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0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

Edited by S. G. Wheatcroft and R. W. Davies

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This book contains a full translation of a major but little-known Soviet work on Soviet national income accounts for a crucial stage in the social and economic transformation of the Soviet economy from 1928 to 1930. These were years of mass collectivisation and the launching of the Soviet industrialisation drive. The USSR was perhaps unique in having a well-developed statistical service able to record the detailed changes in economic relationships that were taking place at this time.

The translation is accompanied by three introductory articles which explain the structure and contents of these materials, what new light these materials throw on the development of the Soviet economy in this period and describe the significance of these materials for the history of Soviet statistics and planning. Amongst other questions this evidence casts some doubt on recent attempts to show that Soviet industrialisation resulted in a change in the net flow of goods between industry and agriculture, in favour of agriculture. It also shows that considerable attempts were made by some influential statisticians and planners in the early 1930s to analyse the relationship between different branches and sectors of the economy. In a foreword Professor Sir Richard Stone places the achievement of the construction of these materials in the history of Western works on national income accounts.

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MATERIALS FOR A BALANCE OF THE
SOVIET NATIONAL ECONOMY
1928-1930

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Frontmatter

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Frontmatter

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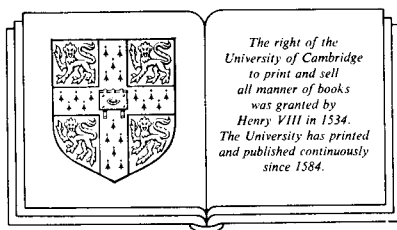
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with a foreword by

RICHARD STONE



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Frontmatter

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Frontmatter

[More information](#)

Contents

<i>Foreword by Richard Stone</i>	<i>page</i> ix
<i>Preface by the Editors</i>	xxiii
EDITORS' INTRODUCTION	
by S. G. Wheatcroft and R. W. Davies	1
1 THE STRUCTURE AND CONTENT OF THE 'MATERIALY'	3
1.1 General structure of the <i>Materialy</i>	3
1.2 The balances	6
1.3 National income	9
1.4 The balance of reproduction as a whole	12
1.5 Estimates in constant prices	13
2 THE 'MATERIALY' AS A SOURCE OF INFORMATION ON SOVIET ECONOMIC DEVELOPMENT	16
3 A BRIEF HISTORY OF THE BALANCE OF THE NATIONAL ECONOMY	34
MATERIALY	
translated by B. Pearce, S. G. Wheatcroft and R. W. Davies	49
1 INTRODUCTION: by S. Minaev	53
2 ARTICLES	55
I General results of the national economic balance for 1928, 1929 and 1930: by A. Petrov	57
II Methodological questions concerning the balance of the national economy: by A. Pervukhin	100
3 TABLES AND NOTES	125
I General results of the balance of the national economy (summary tables)	125
II Constituent elements in the balance of the national economy	151
	vii

Cambridge University Press

0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

Edited by S. G. Wheatcroft and R. W. Davies

Frontmatter

[More information](#)

viii

Contents

III Basic integrated tables in the balance of the national economy	221
IV Explanatory notes on the calculation of articles in the balance	256
V Appendices (tables)	312
VI Notes to tables	441
<i>Glossary</i>	461
<i>Index</i>	465

Cambridge University Press

0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

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Frontmatter

[More information](#)

Foreword

By RICHARD STONE

I. INTRODUCTION

It is a pleasure for me to be writing the preface to this very interesting volume. I learnt of the existence of the original many years ago but being ignorant of Russian could never have got beyond a broad knowledge of its content without an English translation. Now that I have been enabled to read it I find my expectations confirmed: anybody interested in economic history owes a great debt to Professor Davies and Dr Wheatcroft for opening up this hitherto almost unknown page of it.

Official work on economic statistics in early Soviet Russia was considerable. Some information on it and on the personalities involved is given by Naum Jasny in [8, 9], and one of its most remarkable achievements, the 1923–4 input–output table, is reproduced by V. S. Nemchinov in [16]. The present study was originally published in 1932 in 500 copies for official use only. The statistical material it contains relates mainly to 1928, 1929 and 1930 and is of great interest from two points of view. To the student of Russian history it shows the kind of information available as a basis for planning during an important period which saw the unfolding of the first Five-Year Plan, the intensification of the drive towards industrialisation and the introduction of collective farming. And to the student of economic ideas it shows the progress made in Russia during the 1920s towards the construction of national accounts.

The first, specifically Russian aspect is exhaustively dealt with by the editors in the introductory chapters of this book. The second is perhaps best understood if we look at it in the perspective of the development of national accounting from its origins to the present day.

2. THE POLITICAL ARITHMETICIANS

To trace the origins of the concept of national accounting we must go back to seventeenth-century England and to William Petty, one of the most remarkable men of that remarkable age. In 1664, largely with the object of making the tax system more equitable, Petty wrote a tract, entitled *Verbum Sapienti*, in which he gives the first known estimates of what may be called balances of the national economy [19]. Petty equates income to expenditure, which he identifies with ‘Expence for Food, Housing, Cloaths,

Table 1 *William Petty's original estimates, 1664 (£ million)*

Income		Expence	
From Land	8	Food, Housing, Cloaths and all other necessities	40
From other Personal Estates	7		
From the Labour of the People	25		
Total	40	Total	40

and all other necessities'. This he estimates at £40 million for the population of England and Wales, which he puts at six million inhabitants. He then estimates the income yielded by land at £8 million and that yielded by 'other Personal Estates' at £7 million. 'Now,' he says, 'if the Annual Proceed of the Stock, or Wealth of the Nation yields but 15 Millions and the Expence be 40, then the Labour of the People must furnish the other 25.' His figures can be set out as an account with four entries, as in table 1.

Table 1 is an example of Petty's 'political arithmetick', which his contemporary Charles Davenant defined as 'the art of reasoning by figures upon things relating to government'. Davenant himself was an enthusiastic practitioner of this art and in his numerous political writings made extensive use of figures to support his arguments. But from our point of view by far the most important of the political arithmeticians was Gregory King.

King was a herald by profession and seems to have worked out his economic estimates for his own curiosity. Had it not been for Davenant, who introduced many of them, with due acknowledgements, in his own books, they would have remained unknown until 1802, when they were rediscovered and published by Chalmers [10].

One of King's most fascinating tables shows the income, expenditure and saving of the population of England, divided into 26 social classes, in the year 1688. A version of it, slightly amended and converted to decimal currency, is set out in table 2. Evidently King's main purpose in working out his balances of income and outlay was to find out the contribution made to 'the wealth of the kingdom' by the various types of 'family', or in modern terms household. To us what is even more interesting is the view it affords of the socio-economic situation of his day.

Another of King's tables which is worth reproducing here is his comparison of England with her two political and commercial rivals, France and Holland, in 1688 and 1695. This is set out with slight amendments in table 3. This table, again, is a mine of information. It contrasts totals with per head figures. It gives a breakdown of consumption. It shows three alternative definitions of income-outlay: as the sum of consumption at market prices plus saving; as the sum of property income plus labour income; and as the sum of consumption at factor cost plus (indirect) taxes plus saving. And by presenting the data within a unified framework it enables many interesting and amusing comparisons to be made both over space and over time. Thus, France, with its relatively large population, has by far the largest income whereas Holland has the smallest; in terms of income per head, however, the position is reversed. The English appear as great

consumers of meat and beer, the Dutch seem to prefer poultry and fish to meat and the French definitely prefer wine to beer. In all three countries saving falls in wartime though it remains positive in Holland. Taxes are much higher in Holland than in the other two countries though in all three countries they increase greatly in wartime. King projected his estimates to 1698 and concluded that the war could not be continued beyond that date. He was quite right: the War of the League of Augsburg lasted from 1689 to 1697.

When one reflects that King's estimates were the first of their kind ever to be made one cannot but be amazed at their complexity and sophistication and deplore that they had no sequel. The next step would have been to bring production and foreign trade into the picture, and with the data at his disposal King could indeed have done it: Phyllis Deane has shown in [5, 6] that it is possible to construct a complete set of national accounts using only the estimates made by him or available at the time he was writing. Her totals are brought together in matrix form in table 4.

This table is based on Professor Deane's work but I have stuck my neck out a bit further. She gives five accounts: production, households, government, capital transactions and the rest of the world. I have subdivided government into central and local in order to show the financing and distribution of poor relief, which was one of the responsibilities of local government. King, as we saw in table 2, treats indoor domestic servants as family members and does not impute an income for their services. I have adopted Professor Deane's imputation and shown this as an expenditure of the 'rich'; at the same time I have subtracted an amount equal to servants' income from the expenditure of the 'rich' and added it to the expenditure of the 'poor'. I have also accommodated the £0.2 million of hearth money (a direct tax) by reducing the consumption of the 'rich' by the same amount, thus balancing accounts 1 and 3.

In my table the 'rich' are those who save in table 2 less 215,000 indoor servants; and the 'poor' are those who dissave in table 2 plus the indoor servants. The £2.4 million of saving is the saving of the 'rich' in table 2; and the dissaving of the 'poor' in table 2 is removed by the receipt of £0.6 million of poor relief. Assuming, as I have, that the 'poor' devote all their income to consumption and neither save nor pay taxes, there were in England in 1688 2.461 million 'rich' with an annual income per head of £14, and 3.040 million 'poor' with an annual income per head of £3.7.

Table 4 shows how far King could have got with his political arithmetick. However, he did not pursue the matter, he had no followers, and after his brilliant start all thoughts of balanced accounts seem to have evaporated.

3. FRANÇOIS QUESNAY

The next man we must look to for a quantitative expression of the interdependence of economic flows is François Quesnay, Louis XV's physician. Like many progressive Frenchmen of his day, Quesnay was an advocate of *laissez faire* and tax reforms which he believed would convert French agriculture into a highly capitalised and productive activity such as existed in England. In 1758, at the age of 62, he published his famous *Tableau Économique*, which was illustrated by figures relating to the French economy not

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Frontmatter

[More information](#)

Table 2 A scheme of the income & expense of the several families of England calculated for the year 1688

Ranks, Degrees, Titles and Qualifications	Number of families	Heads per family	Number of persons	Income per family £	Income per head £	Expense per head £	Increase per head £	Total income £'000	Total expense* £'000	Total increase £'000
Temporall Lords	160	40	6400	2800	70	60	10	448	384	64
Spiritual Lords	26	20	520	1300	65	55	10	33.8	28.6	5.2
Baronets	800	16	12800	880	55	51	4	704	652.8	51.2
Knights	600	13	7800	650	50	46	4	390	358.8	31.2
Esquires	3000	10	30000	400	40	37	3	1200	1110	90
Gentlemen	12000	8	96000	240	30	27.5	2.5	2880	2640	240
Persons in greater Offices and Places	5000	8	40000	240	30	27	3	1200	1080	120
Persons in lesser Offices and Places	5000	6	30000	200	20	18	2	600	540	60
Eminent Merchants & Traders by Sea	2000	8	16000	400	50	40	10	800	640	160
Lesser Merchants & Traders by Sea	8000	6	48000	200	33.3	28.3	5	1600	1360	240
Persons in the Law	10000	7	70000	140	20	17	3	1400	1190	210
Eminent Clergy-men	2000	6	12000	60	10	9	1	120	108	12
Lesser Clergy-men	8000	5	40000	45	9	8	1	360	320	40
Freeholders of the better sort	40000	7	280000	84	12	11	1	3360	3080	280
Freeholders of the lesser sort	140000	5	700000	50	10	9.5	0.5	7000	6650	350
Farmers	150000	5	750000	44	8.8	8.55	0.25	6600	6412.5	187.5
Persons in Liberal Arts and Sciences	16000	5	80000	60	12	11.5	0.5	960	920	40
Shopkeepers and Tradesmen	40000	4½	180000	45	10	9.5	0.5	1800	1710	90
Artizans and Handicrafts	60000	4	240000	40	10	9.5	0.5	2400	2280	120
Naval Officers	5000	4	20000	80	20	18	2	400	360	40
Military Officers	4000	4	16000	60	15	14	1	240	224	16
	511586	5¼	2675520	67	12.9	12	0.9	34495.8	32048.7	2447.1
Common Seamen	50000	3	150000	21	7	7.5	-0.5	1050	1125	-75
Labouring People & Outservants	364000	3½	1275000	15	4.3	4.4	-0.1	5460	5587	-127
Cottagers & Paupers	400000	3¼	1300000	5	1.5	1.75	-0.25	1950	2275	-325
Common Souldiers	35000	2	70000	14	7	7.5	-0.5	490	525	-35
	849000	3¼	2795000	10.5	3.25	3.45	-0.2	8950	9512	-562
Vagrants	-	-	30000	-	2	4	-2	60	120	-60
	849000	3¼	2825000	10.5	3.19	3.41	-0.22	9010	9632	-622

Cambridge University Press

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Frontmatter

[More information](#)

So the General Account is																		
Increasing the Wealth of the Kingdom	511586	5/4	2675520	67	12.9	12	0.9	34495.8	32048.7	2447.1								
Decreasing the Wealth of the Kingdom	849000	3/4	2825000	10.5	3.19	3.41	-0.22	9010	9632	-622								
Net Totalls [and averages]	1360586	4 1/20	5500520	32	7.9	7.55	0.33	43505.8	41680.7	1825.1								

*Note: This column does not appear in the original.

Source: Gregory King, *Two Tracts*, edited by G. E. Barnett, Johns Hopkins Press, Baltimore, 1936, p. 31 (amended).

Table 3 *The general account of England, France & Holland for the years 1688 & 1695*

	Totals (£ million)						Per head (£'s)					
	1688		1695		1688		1695		1688		1695	
	England	France	Holland	England	France	Holland	England	France	Holland	England	France	Holland
Bread ... & all things made of Meal or Flower				4.3	10.1	1.40				0.79	0.75	0.63
Beef, Mutton, Veal ... Venison, Conies				3.3	5.3	0.80				0.61	0.39	0.36
Butter, Cheese & Milk				2.3	4.0	0.60				0.42	0.30	0.27
Fish, Fowle & Eggs				1.7	3.7	1.10				0.31	0.27	0.49
Fruit, Roots & Garden Stuff				1.2	3.4	0.40				0.22	0.25	0.18
Salt, Oyl, Pickles ... & confectionery Ware				1.1	2.8	0.30				0.20	0.21	0.13
Beer & Ale				5.8	0.1	1.20				1.06	0.01	0.54
Wine, Brandy Spirits ... & made Wines				1.3	8.6	0.40				0.24	0.64	0.18
Dyets [food and drink]	21.3	41.0	6.40	21.0	38.0	6.20	3.87	2.93	2.91	3.85	2.82	2.78
Apparell [clothing]	10.4	18.5	3.00	10.2	16.0	2.80	1.89	1.32	1.36	1.87	1.19	1.25
Incident Charges [expenditure n.e.s.]	10.0	21.0	6.35	14.3	26.0	8.40	1.82	1.50	2.89	2.62	1.93	3.75
Increase [saving]	1.8	3.5	2.00	-3.0	-6.0	0.85	0.33	0.25	0.91	-0.55	-0.44	0.38
General Expence	43.5	84.0	17.75	42.5	74.0	18.25	7.91	6.00	8.07	7.80	5.49	8.15
Rent of Land, Buildings & other Hereditaments	13.0	32.0	4.00									
Produce of Trade, Arts & Labour	30.5	52.0	13.75									
General Income	43.5	84.0	17.75	42.5	74.0	18.25	7.91	6.00	8.07	7.80	5.49	8.15
Consumption besides Taxes	39.7	70.0	11.00	39.0	62.5	10.50	7.22	5.00	5.00	7.16	4.63	4.69
Publick Revenue & Taxes	2.0	10.5	4.75	6.5	17.5	6.90	0.36	0.75	2.16	1.19	1.30	3.08
Increase	1.8	3.5	2.00	-3.0	-6.0	0.85	0.33	0.25	9.01	-0.55	-0.44	0.38
General Expence	43.5	84.0	17.75	42.5	74.0	18.25	7.91	6.00	8.07	7.80	5.49	8.15
Population (millions)	5.5	14.0	2.2	5.45	13.5	2.24						

Source: Gregory King, *Two Tracts*, edited by G. E. Barnett, The Johns Hopkins Press, Baltimore, 1936, p. 55 (amended).

Cambridge University Press

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Frontmatter

[More information](#)

Foreword

xv

Table 4 *The national accounts of England in 1688 reconstructed from Gregory King's data (£ million)*

	1	2	3	4	5	6	7	8	Totals
1. Agriculture, manufacturing, trade etc.			30.3	11.2	2.3	0.1	1.7	5.1	50.7
2. Indoor domestic service			1.6						1.6
3. Rich	34.5								34.5
4. Poor	9.0	1.6				0.6			11.2
5. Central government	2.1		0.2						2.3
6. Local government	0.7								0.7
7. Capital transactions			2.4						2.4
8. Rest of the world	4.4						0.7		5.1
Totals	50.7	1.6	34.5	11.2	2.3	0.7	2.4	5.1	

as it was but as it might become if his proposals were adopted [20]. Quesnay's writings are not easy to follow and it is helpful if his scheme is set out in the form of an accounting matrix. This was done by Tibor Barna in [1] and his matrix is reproduced here, with slight variations, as table 5.

Table 5 *An imaginary social accounting matrix for France, c.1750 (million livres)*

	1	2	3	4	5	6	7	8	9	Totals
1. Agriculture	525.0	525.0	300.0	525.0	262.5	150.0	75.0	525.0	262.5	3150.0
2. All other activities			300.0	525.0	262.5	150.0	75.0			1312.5
3. Landowners	1050.0									1050.0
4. Farmers	1050.0									1050.0
5. Artisans		525.0								525.0
6. State			300.0							300.0
7. Church			150.0							150.0
8. Capital transactions	525.0									525.0
9. Rest of the world		262.5								262.5
Totals	3150.0	1312.5	1050.0	1050.0	525.0	300.0	150.0	525.0	262.5	

It is clear from the entries in this table that we are dealing with a simplified constructed example and not with empirical data. There are two branches of production, agriculture and manufacturing; three types of household, landowners, farmers and artisans; and two institutions, the state and the church. Finally, there is a capital account for agriculture and an account for foreign trade. There is no saving, and imports balance exports.

From table 5 we can derive a matrix of input-output coefficients and from this we can

work out the ratio of the national income (the total of accounts 3, 4 and 5) to agricultural output (the total of account 1) from two equations connecting the national income, agricultural output and manufacturing output (the total of account 2). Thus if we denote the national income by y , agricultural output by x and manufacturing output by z , we can write

$$0.6x + 0.4z = y \quad (1)$$

and

$$0.6x - 0.6z = 0.5y \quad (2)$$

whence

$$y/x = 1.2 \quad (3)$$

By setting a value on either x or y we could reconstruct table 5. We could also see what would happen to the economy if some of the coefficients were to change.

In addition to describing a static system, Quesnay interested himself in dynamics, particularly in the transition from traditional to modern agriculture. I shall not go into these developments here but an account of them by Barna can be found in [2].

As in the case of Gregory King, Quesnay's innovation made no practical impact on his contemporaries and did not bear fruit until much later.

4. KARL MARX

Marx was aware of the work of the political arithmeticians in so far as it was known in his day and admired it, but his schemes of simple and extended reproduction [15] owe more to Quesnay. In these schemes Marx considers a closed economy in which material production is divided into two branches: industry 1, which produces means of production, and industry 2, which produces consumers' goods. The production of services is not explicitly accounted for, but lies outside the production boundary. The model takes the form of a sequence analysis in which goods are produced in one period and used in the next. Each period possesses at the outset a stock of means of production and a stock of consumers' goods.

Means of production, or 'constant capital', c , consist of intermediate products plus the maintenance of fixed assets used in production. It simplifies matters, but is in no way necessary, if it is assumed that fixed assets have a life of one accounting period, say a year. Labour, or 'variable capital', v , is the only primary input, but in the course of production a 'surplus', s , is generated equal to the excess of sales proceeds over the cost of constant and variable capital. If we are dealing with a socialist economy, the surplus goes not to capitalists in the form of profits, interest and rent, but either to the state to provide for collective consumption or to accumulation to provide for an expansion of production. It is assumed that the workers do not save, but spend the whole of their income on consumption. In terms of cost, the ratio of constant to variable capital is 4:1 in industry 1 and 2:1 in industry 2.

In the simple reproduction scheme the surplus is not large enough to permit of any saving and so no money can be put into accumulation and the economy is stationary. Using Marx's figures, the national accounts and balance sheets will be as in table 6.

Cambridge University Press

0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

Edited by S. G. Wheatcroft and R. W. Davies

Frontmatter

[More information](#)

Foreword

xvii

Table 6 *The stationary economy (currency units)*

	Opening liabilities	Industry 1	Industry 2	Workers	State	Accumulation	Closing liabilities
Opening assets						8909	
Industry 1		4400	1600				
Industry 2				1900	1009		
Workers		1100	800				
State		500	509				
Accumulation	8909						8909
Closing assets						8909	

At the beginning of the period the economy holds tangible assets worth 8909 units, divided between means of production, 6000 units, and consumers' goods, 2909 units. This opening stock is replaced by industry 1 producing 6000 units and industry 2 producing 2909 units, as shown in the rows for production. The costs and surpluses associated with this production are shown in the corresponding columns. The cost of variable capital, that is wages, in industry 1 is 1100 units, one-quarter of the cost of the constant capital used; and in industry 2 it is 800 units, one-half of the constant capital used. When these expenses have been met, the surpluses in the two industries are 500 and 509 units respectively, and together they are just sufficient to pay for the collective consumption, 1009 units, provided by the state. Although the economy has saved in the past, thus giving rise to the accumulated saving of 8909 units shown in the opening liabilities, it does not save in the present, and so the closing assets and liabilities are the same as the opening ones. It will be noticed that $c_2 = 1600 = v_1 + s_1 = 1100 + 500$, which is the condition that Marx gives for simple reproduction.

If it is possible to save, the economy can grow. Starting from the position shown in table 6, Marx's extended reproduction scheme is illustrated in tables 7 and 8.

Table 7 is similar to table 6 except that the surplus in each industry is now larger. The increases in these surpluses are saved and invested in the industry's own goods, and the closing assets and liabilities exceed the opening ones by the amount of saving. For the second period, therefore, the national accounts will appear in table 8.

In table 8 each industry starts with 10 per cent more constant capital and so has the capacity to produce 10 per cent more output. It can pay out 10 per cent more wages to the workers and 10 per cent more transfers to the state, since the necessary consumers' goods were produced in the preceding period, and it can save 10 per cent more. If the economy continues in this way, all the entries in the national accounts will grow by 10 per cent in each period, and so the scheme provides a simple model of exponential growth.

Looking back on this short survey we see that with the political arithmeticians the idea of national economic balances was first conceived as the equality of income and expenditure and used as a coordinating criterion for understanding the workings of the economy as it was. With Quesnay we have an explicit recognition of the interdependence of economic flows and a rudimentary planning scheme, in which the figures are not

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0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

Edited by S. G. Wheatcroft and R. W. Davies

Frontmatter

[More information](#)

xviii

*Foreword*Table 7 *The growing economy: first period (currency units)*

	Opening liabilities	Industry 1	Industry 2	Workers	State	Accumulation	Closing liabilities
Opening assets						8909	
Industry 1		4400	1600			600	
Industry 2				1900	1009	291	
Workers		1100	800				
State		500	509				
Accumulation	8909	600	291				9800
Closing assets						9800	

Table 8 *The growing economy: second period (currency units)*

	Opening liabilities	Industry 1	Industry 2	Workers	State	Accumulation	Closing liabilities
Opening assets						9800	
Industry 1		4840	1760			660	
Industry 2				2090	1100	320	
Workers		1210	880				
State		550	560				
Accumulation	9800	660	320				10780
Closing assets						10780	

observations but targets. With Marx we have a working dynamic model, albeit very simplified, and the figures are merely arithmetical illustrations.

These are the empirical and theoretical strands that converge in the monumental work of the Russian statisticians presented in this book. In their introductory chapters the editors describe its structure and content, its role as a source of information in Soviet economic development, the planning zeal that inspired it and the quicksands of political controversy in which it foundered. Partial sectoral balances continued to be constructed in Russia as aids to planning but the comprehensive vision of Popov and his colleagues was not revived until the late 1950s, as described by Trembl and the others in [22]. By then input–output and national accounting had become normal practice all over the world.

5. THE SNA AND THE MPS

Although the notion of organising economic data into an accounting framework had died with Gregory King, sporadic attempts at estimating some of the more important aggregates, especially income, continued to be made throughout the eighteenth century in a number of countries, notably France, England and Russia. In the nineteenth and

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0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

Edited by S. G. Wheatcroft and R. W. Davies

Frontmatter

[More information](#)*Foreword*

xix

early twentieth centuries the statistical pace accelerated and the range of data collected broadened considerably. By the time the Russian statisticians embarked on the construction of their balances the statistical material for such an exercise was fairly abundant both in Europe and in America. But nowhere outside Russia was a concerted effort made to bring this material together. Individual researchers went their independent ways, following their own interests. As a result the growing flow of data was insensibly channelled into two separate streams which did not meet until each had swelled into quite a large river. One was the analysis of inter-industry relationships, which might be called the Quesnay stream; the other was the estimation of the components of income and outlay, which might be called the Gregory King stream.

Inter-industry analysis made its first appearance in America in a paper published in 1936 by Wassily Leontief [13]. Leontief had been a student at the university of Leningrad, knew the work of the official statisticians well and in 1925 had written a critique of the 1923–4 balances [12]. He applied his input–output model to US production data for 1919 and 1929 and his first large inter-industry table, with the productive system subdivided into 41 branches and complemented by rather sketchy vectors of final output and value added, appeared in 1941 [14].

On the income and outlay side Simon Kuznets had been making progress in America with income estimation [29] and had published in 1938 a study of commodity outputs and capital formation [11]. And in England Colin Clark, in his *National Income and Outlay* published in 1937, had brought together British data on income, output, consumers' expenditure, government revenue and expenditure, capital formation, saving, foreign trade and the balance of payments, thus covering in some detail both final demand and value added [4]. Although he did not set his figures in an accounting framework it is clear that they came pretty near to consistency.

The time was ripe for the advent of national accounts. In 1941 some highly aggregated balances of the British national income and expenditure, which James Meade and I had worked out while serving in the War Cabinet Offices, were included at the instigation of Keynes in a Budget White Paper [23]. In the same year Ludwig Gruenbaum (Gaathon) brought out his *National Income and Outlay in Palestine, 1936*, which was also cast in an accounting format [7], and Ed van Cleeff in Holland published two papers on a system of national book-keeping [30]. By the end of the war interest had spread. In 1945 I was asked to prepare for the League of Nations a memorandum on the definition and measurement of the national income and related totals, which was published in 1947 [24]. Soon after, the Organisation for European Economic Co-operation set up a National Accounts Research Unit, one of whose tasks was to design a standard system of accounts for use by the member countries [17, 18]. And in 1952 a committee convened by the United Nations formulated the first *System of National Accounts*, which came out the following year and became known as the SNA [25].

At the early stages of national accounting final output and value added were subdivided into their main components but production was treated as a single activity, without any disaggregation into separate branches. However, input–output analysis had also been making considerable advances and the progress continued during the fifties and sixties. In 1951 Leontief published a second, expanded edition of his original

Cambridge University Press

0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

Edited by S. G. Wheatcroft and R. W. Davies

Frontmatter

[More information](#)

xx

Foreword

input–output tables [14]. Similar tables, more or less detailed, were compiled in many other countries and people began to experiment with the disaggregation of production in the national accounts. The social accounting matrix constructed in 1962 by the Cambridge Growth Project incorporated two industry/commodity submatrices, each containing 31 rows and columns [3]. The integration of input–output into the national accounts finally received its official blessing with the major revision of the SNA published in 1968 [26].

Neither the Soviet Union nor any of the other East European countries had taken part in the formulation of the SNA. Instead, they had developed a system of balances of the national economy, very similar to the balances presented in this book, which was known as the Material Products System, or MPS. The MPS varied from country to country but eventually an agreed formulation was prepared by the Council for Mutual Economic Assistance of the socialist countries and published by the UN in 1971 [27].

The SNA and the MPS both provide an integrated picture of the whole economy. They differ in a number of details, but the most important difference lies in the concept of production, which may be defined in a general way as the bringing into being of goods and services with the ultimate object of satisfying human wants. The question is, where do we draw the production boundary. In the SNA it is drawn widely so as to include all production of goods and services intended for sale (including that part which is not in fact sold but is consumed by the producer) and all non-market production by private non-profit institutions and government departments. What is excluded is the productive activity of household members and amateurs. In the MPS, on the other hand, the production boundary is drawn narrowly so as to include the only material products. The last two words should perhaps be put in inverted commas, since in fact they include the transport of goods but not of people and the services of restaurants but not of hotels; however, their coverage tends to become more inclusive over time. The services excluded from production are relegated to the non-productive sphere and do not appear in the material product balances.

In 1968, on the occasion of the fiftieth anniversary of the Polish Central Statistical Office, I tried to show, with the help of a numerical example based on the revised SNA, that it was possible to form a ‘super matrix’ from which either system could be derived by an appropriate grouping of the entries [21]. My example was oversimplified and did not deal with all the differences between the two systems; but it went some way towards showing that they represented alternative arrangements of the same basic data.

After the publication of the revised SNA, the Conference of European Statisticians at Geneva started work on links between the SNA and the MPS and eventually a very interesting two-part report was brought out by the UN. The first part, published in 1977, explains in detail how it is possible to pass from one system to the other by adding and subtracting components; the second, published in 1981, contains examples of the national accounting aggregates of SNA countries recast in MPS form and vice versa [28].

And there the matter rests. Progress has been made in formulating and comparing the two systems. It seems clear that they should be considered in terms of their convenience for the purposes for which they are used and not in terms of right and wrong. We may

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0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

Edited by S. G. Wheatcroft and R. W. Davies

Frontmatter

[More information](#)

Foreword

xxi

even hope that one day it will be possible to describe the world economy on either basis.

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Cambridge University Press

0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

Edited by S. G. Wheatcroft and R. W. Davies

Frontmatter

[More information](#)

xxii

Foreword

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Cambridge University Press

0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

Edited by S. G. Wheatcroft and R. W. Davies

Frontmatter

[More information](#)

Preface

The present publication is a translation of *Materialy po balansu narodnogo khozyaistva SSSR za 1928, 1929 i 1933 g.g.*, issued in October 1932 by the Central Administration of National Economic Records of the USSR for official circulation. This important statistical study was made available for general use in several Soviet libraries in the early 1970s; a photocopy may be consulted in the Alexander Baykov Library of the Centre for Russian and East European Studies of the University of Birmingham.

In this edition the translation is preceded by three articles by the British editors. The first article (pp. 3–15) provides a brief guide to the complicated structure of the tables and explanatory notes of the Soviet work; the second (pp. 16–33) discusses the *Materialy* as a source of information on Soviet economic development; the third (pp. 34–48) reviews the place of the *Materialy* in the history of Soviet planning. At the end of the book we have provided a glossary of Russian terms, and of our English-language versions of the difficult Russian.

The initial translation was prepared by Brian Pearce, to whom we are most grateful for his careful work with a difficult text; it was revised by the editors. The translation is complete, except for half a dozen diagrams at the beginning of the book which do not contain new material. Phrases and words added to the text by the British editors are placed in square brackets, as are the numbers and letters of headings which we have changed or added to assist clarity. The tables were prepared from a somewhat blurred copy, and we fear that we may occasionally have misread a figure.

The conclusions of the introductory articles were presented to the Annual Conference of the ESRC Workgroup on Quantitative Methods in Economic History and to the Soviet Industrialisation Project Seminars (SIPS) in Birmingham; we are grateful to Professor C. H. Feinstein, Dr R. M. Harrison and others present at these sessions for their helpful comments. Valuable advice and assistance have also been provided by Professors Holland Hunter and Nobuo Shimotomai, and Dr J. M. Cooper, and by Professor M. Ellman, who first suggested that we should undertake the publication of an English-language edition of *Materialy*. We are particularly grateful to Professor Sir Richard Stone for his interest and encouragement. The heroic labour of preparing the tables was undertaken by Mrs Olga Griffin, and several drafts of the text were painstakingly typed by Mrs Betty Bennett, the Industrialisation Project secretary. The index was prepared by Alison Rowlett.

Cambridge University Press

0521020166 - Materials for a Balance of the Soviet National Economy, 1928-1930

Edited by S. G. Wheatcroft and R. W. Davies

Frontmatter

[More information](#)

xxiv

Preface

This translation was prepared in the course of our project on Soviet industrialisation, which is financed by the British Economic and Social Research Council. Dr Wheatcroft's and Mrs Bennett's salaries, and the cost of the initial translation, were provided by the ESRC; without this support the work would have been impossible. We are also most grateful to the Syndics of Cambridge University Press for taking on the formidable task of publishing this volume, and to Mrs P. Leng for her careful subediting.

S. G. WHEATCROFT

R. W. DAVIES

May 1985

*Centre for Russian and East European Studies,
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ERRATA IN TABLES

p. 136 (3.I. Table 5) In heading, *for* 'current prices', *read* 'producer's prices'.

p. 169 (3.IIB. Table 2) Add to footnote ²:

'All other stock entering the economy before inventorisation has been estimated in inventory prices (less depreciation), and stock entering the economy after inventorisation is estimated at the value of the outlays in the year of entry of the stock. But livestock has been estimated at the average annual prices for each year. Therefore the rate of growth of livestock within each single year in principle corresponds to the rate of growth in fixed prices. But when the live stock at the beginning of 1932 is compared with the stock at the beginning of 1928, the rate of growth reflects the change in prices over these years; as prices for livestock considerably increased in 1928-32, the growth-rate is considerably greater than that in fixed prices.'

p. 426 (App. C. Table 7) Col. A. Heading I *For* 'Industry including stock of industry', *read* 'Industry including stock of housing'.

p. 427 (App. C. Table 7) In note 1, *for* 'Less' *read* 'All'.

p. 432 (App. C. Table 7a) In note 1, *for* 'Excluding' *read* 'All'.