross Fixed Capital Formation	(3764)
		Minus	
		4.1.3. Fixed Assets Depreciation	
		4.1.4. Losses for scrapped fixed assets	
		4.1.5. Losses due to calamities	
		4.2. Increase in stocks of :	1112
		4.2.1. Raw Materials, parts and semi-manufactured	
		4.2.2. Works in Progress	
		4.2.3. Finished goods	
		4.2.4. Commodities in transit	
		4.2.5. Livestock	
		4.2.6. State Stockpiles	
		=====	
		3 + 4 NET MATERIAL PRODUCT UTILIZED	10477
		5. LOSSES (INCLUDING STATISTICAL DISCREPANCY)	- 152
		5.0.1. Losses on discontinued projects	
		5.0.2. Losses for scrapped fixed assets	
		5.0.3. Losses due to calamities	
		6. NET EXPORTS	202
		6.1. Exports	(2345)
		MINUS	
		6.2. Imports	(2142)
=====		=====	
1.+ 2 NET MATERIAL PRODUCT (Produced)	10527 10527	3 to 6 NET MATERIAL PRODUCT (Produced)	10527 10527

NOTES : A) Transfers from the State to the population would accrue to the population's income and would accordingly reduce the State "primary" income.

B) Capital expenses : New fixed assets put into use
Increase in works in progress } (3552)
Losses on discontinued projects }

C) Investment-Gross : Capital expenses
(Western-Concept) Capital repairs
Increase in inventories
(excluding works in progress)

N A T O R E S T R I C T E D

TABLE 2

AN INPUT-OUTPUT RECONCILIATION OF GNP AND NMP

	1. AGRICULTURE	2. INDUSTRY	3. MATERIAL SERVICES	4. Ø	5. SUBTOTAL 1 to 4	6. NON MATERIAL SERVICES	7. CONSUMPTION	8. GROSS CAPITAL FORMATION	9. GOVERNMENT	10. SUBTOTAL 6 - 9	11. FOREIGN TRADE	12. TOTAL 5 + 10 + 11
1. AGRICULTURE	x (1,1)	x (1,2)	x (1,3)		Intermediate consumption of agricultural goods	x (1,s)	c (1)	k (1)	g (1)	Final utilization of agricultural produce	e ^d (1)	X ₁
2. INDUSTRY	x (2,1)	x (2,2)	x (2,3)		Intermediate consumption of industrial goods	x (2,s)	c (2)	k (2)	g (2)	Final utilization of industrial goods	e ^d (2)	X ₂
3. MATERIAL SERVICES	x (3,1)	x (3,2)	x (3,3)		Intermediate consumption of material services	x (3,s)	c (3)	k (3)	g (3)	Final utilization of material services	e ^d (3)	X ₃
4. DEPRECIATION	d (1)	d (2)	d (3)		Consumption of productive capital	d (s)	d (houses)		d (government capital)	Consumption of non productive capital		D
5. SUBTOTAL 1 to 4	Intermediate domestic consumption in agriculture	Intermediate domestic consumption in industry	Intermediate domestic consumption in material services		TOTAL INTERMEDIATE CONSUMPTION	Material consumption by non material services	Soviet personal consumption	Soviet gross accumulation	Material consumption of government	UTILIZED GROSS MATERIAL PRODUCT		
6. NON MATERIAL SERVICES	x (s,1)	x (s,2)	x (s,3)		Non material services sold to enterprises	x (s,s)	c (s)	k (s)	g (s)		e ^d (s)	S
7. VALUE ADDED	va (1)	va (2)	va (3)		Value added in material production	va (s)			va (g)		(E _f - E _d) + (M _d - M _f)	VA
8. SUBTOTAL 6 + 7	Soviet primary income in agriculture	Soviet primary income in industry	Soviet primary income in material services		UTILIZED NET MATERIAL PRODUCT							
9. FOREIGN TRADE	m ^d (1)	m ^d (2)	m ^d (3)			m ^d (s)						M _d
10. TOTAL 5 + 8 + 9	X ₁	X ₂	X ₃			S	C + d (h)	I + D	G + d (g)		(E _f - M _f) + M _d	GRAND TOTAL

LEGEND

- Ø = empty column
- x (i, j) = value of commodities from the i-th sector into the j-th sector
- x (s, j) = value of non material services into the j-th sector
- va (j) = value added generated in the j-th sector
- m^d (j) = value of imports utilized by the j-th sector at domestic prices
- X_i = vertical and horizontal summations (gross value produced in the j-th sector)
- d (j) = depreciation allowance in the j-th sector
- c (i) = value of the personal consumption of the i-th commodity
- k (i) = value of the production from the i-th sector utilized for gross investment
- g (i) = value of government consumption
- e^d (i) = value of exports at domestic prices from the i-th sector
- E_d = total value of exports at domestic prices
- M_d = total value of imports at domestic prices
- E_f = total value of exports at foreign trade prices

- M_f = total value of imports at foreign trade prices
- S = total value of services
- C = personal consumption, western concept
- I = net investment, western concept
- D = depreciation allowances (including "losses"), western concept
- G = government consumption, western concept
- VA = value added

NOTES

1. In this formulation exports and imports entering GNP calculations are accounted for in foreign trade prices.
2. The "grand total" represents both total sales and total purchases. In symbols :

$$X_1 + X_2 + X_3 + S + C + d(h) + I + D + G + d(g) + E_f - M_f + M_d = X_1 + X_2 + X_3 + D + S + VA + M_d$$

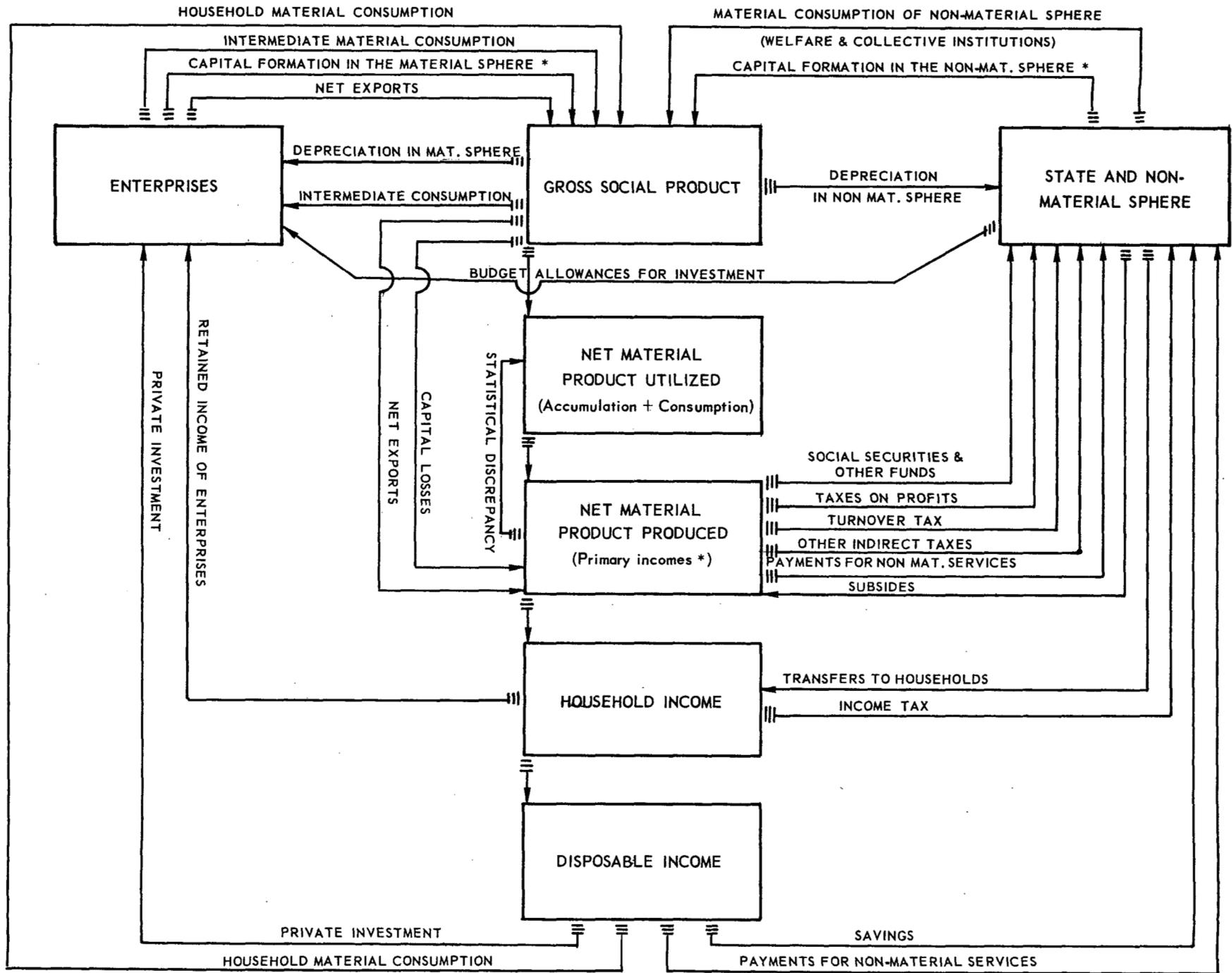
$$(C + I + D + G + E_f - M_f) + d(h) + d(g) = VA + D$$
 which shows that VA + D is greater than GNP by the sum of d (h) + d (g).

USSR - AN ACCOUNTING RECONCILIATION OF GNP AND NMP - 1970 - BILLIONS OF CURRENT RUBLES

TABLE 3

	TOTAL	PERSONAL CONSUMPTION	GOVERNMENT	INVESTMENT (ACCUMULATION)	NET EXPORTS	LOSSES
NMP (produced)	289.9	177.9	23.4	84.2	0.9	3.5
Adjustments						
1. Housing depreciation	-4.8	-4.8				
2. PCE for services	19.8	19.8				
3. Material expenditures of sold services	-3.5		-3.5			
4. Wages and purchases of services by government	41.4		41.4			
5. Depreciation of govern- ment capital	-6.1		-6.1			
6. Total depreciation	40.8			40.8		
7. Losses	--			3.5		-3.5
8. Net exports	-7.0				-7.0	
GNP derived from NMP	370.5	192.9	55.2	128.5	-6.1	--
GNP recalculated by US Government	382.1	194.5	73.5	120.1	-6	--
Difference	-11.6	-1.6	-18.3	8.4	--	--

NOTE : * Gross, i.e. including both depreciation and losses



ANNEX - CHART 1. SYSTEM OF MATERIAL BALANCES : INCOME FLOW