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RESEARCH MEMORANDUM

CAPITAL INVESTMENTS IN THE SOVIET UNION, 1924-1951

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CAPITAL INVESTMENTS IN THE SOVIET UNION, 1924-1951Introduction

The present paper is the first of four papers on Soviet capital formation. All will consider investments in fixed capital exclusively. In the present paper, I will be concerned only with investment flows in current rubles. Later (and shorter) papers will discuss: (1) Soviet data on the value of capital stock; (2) deflators for, and the deflation of, the investment series; and (3) international comparisons of the rate and direction of investment.

The present paper consists of two parts and an appendix. In part I, I will discuss those conceptual and organizational aspects of Soviet capital formation which are prerequisite for understanding and interpreting the Soviet data.

In part II, I will summarize the basic data on annual investments. I will present: (1) annual investments by major components--i.e., centralized investments, extra-limit investments, collective farm investments, and capital repairs; (2) annual investments by major sectors of the economy--i.e. industry, agriculture, transport, communications, trade, and social-cultural services; and (3) annual investments by scattered branches of the economy--e.g. ferrous metallurgy, railroad transport, housing construction.

I will leave to the appendix a detailed statement of: (1) the data and sources on Soviet investment flows; (2) the reasons for particular interpretations of the data; and (3) the bases for specific estimates and extrapolations. The appendix consists of a series of tables for each of which there is a statement of sources and a set of notes; references to the appendix will be by table number and note.

As a study of Soviet capital formation, the present paper is substantially incomplete. It contains estimates which will be checked, and gaps which will be filled, by later papers. Even fairly obvious international comparisons are postponed until the subject is examined systematically. On the th...

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of investment choice and on prospects for future developments, attention should be directed to "The Choice Among Investment Alternatives in Soviet Economic Theory," [REDACTED]

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I: Conceptual and Organizational Aspects of Soviet Capital Formation

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In the present section I will discuss in turn: (1) the Soviet concept of capital investment; (2) the capital investment plan; (3) the various investment categories--above-limit expenditures, below-limit expenditures, extra-limit expenditures, capital repairs, nonproductive investments; (4) the sources for financing capital investments; and (5) the distinction between centralized and noncentralized investments.

Most of the matters to be discussed will be definitional and institutional in nature. One major point of substance which emerges is the existence of a rather surprising sphere for decentralized investment decisions.

A. The Soviet Concept of Capital Investments

The Soviet concept of capital investments (kapital'nye vlozhenia) includes: (1) construction; (2) assembly of equipment; (3) purchase of equipment and implements; (4) design, geological, and prospecting work connected with a given object of construction; (5) land betterment, irrigation, and drainage; (6) formation and replacement of draft and productive <sup>1/</sup> livestock herds; and (7) certain expenditures not connected with an increase of fixed capital.

In comparison with current United States practice, the major item of difference is the Soviet inclusion of a part of expenditures on livestock as investments in fixed capital. Since the use of livestock for draft purposes is considerable in the Soviet Union and virtually nonexistent in the United States, the Soviet inclusion of expenditures on the acquisition of draft livestock would seem to be justifiable from the viewpoint of international comparison. On the whole, the Soviet category of capital investments represents

<sup>1/</sup> Productive livestock (produktivnyi skot) consists of livestock bred and kept for milk, hides, meat, wool and other products. Cf. S. V. Shol'ts, Kurs sel'skokhoziaistvennoi statistiki (Agricultural Statistics Course), Gosplanizdat 1945, p. 64.

Since the concept of fixed capital in agriculture excludes adult animals being fattened exclusively for slaughter, it may be concluded that expenditures on such activities are excluded from capital investments. Cf. slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike (Reference Dictionary on Social-Economic Statistics), Gosplanizdat 1948, pp. 248-249.

Even with the exclusion of expenditures on adult livestock being fattened for slaughter, not all the remaining expenditures on livestock are reported as investments in agriculture. Cf. Table I, note 1; Table IV, notes 1, 4, and 6; Table V, note 2. (References to the appendix tables are of three types: (a) Table I--the reference is to Table I; (b) Table I, note 1--the reference is to note 1 to Table I; (c) Table I and note 1--the reference is to Table I

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what we ordinarily think of as investments in fixed capital.

Construction includes: (a) the erection, expansion and reconstruction of buildings, mines, dams, roads, bridges, blast-furnaces, etc.; (b) the erection of electric power transmission and communications lines; (c) the assembly of metal constructions; (d) the laying of foundations for buildings and equipment; (e) the preparation of land for construction--the felling of trees, the demolition of buildings, etc.; (f) landscaping the building site; (g) the irrigation and drainage of land and other land improvements; (h) various kinds of mining work which are not part of the operating expenses of existing enterprises--the driving of mine shafts, the drilling of oil wells; (i) capital repairs to buildings, mines, dams, etc.

The assembly of equipment includes the assembly and installation of technical and power equipment. Assembly expenditures are a separable category only when the assembly work is performed by a special assembly or installation organization. Otherwise assembly expenditures are included in the cost of equipment. Construction plus assembly expenditures are called "pure construction" (chistoe stroitel'stvo).

Equipment includes technical, power, hoisting and transport machinery--machine tools, prime movers, turbines, locomotives, railroad cars, airplanes, automobiles, tractors, agricultural machinery, construction machinery, boilers, pumps, laboratory equipment, shop and experimental installations, and medical and hospital cabinets. Implements include hand tools, measuring and testing instruments, tables, desks, lamps, office equipment, fire-fighting equipment, iron, wooden, and metal packaging, and technical libraries. Implements, the value of which is less than 200 rubles or the life of which is less than one year, are excluded from the purchase of equipment and implements.

Expenditures not connected with an increase of fixed capital include, among unspecified others: (a) geologic and prospecting expenditures which are not connected with specific objects of construction; (b) expenditures on the training of labor cadres for enterprises under construction; (c) expenditures on the support of the management of enterprises under construction. Soviet sources recognize that such expenditures are not strictly investments in fixed capital. Their inclusion is justified by the institutional practice of including such activities in the estimate of costs of construction and of financing such activities out of grants for capital construction. It should be emphasized that not all of the expenditures on geologic and prospecting work nor on the training of cadres are included in capital investments. The budgetary category of operational expenditures (operatsionnye rashody) is defined to include: (a) expenditures on the training of cadres for economic organizations; (b) expenditures on scientific research; (c) expenditures on geological surveys; (d) prospecting expenditures; and (e) expenditures on experimental measures. Within the budgetary category of "financing the national economy," operational expenditures constitute an expenditure which is in addition to financing capital investments. (Cf. V. P. Diachenko, Finansy i kredit SSSR--USSR Finances and Credit--Gosfinizdat 1943, pp. 404-405). Where such items are included seems to depend upon how they are financed.

It should be noted that one Soviet source states: "At the present time, expenditures for preparing an enterprise to start production and for the actual initiation of production (pyskovye expenditures) are not included in the volume of capital work. These expenditures must be provided for in the financial plans of the various enterprises in accordance with provision for their basic activity." (L. Kantor, Osnovnye fondy promyshlennosti i ikh ispol'zovanie--Fixed Capital of Industry and its Use--Goslenizdat 1947, p. 91.) Precisely what expenditures are so treated is, however, unspecified.

For a discussion of expenditures included in capital investments, cf: Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike, pp. 248-250, 355-358; D. Savinskii, Kurs promyshlennoi statistiki, Industrial Statistics Course, Gosplanizdat 1949, pp. 267-271; M. Diachkov and V. Kiparisov, Uchet kapital'nogo stroitel'stva (The Calculation of Capital Construction)

In Soviet statistical practice capital investments (kapital'nye vlozhenia), capital work (kapital'nye raboty) and capital construction (kapital'noe stroitel'stvo) are used synonymously.<sup>3/</sup> I will use "construction" in the usual more restricted sense.

#### B. The Capital Investment Plan

The capital investment plan<sup>4/</sup> is an integral part of the national economic plan. The capital investment plan includes: (1) the total volume of capital work; (2) the breakdown of capital expenditures by (a) type of work, (e.g. new construction, expansion, restoration), (b) branch of the economy, and (c) regions; (3) the volume of new fixed assets to be put into service; (4) the amount of financing necessary for capital work; and (5) the itemized lists of projects.

The volume (ob'em) of capital work includes all capital expenditures regardless of whether the object of expenditure is put into service in the accounting period or not.<sup>5/</sup> The volume of capital work is stated in terms

<sup>3/</sup> D. Savinskii, op. cit., pp. 270-271; M. D'iachkov and V. Kiparisov, op.cit., p. 6.

<sup>4/</sup> Except where otherwise noted, the subsequent discussion of the capital investment plan is taken from L. Kantor, op.cit., pp. 89-101.

<sup>5/</sup> M. D'iachkov and V. Kiparisov, op.cit., p. 28.

of estimate (smetnye) prices. <sup>6/</sup> From 1937 to 1946, the estimate prices on construction and assembly expenditures were the prices in effect on December 1, 1936, and the estimate prices on equipment were the listed (preiskurantnye) prices of 1937. <sup>7/</sup> By a December 13, 1946, decree of the USSR Council of

<sup>6/</sup> The use of estimate prices is prescribed in the process of project-making (proektirovanie) in investment planning. Construction (in the narrow sense) without project-making is prohibited except for small reconstructions of buildings and shops.

The basic task of project-making is "to justify the necessity and the technical-economic possibility of constructing a given object with a specified capacity in a given place and in a specified time" (Kantor, op.cit., p. 84). The starting point for project-making in industry is the planned task (planovoe zadanie) which is worked out by the chief administration of the ministry and sent to a project-making organization. The planned task for an object of capital construction includes: (a) the planned capacity of the enterprise to be constructed and perspectives for its future expansion; (b) the basic kinds of output of the enterprise; (c) the expected consumers of its output; (d) the region of construction; (e) the planned construction period; (f) a tentative cost of construction.

Proceeding from the planned task, the project-making organization works out a technical-economic project which specifies the details of construction and the indices of the normal operation of the enterprise. Two stages in this process--the project task (proektnoe zadanie) and the technical project and estimate (tekhnicheskii proekt i smeta)--are distinguished by decree but in practice are frequently combined.

The project task simply re-states the planned task in greater detail. The technical project is the basic document for each object of construction. It solves the basic technical and economic questions; it eliminates alternative variants of construction. The technical project contains: (a) the general design of the enterprise; (b) a statement of its requirements in terms of transport, power, water supply, labor force, etc.; (c) a calculation of the factory cost of the output of the enterprise and of its requirements for circulating capital. Attached to the "technical project" must be an estimate of construction which states the required expenditures of materials and labor for the construction project as a whole and for its various components. The prices of materials (including equipment) and labor used in the estimate are the so-called estimate prices.

Once the project has been approved by the appropriate authority, the project-making organization works out the blueprints according to which the construction will be effected.

The foregoing account of project-making is taken from Kantor, op.cit., pp. 84-87, and D'iachkov and Kiparisov, op.cit., pp. 16-19.

<sup>7/</sup> Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike, p. 360. I have been able to find no references to the use of estimate prices (in the sense of a set of prices which are not current prices) prior to the use of 1936-37 prices.

I assume, further, that Third Five Year Plan references to 1936 prices are elliptical references to these estimate prices. I have, accordingly, referred to 1936-37 prices where Soviet sources refer to 1936 prices (Cf., for example, Table I).

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Ministers, the estimate prices were changed to those prices which prevailed on December 31, 1945. On January 1, 1949, the government decreed that estimate prices were to be current prices; this practice has continued through 1950.<sup>8/</sup>

The amount of financing necessary for capital work may be greater than or less than the volume of capital work. Any difference between these two magnitudes is due to: (a) a difference between estimate and current prices; (b) planned changes in construction costs; (c) a difference between expenditures in an accounting period and investment expenditures in that period.<sup>9/</sup>

With respect to the last difference, an enterprise may plan to purchase supplies of materials in a given accounting period which will be used for construction activities in a later period. Similarly, planned construction in a given period may use supplies purchased in a previous period. It is perfectly true that for a given object of construction such differences will cancel over the construction period. It is, nevertheless, also true that if the volume of construction is steadily expanding, if the materials time lead remains constant, and if the only cause for a difference between the amount of necessary financing and the volume of capital work is the difference between expenditures and investment expenditures, the amount of necessary financing will continue to exceed the volume of capital work.

An important part of the capital investment plan is the itemized list of investment projects (titul'nye spiski). Here the projects are enumerated

<sup>8/</sup> M. D'iachkov and V. Kiparisov, op.cit., p. 19 footnote 1; N. N. Rovinskii et al, Organizatsiia finansirovaniia i kreditovaniia kapital'nykh vlozhenii (The Organization of Capital Investment Finances and Loans), Gosfinizdat 1951, p. 79.

<sup>9/</sup> In addition to Kantor, op.cit., pp. 89-90, cf. D'iachkov and Kiparisov, op.cit., pp. 27-28.

individually with detailed information about each.<sup>10/</sup> In the published 1936 plan, the itemized list of "the most important" investment projects occupied 85 out of 253 pages of statistical data.<sup>11/</sup>

### C. Soviet Investment Categories

Soviet practice distinguishes three kinds of investment projects:

(1) above-limit (sverkhlimitnye) investments; (2) below-limit (nizhelimitnye) investments; and (3) extra-limit (vnelimitnye) investments.

1. Above-limit investments are those the cost estimates of which exceed or equal specified amounts, established by the Council of Ministers and differentiated by branch of the economy.<sup>11a/</sup> The limits are high in relation to the costs of even expensive items of equipment;<sup>12/</sup> it seems clear that only

<sup>10/</sup> Such information includes: (a) designation and location of the project; (b) date of initiation and completion of the project; (c) date and authority of approval of technical project and estimate; (d) planned capacity; (e) estimated cost of the project; (f) work performed prior to the beginning of the plan year; (g) plan of capital work and expenditures for the plan year.

<sup>11/</sup> State Planning Commission of the USSR, Narodno-khoziaistvennyi plan na 1936 god (National Economic Plan for 1936), Moscow 1936, pp. 558-643.

<sup>11a/</sup> For simplicity, I refer to "ministries" and "councils of ministers" for the entire period rather than to the pre-1946 designations of "commissariats" and "councils of peoples' commissars."

<sup>12/</sup> Examples of the limits are as follows (in millions of rubles):

I. Industry	3.0
1. Coal enterprises	4.0
2. Petroleum refining	4.0
3. Nonferrous metallurgy enterprises	5.0
4. Ferrous metallurgy enterprises	3.0
5. Enterprises of basic chemicals industry	5.0
6. Electric power plants	
7. Enterprises producing machinery and electrical equipment	3.0
	3.0
8. Textile enterprises	3.0
9. Meat processing enterprises	0.5 - 3.0
10. Other branches	
II. Transport and communications	3.0
1. Stations and terminals	3.0
2. Automatic blocking equipment	1.0
3. Auto repair shops and garages	2.0
4. Airfields	1.0
5. Lines of communication	

Footnote 12/ continued:

III. Agriculture	2.0
1. Irrigation and land betterment investments	
IV. Trade and Procurement	1.0
1. Stores and warehouses	
V. Social-cultural	2.0
1. Housing and social-cultural construction	
(Finansirovanie stroitel'stva--Financing Construction--a collection of decisions and decrees, Gosfinizdat, 1948, pp. 40-43. The complete list of limits is stated in this source.)	

The indicated limits are those which were established in 1934. The current limits are higher; a later source states the limits to be 10 million rubles for ferrous metallurgy enterprises, 5 million rubles for machine-building enterprises, 3.5 million rubles for housing, hospitals, sanatoria, 5 million rubles for irrigation and land betterment investments (Rovinskii et al., op.cit., pp. 51-2).

These limits should be compared with the following examples of expensive items of equipment from recent Soviet price books:

Item	Brief Description	Price
Boiler	230 tons/hr. 1400 PSI	3,000,000 rubles
Hydro-turbine with metal helical frame	Diameter of working wheel--1200 millimeters; capacity--4,000-8000 kilowatts; weight--40 tons.	540,000 rubles
Electrolyzer	Obtains hydrogen and oxygen by decomposing water with electric current; diameter--300 millimeters; length--3897 millimeters; weight--7702 kilograms; obtains 25 cubic meters of hydrogen and 12.5 cubic meters of oxygen per hour.	132,000 rubles
Three-Phase Induction Motor	Voltage--6000; speed--750 RPM; power--1000 kilowatts; weight--9300 kilograms.	130,000 rubles
Heavy-Duty Coal Cutter with Feed Control by Steps	Speed of cutting chain--1.9 meters per second; width--740 millimeters; height--400 millimeters; weight--3500 kilograms; length on descent--5200 millimeters (with 2 meter bar).	49,000 rubles
Centrifugal Artesian Pump	Capacity--880 gals. per minute; head--100 meters; speed--1450 RPM; power--130 HP; 5 wheels; pump diameter--333 millimeters; weight--12,000 kilograms.	59,000 rubles

Cf. USSR Ministry of Machine-Building, Preiskurant optovykh tsen na khimicheskoe standartnoe oborudovanie (Price-list of Wholesale Prices on Standard Chemical Equipment) 1949 p. 39, and Preiskurant optovykh tsen na gidroturbiny (Price-list of Wholesale Prices on Hydro-Turbines), 1949 p. 9; Spravochnik po elektroizmeritel'nym i radioizmeritel'nym priboram (Handbook on Electric and Radio Measuring Instruments), 1940; USSR Ministry of Coal Industry, Preiskurant optovykh tsen na gornye mashiny i oborudovaniya (Price List of Wholesale Prices for Mining Machinery and Equipment), 1949.

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Footnote 12/ continued:

It should be noted also that whether investments are above-limit is not solely a matter of costs. Thus: (1) in industry, the construction of new enterprises or new shops in existing enterprises which are to produce new kinds of output is above-limit regardless of cost; (2) all new railroad construction, railroad electrification projects, new river and sea ports, and new airlines are above-limit regardless of cost; (3) all new machine-tractor stations and state farms are above-limit; (4) all new water supply systems, sewage systems, trolley systems, and municipal power stations (with a capacity of at least 500 kilowatt hours) are above-limit (Finansirovanie stroitel'stva, pp. 41-42).



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major projects can qualify as above-limit investments. In any case, above-limit projects must be approved by the USSR Council of Ministers. <sup>13/</sup>

<sup>13/</sup> The itemized lists of above-limit projects are drawn up by the ministries of the USSR and by the union republic councils of ministers. The lists are approved by the USSR Council of Ministers "on the basis of the conclusions of the State Planning Commission and the USSR Ministry of Finance." (Kantor, *op.cit.*, p. 98.) The technical projects and estimates are approved by the appropriate ministry and also, since July 1, 1950, by the State Committee on Construction Affairs (a committee attached to the USSR Council of Ministers) in the case of all projects other than civil municipal construction projects. Technical projects and estimates for the latter (including housing, communal services, and cultural projects) are approved by the Ministry of Municipal Construction. (Kantor, *op.cit.*, p. 98; Rovinskii et al., *op.cit.*, p. 67.)

The formation of the State Committee on Construction Affairs (by decree of May 9, 1950) is apparently one of a number of connected changes in the organization of Soviet capital formation which allegedly arose from serious deficiencies in the economics and planning of investments. (Cf. B. Smekhov, "The Planning of Capital Work," *Planovoe khoziaistvo*, 1951 No. 4, pp. 82-90).

1. The chief tasks of the State Committee on Construction Affairs are to examine the technical projects and estimates which must be confirmed by the USSR Council of Ministers, to state its conclusions to the Council of Ministers, and to exercise control functions over the fulfillment by ministries of state decisions on project-making and construction. Sbornik zakonov SSSR i ukazov Prezidiuma Verkhovnogo Soveta SSSR 1950 g.--Collection of Laws of the USSR and Decrees of the Presidium of the USSR Supreme Soviet for 1950--Moscow 1951, pp. 13-14.

2. The State Committee also has responsibility for working out norms for construction work for preparing and approving "standard" projects in construction work. (*Ibid.*) It is not clear just what the latter means.

3. Beginning in 1951, project-making (*proektno-izyskatel'skie*) expenditures are financed from the state budget and are no longer part of the investment plan. The objective, it is stated, is to economize such expenditures, more specifically to make the earnings of project-makers dependent on the economies in project solutions rather than on the magnitude of the cost estimate (Smekhov, *op.cit.*, p. 85).

4. General dissatisfaction is expressed with respect to the costs of construction and the changes in construction organization are described as an effort to reduce construction costs. (Cf.: Smekhov, *op.cit.*; F. Dobrynin and L. Kvitnitskii, "On the Improvement of Project-Estimate Work in Construction," *Planovoe khoziaistvo*, 1950 No. 6, pp. 45-57; B. Sokolov, "Certain Questions of the Economics of Capital Construction," *Voprosy ekonomiki*, 1950 No. 10, pp. 17-28; F. Dobrynin and L. Kvitnitskii, "For the Further Improvement of the Organization of Construction and the Reduction in the Cost of Construction," *Planovoe khoziaistvo*, 1951 No. 4, pp. 21-32.)

5. The distinction between centralized and noncentralized investments is abandoned in 1951 and extra-limit investments were included in the investment plans in 1949 and 1950 (Cf. below, pp. 33-34).

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It should be noted, paranthetically, that there are two ways in which construction activities--(i.e. "pure construction"--cf. footnote 2, p. 2)--are carried out: (a) the "economic method," in which the enterprise undertakes its own construction via a construction section with a separate accounting system and separate personnel; (b) the "contractual method," in which special construction organizations (under a ministry of construction) undertake projects on contract with enterprises or other organizations. The contractual method predominates.<sup>14/</sup>

2. Below-limit investments are those the cost estimates of which are below the specified amounts. For such projects, the USSR Council of Ministers establishes expenditures by individual branches of industry and not by individual projects. Itemized lists of such projects exist but are approved by individual ministries or by union republic councils of ministers.<sup>15/</sup>

3. Both above-limit and below-limit capital expenditures are planned

<sup>14/</sup> Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike, p. 360; D'iachkov and Kharisov, op.cit., pp. 15-16.

<sup>15/</sup> Itemized lists of below-limit investment projects under union authority are approved by USSR ministries. The technical projects and estimates are approved: (a) by the chief administration of the ministry when cost exceeds 500,000 rubles; (b) by the trust when the cost is 100,000-500,000 rubles; and (c) by the director of the enterprise when the cost is less than 100,000 rubles.

Itemized lists of below-limit investment projects under republic and local authority are approved by the union republic councils of ministers or by oblast executive committees, depending on the cost of the project. The technical projects and estimates are presumably handled at a similar or lower administrative level.

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centrally in the sense that, in the process of plan construction,<sup>16/</sup> the USSR Council of Ministers establishes such expenditures either by individual project or by aggregate expenditure for the industry (or other sector) branch. Extra-limit investments, on the other hand, are initiated in a decentralized way and are financed mainly from internal funds. Extra-limit investments include the following: (a) acquisition of inexpensive equipment and implements; (b) small construction and repair expenditures; (c) capital repairs to housing, hospitals, schools, etc.; (d) expenditures on construction and on the acquisition of equipment and implements without cost limitations when financed from

<sup>16/</sup> A brief statement of the process is as follows: "Approval by the government (in a tentative way) of the amounts (limits) of capital expenditures precedes the construction of the annual plans of capital expenditures by the ministries and departments. On the basis of this data, the ministries, the departments and the union republic councils of ministers, using planning materials received from enterprises and construction organizations (drafts of itemized lists and other materials), work out the drafts of the plans of capital expenditures and present them for the approval of the USSR Council of Ministers.

"The annual plans of capital expenditures, approved by the USSR Council of Ministers with respect to each above-limit project, are reduced by the ministries and departments to the appropriate constructions (with separate specification of the indices on housing construction). Simultaneously the ministries and departments distribute the appropriations, approved by the government, for below-limit investments among the chief administrations and the latter reduce the appropriations to each below-limit project (with indications of their specific purpose)." (Rovinskii et al., op.cit., p. 54. Parenthetical remarks are Rovinskii's.)

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the director's fund; <sup>17/</sup> (e) expenditures by cooperatives on construction and equipment of small new enterprises; (f) expenditures by regional authorities on the construction of new enterprises for the production of consumers' goods (with a cost limitation); and (g) all capital investments of collective

17/ The director's fund is created for any khozraschet enterprise (i.e., roughly, an enterprise which is financially independent of the budget for current operations) which has fulfilled the state plans with respect to output (as a minimum) and costs (as a maximum). Enterprises in the most important branches of the national economy pay 10% of planned profits and 75% of above-plan profits into the director's fund; enterprises in other branches pay 2.4% of planned profits and 25-50% of above-plan profits. Enterprises with planned losses pay corresponding percentages of planned and above-plan economics from the lowering of costs.

By law, the director's fund can be spent only on needs of the enterprise. The following kinds of expenditures can be made by the director of the enterprise in agreement with the factory committee of the trade unions: (1) expansion of production via construction or acquisition of equipment; (2) construction and repair of housing; (3) premium payments to employees other than the director; (4) "cultural" expenditures on construction and equipment of rest homes, clubs, nurseries; (5) extraordinary assistance to workers. (Cf. I. Ioffe, Planirovanie promyshlennogo proizvodstva--Planning of Industrial Production--Gosplanizdat 1948, pp. 19-21.)

Formation of the director's fund was suspended with the outbreak of war in 1941 and was reinstated in 1946. A similar fund, the fund of the chief of construction, is created for construction organizations and for construction sections of existing enterprises; the percentages here are 2% of planned profits and 30% of above-plan profits. Cf. I. Iugin and V. Kaplan, Organizatsiia kapital'nogo stroitel'stva na mashinostroitel'nykh zavodakh (Organization of Capital Construction in Machine-Building Factoriss), 1949, pp. 101-105.

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17a/ farms. The capital investments of collective farms, however, are reported

17a/ More specifically, extra-limit investments include the following:

- a. In the case of existing enterprises and institutions, expenditures on the acquisition of equipment and implements costing up to 200 rubles per unit (for enterprises of the Ministry of Railroad Transport up to 500 rubles per unit);
  - b. In the case of industrial and agricultural enterprises, expenditures on repairs and minor installations, including replacement and renovation of equipment, where the estimated cost does not exceed 5000 rubles per enterprise and the work is completed within a year;
  - c. In the case of commercial and procurement enterprises and public catering enterprises, expenditures on acquisition of equipment and implements and on reconstruction of accommodations up to 5000 rubles a year (10,000 for enterprises in Moscow, Leningrad and Kiev);
  - d. In the case of transport enterprises, expenditures on small constructions, installations, and land improvements up to 10,000 rubles per enterprise;
  - e. Expenditures on construction and on the acquisition of equipment and implements without cost limitations when financed from the director's fund or from profits obtained by the sale of consumers' goods produced in salvage shops of existing enterprises--except that such expenditures by any enterprise cannot exceed the amount in the director's fund or the amount of profits received by the salvage shop;
  - f. Expenditures on capital repairs of municipal and cooperative housing, of hospitals, schools, etc.;
  - g. In the case of housing developments of industrial enterprises, transport enterprises, and state farms, expenditures on capital repairs provided that they do not exceed one-half the current amortization allowances of the given enterprise;
  - h. Expenditures on rearing young livestock and on the acquisition of productive and draft livestock to replace livestock which have perished or have been sold;
  - i. Expenditures by local councils and social organizations on construction for municipal services and for cultural purposes in regional centers and workers settlements where the cost does not exceed 25,000 rubles per year per city or settlement and where the work is completed within a year;
  - j. Expenditures for the restoration of property destroyed by the elements to the amount of the insurance award or, in the case of uninsured state property, to the amount of the restoration cost of the property but not to exceed 100,000 rubles;
  - k. Expenditures by industrial cooperatives, cooperatives of invalids, and rural consumers' cooperatives on: (1) the construction of new small enterprises; (2) the acquisition of equipment with an estimated cost not in excess of 5,000 rubles for these enterprises; (3) minor construction work in existing enterprises; (4) the acquisition of equipment costing 10,000 rubles or less per artel or cooperative;
  - l. Expenditures by the union republic councils of ministers and the regional and city executive committees on the construction of enterprises to produce consumers' goods, building materials and fuel from local raw materials up to 50,000-100,000 rubles per enterprise (depending upon the regional authority involved);
  - m. All capital investments by collective farms.
- Cf. USSR Council of Ministers decrees of September 19, 1935, and January 7, 1941, reproduced in Kapital'noe stroitel'stvo, pp. 160-163. A number of minor categories of extra-limit investments have been excluded from the above list.

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separately in Soviet statistics. I will adhere to Soviet statistical practice by henceforth excluding collective farm investments from the category of extra-limit investments despite their legal kinship.

The purpose of permitting extra-limit investments was, in the words of the decree which established the category, <sup>18/</sup> to simplify the method of inexpensive construction and repair work and of acquiring inexpensive equipment. It is probably evident from the foregoing list of extra-limit investments that they are not all small scale. This becomes even more evident when the authorization necessary for such investments is examined. When the estimated cost of the investment project does not exceed 100,000 rubles, the investment may be made by order of the director of the enterprise. For projects which cost between 100,000 and 500,000 rubles (1 million rubles for enterprises under the Railroad Ministry), the authorization of the chief administration of the ministry is needed. When the estimated cost of the project exceeds 500,000 rubles, authorization of the ministry—with a subsequent report of this fact to the USSR Council of Ministers or the appropriate union republic council of ministers, depending on whether it is a USSR or union republic ministry—is needed. <sup>19/</sup>

A noteworthy aspect of extra-limit investments and of the investments made by collective farms is the sphere it implies for decentralized investment choice and consequently for the production of some commodities, so to speak, for the market. The magnitude of such expenditures will be discussed below.

In the foregoing discussion we have spoken of capital repairs as if this category were unambiguous. This, of course, is not so. The line between

<sup>18/</sup> Kapital'noe stroitel'stvo, p. 160.

<sup>19/</sup> USSR Council of Ministers decree of September 13, 1936, reproduced in Kapital'noe stroitel'stvo, pp. 163-164. In 1940, 40% of the extra-limit investment projects cost 100,000 rubles or more; cf. table VII, note 5.

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capital and current repairs is, perforce, thin. In Soviet usage, repairs embrace three kinds of activities: (1) capital repairs; (2) average (or planned periodic) repairs; and (3) current (or planned preventive) repairs.

Capital repairs are relatively large scale renovating activities in which defective parts of a fixed asset are replaced--e.g., the replacement of a heating system. The object of such activities is to restore the asset to full working power. If the object is to increase the working power of the asset, the activity is called not a capital repair but reconstruction (and is created like other investments and not like repairs).

Average and current repairs are smaller scale activities, devoted to the maintenance of fixed capital in normal working condition, provided for by plan and involving the replacement of small parts, the cleaning of machinery, etc. Current repairs are shop expenditures (i.e., part of operating expenses) and, as a rule, involve no work stoppage--e.g., whitewashing a building.

The distinctions between average (periodic) repairs, on the one hand, and capital and current repairs, on the other, are the arbitrary factors. In practice, if the repair involves replacement of important parts or larger scale activities, the expenditure comes out of funds for capital repairs and is called a capital repair. If the repair involves replacement of a small part of a machine or the regulation or cleaning of a machine and if it is not very labor-expensive, the expenditure comes out of operating costs and is called a current repair.<sup>20/</sup>

Since industrial (and other) enterprises typically make capital investments in housing, clubs, nurseries, etc. as well as in fixed assets which are directly connected with their productive activity (and since statistical practice sometimes separates these kinds of investments), it is important to

<sup>20/</sup> Cf. Гловарь-справочник по социальне-экономической статистике, p. 72; Д'Еачков and Кипарисов, op.cit., pp. 164, 165.

keep in mind the Soviet distinction between "productive" and "nonproductive" fixed capital. "Productive" fixed capital consists of the durable assets of industrial, agricultural, transport, communications, commercial and supply enterprises including the office, administrative and warehouse premises of these enterprises. "Nonproductive" fixed capital consists of housing, hospital, school, municipal service and other constructions which are devoted to the cultural and social needs and welfare of the population and to the needs of government administration.<sup>21/</sup>

#### D. The Sources for Financing Capital Investments

The Soviet economy finances its capital investments from many sources-- from budget grants, from various internal resources of economic organizations, from bank loans, from labor participation in kind. I will discuss each of these in turn.

1. The most important source for state (as vs. cooperative) enterprises and organizations is the budget. Budgetary grants for capital investments, which need not be repaid, are reflected in the "financing the national economy" category of the combined budget and also, to a much lesser degree, in the "social-cultural measures" category. It should be noted that a budgetary grant for an investment project does not necessarily imply that the project is above- or below-limit. For example, the budget may grant funds for extra-limit investments<sup>22/</sup> or for capital repairs.<sup>23/</sup>

2. The profits of economic organizations are used to finance capital investments in at least three ways:

a. Part of planned profits is paid into the budget and is used as a source for general budget expenditures, among which are expenditures on capital

<sup>21/</sup> Cf. Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistiki, pp. 359-360; D'iaikov and Kiparisov, op.cit., p. 4.

<sup>22/</sup> D'iaikov and Kiparisov, op.cit., pp. 274-275.

<sup>23/</sup> Cf. below, p. 22.



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investments. Part of above-plan profits is similarly paid into the budget.

b. Part of planned and above-plan profits are left with the enterprise for planned expenditures on, among other things, capital investments. At least 10% of planned profits and of above-plan profits not paid into the director's fund must be paid into the budget. But the exact percentage which is paid into the budget depends upon the increments of working capital and the investments in fixed capital planned for the enterprise or chief administration (whichever is the accounting unit).<sup>24/</sup> Thus, apart from formation of the director's fund and apart from whatever percentage of profits is left with the enterprise outside of the director's fund for its more or less unrestricted disposition, the distinction between profits paid into the budget and profits left with the enterprise is an accounting distinction only. To this extent, the distinction between financing investments from the budget and from enterprises' own resources is not a distinction of substance.

c. Part of planned and above-plan profits are left with the enterprise in the form of the director's fund.<sup>25/</sup> Such funds are used, in part, for extra limit investments and do represent a financial source for decentralized investment choice.

3. Amortization allowances represent a third source of investment funds. In Soviet practice amortization allowances are calculated for fixed capital in the following branches of the economy: (a) industry; (b) transport; (c) communications; (d) trade and supply; (e) state farms; (f) municipal services; (g) housing. Known exclusions are fixed capital in: (a) collective

<sup>24/</sup> On payments from profits into the budget, cf. A. K. Suchkov, Gosudarstvennye dokhody SSSR (State Incomes of the USSR), Gosfinizdat 1945, pp. 85-94.

<sup>25/</sup> Cf. above, pp. 11-12 and footnote 17. The following constitute similar financial sources: (a) the fund of the chief of construction; (b) profits from the production of consumers' goods by salvage shops of existing enterprises. (Cf. footnotes 17 and 17a).

farms and (b) machine-tractor stations (since 1938). Problematic are: (a) which elements of fixed capital are subject to amortization allowances; (b) whether producers' and consumers' cooperatives need or do make allowances for amortization.<sup>26/</sup> In any case, the known exclusions indicate significant understatement of capital consumption.

The amortization rates are established by the government as percentages of original cost.<sup>27/</sup> In industry, transportation, communications, and municipal

<sup>26/</sup> I have been unable to find a complete list of elements of fixed capital subject to amortization allowances. For the known inclusions and exclusions Cf.: L. Bronshtein and B. Dudrin, Planirovanie i uchet avtomobil'nogo transporta (Planning and Calculating Automobile Transport), Gosplanizdat 1948, pp. 168-170; N. I. Il'in, Buchgalterskii uchet v sovetskoii torgovle (Accounting Calculation in Soviet Trade), Gostorgizdat 1949, pp. 311-314; I. A. Kalik et al., Buchgalterskii uchet i kontrol' v khoziaistve svyazi (Accounting Calculation and Control in the Communications Economy), Sviat'izdat 1950, pp. 159-162; V. P. Maslakov et al., Finansirovanie zhilishchno-kommunal'nogo khoziaistva (Financing the Housing and Municipal Services Economy), Gosfinizdat 1948, pp. 20-21; I. I. Shkarednyi, "Social Funds and their Role in Socialist Expanded Reproduction in Collective Farms," an essay in Uchenye zapiski (Scientific Notes), published by the Academy of Social Sciences attached to the Central Committee of the All-Union Communist Party, volume 13, 1937, p. 46; Sholts, op.cit., pp. 159-160; N. G. Vinnichenko, Finansirovanie zheleznykh doroz (The Financing of Railroads), Transzheldorizdat 1946, pp. 60-64; Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike, p. 247.

On the problematic factors: (a) I suspect that in general, in sectors where amortization is calculated, the elements of fixed capital included are the usual ones--at least I have no evidence of any remarkable exclusions; (b) I suspect that cooperatives do allow for amortization since the accounting system of the cooperatives is prescribed by state law and since "Tsentrosoiuz" (the central consumers' cooperative organization) apparently does establish amortization allowances for its constituent organizations (Cf. Il'in, op.cit., p. 311).

<sup>27/</sup> In the case of housing, amortization rates are not established by law but in practice the following rates are used: (a) for brick and stone houses--1%; (b) for wood houses--2%. Both percentages are of the replacement value in 1939-1940 prices. Maslakov et al., op.cit., p. 21.

No allowance is made for obsolescence on the grounds that in the Soviet economy no loss is involved in the replacement of old machinery due either to technical improvements in the machinery or to technical improvements in machine building. The idea is that machinery will be replaced only if it is advantageous from a national economic point of view and, even if replaced, will find use in some other enterprise. Consequently, the only depreciation considered is use depreciation. Kantor, op.cit., p. 21.

services, the rates are said to be calculated on the basis of a straight-line depreciation formula.<sup>28/</sup> A decree of the Supreme Economic Council (Vyshnyi Sovet Narodnogo Khoziaistva) of the USSR in 1930 established

<sup>28/</sup> The formula is as follows:

$$A = \frac{100 (C - R - S)}{T \cdot C}$$

where A = amortization rate (as a percentage of original cost), C = original cost, R = capital repairs expected over the life of the asset, S = scrap value of the asset, T = period of expected service of the asset. (Kantor, op.cit., p. 47; Maslakov et al., op.cit., p. 19.) It should be noted that:

(a) The formula is decidedly un-Marxist. Marx thought of constant capital gradually transferring embodied labor to output. Soviet practice makes depreciation a function of time rather than output.

(b) The formula indicates that the period of service of fixed assets cannot be deduced by taking the reciprocal of the amortization rate.

(c) Kantor observes that frequently in industry fixed capital items continue in service beyond the period in which accumulated amortization allowances equal original cost. The amortization allowances, however, are continued on the grounds that original cost which is used as the basis for amortization allowances lags behind current prices and the continuation of amortization serves to reduce this gap. The only exception to this practice is the case of oil wells where amortization ceases when accumulated amortization equals original cost. In the case of oil wells, however (as also in the case of certain other elements of fixed capital associated with rapidly exhaustible mineral resources), the period of service of fixed capital is not the physical life of the asset but rather the economic life of the oil supply. Since, after 6-7 years further extraction of oil becomes unexpedient in the Soviet view and the well is abandoned, the period of service of oil wells is calculated at 6-7 years even though the physical life of the well is far greater. Cf. Kantor, op.cit., p. 41; L. Kantor, Amortizatsiia i remont v promyshlennosti SSSR (Amortization and Repairs in USSR Industry) 1940, p. 23.

(d) Kantor mentions the existence of other methods of calculating amortization but does not specify them and refers to the indicated formula as the most widely used and as used in industry. (Kantor, Osnovnye fondy promyshlennosti i ikh ispol'zovanie, p. 47.) Sholts, however, indicates that in the case of state farm agricultural machinery, the amortization allowance is based on the units of work performed by the machine in the given year in comparison with the number of units of work the machine is expected to perform throughout its life. (Sholts, op.cit., pp. 159-160.)

amortization rates which were differentiated by type of fixed capital and by the number of shifts worked.<sup>29/</sup> The main deficiencies of the 1930 decree were stated to be: (a) that the subsequent rise in prices made the amortization allowances inadequate for replacement of fixed capital; and (b) that no specific sums were designated from the amortization funds for capital repairs.<sup>30/</sup>

To remedy these and other inadequacies, a new decree was promulgated for industry by the USSR Council of Ministers in 1938.<sup>31/</sup> The 1938 decree provided: (a) specific average amortization rates by ministries (which for most ministries were higher than the previous actual rates); (b) specific average percentages of amortization allowances to be used for capital repairs; (c) that ministries could differentiate both amortization allowances and capital repair funds by chief administrations and that the chief administrations could do the same by

<sup>29/</sup> Cf. Kantor, Amortizatsiia i remont v promyshlennosti SSSR, pp. 82-85, for 1930 amortization rates for state enterprises.

<sup>30/</sup> Kantor, Osnovnye fondy promyshlennosti i ikh ispol'zovanie, p. 39; Kantor, Amortizatsiia i remont v promyshlennosti SSSR, p. 49.

The ministry established allowances for capital repairs by chief administrations; the latter did the same by enterprises. The allowances were established without attention to the amount of amortization funds.

<sup>31/</sup> No attempt will be made in this paper to describe amortization practice or rates for all sectors of the economy. Industry is regarded as an example, the representativeness of which is assumed.

enterprises. <sup>32/</sup> The enterprise still uses the 1930 rates for the various types of fixed capital and, if necessary, corrects the total by adding a sum <sup>33/</sup> sufficient to meet the average allowances required by the chief administration.

The director of the enterprise has disposition over the funds for capital repairs. Even if funds are unused in the current year, they remain with the enterprise; only in exceptional cases can the chief administration transfer funds to other enterprises within the chief administration. Expenditures, however, must be approved by the chief administration. On the other hand, the remaining portion of the amortization allowances are made available to the

<sup>32/</sup> The averages established for the ministries must, however, be adhered to. The amortization allowances, as percentages of original cost, are:

Ministry	Rate
Heavy Industry	5.6
Machine-Building Industry	5.5
Defense Industry	5.5
Timber Industry	6.0
Light Industry	5.5
Food Industry	6.0

(Kantor, Amortizatsiia i remont v promyshlennosti SSSR, p. 53.)

The capital repair funds, as percentages of amortization allowances, are:

Ministry	Percentage of amortization allowance designated for capital repairs
Heavy Industry	43
Machine-Building Industry	40
Defense Industry	47
Timber Industry	50
Light Industry	65
Food Industry	46

Kantor, op.cit., p. 53. Kantor observes that the percentage is highest in light industry because of the predominance of old equipment and lowest in machine building because of the predominance of new equipment. (Kantor, Osnovnye fondy promyshlennosti i ikh ispol'zovanie, p. 57.)

For railroads and subsidiary enterprises, the amortization allowances are 4.7% of original cost, of which 64% is designated for capital repairs. (Vinnichenko, op.cit., p. 64.)

For state farms, the amortization allowances are 7.2% of original cost except that no amortization allowances are applied to draft and other livestock. (P. A. Khromov, Amortizatsiia v promyshlennosti SSSR--Amortization in USSR Industry--, 1939, p. 95.)

For amortization rates differentiated by chief administrations within the Ministry of Light Industry, cf. Kantor, Amortizatsiia i remont v promyshlennosti SSSR, p. 76.

<sup>33/</sup> Kantor, Osnovnye fondy promyshlennosti i ikh ispol'zovanie, pp. 51-53. The applicable rates for automobile transport, however, were established in 1945 (Finansirovanie stroitel'stva, p. 165).

On January 1, 1950, new amortization and capital repair rates were established for all ministries and departments (Rovinskii, et al., op.cit., p. 270). How the new rates compare with the old is not stated. In view of general complaints about the inadequacies of the old rates and in view of

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ministry for financing investment projects of the ministry. Projects so financed must be part of the annual plan of capital work, approved by the Council of Ministers.<sup>34/</sup> Again, in the case of amortization allowances not used for capital repairs, the distinction between financing investments from the budget and from enterprises' own resources becomes an accounting distinction only.

It should be noted also that not all capital repairs are financed from amortization allowances. As I have already observed, some capital repairs are extra-limit expenditures. In addition, grants are provided by the budget for some categories of capital repairs--for repairs necessitated by war damage and accidents, for repairs in seasonal industries (where, apparently, amortization allowances cease in off-seasons), and others.<sup>35/</sup>

4. The so-called indivisible funds (nedelnye fondy) of collective farms constitute a third source of investment finance.

The sources for financing investments in agriculture deserve a special paranthetical remark because of institutional peculiarities in agriculture. State farms are identical with other state enterprises; their capital investments are financed from the budget and from their own resources. Machine-tractor stations are (since 1938) budgetary institutions; all expenditures, including investment expenditures, are financed from the budget and all receipts are paid into the budget. Investments in collective farms, on the other hand, are financed almost entirely from two sources: (a) the resources of the collective farms; and (b) repayable loans from the Agricultural Bank.<sup>36/</sup>

<sup>34/</sup> Kantor, op.cit., pp. 39-40.

<sup>35/</sup> Kantor, op.cit., pp. 34-36.

<sup>36/</sup> The only exception would be those land betterment and irrigation measures which are financed from the budget.

Cf. below, pp. 25-28, for a brief outline of the institutions and the role of the Soviet banking system.

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1 The resources of collective farms to be used for capital investments are accumulated in the indivisible funds.<sup>37/</sup> Upon organization of a collective farm, its indivisible fund is formed from: (a) part of the value of the collectivized property of the collective farm members;<sup>38/</sup> (b) initial money payments, in lieu of property, by collective farm members; and (c) the value of property given free of charge to the collective farm by the government.

The most important source of annual increments to the indivisible fund is the required deductions from the money incomes of the collective farms. Of annual money incomes, from 12 to 15% in grain regions, from 15 to 20% in regions of industrial crops and livestock production and not more than 15% in fishermen's collective farms must be paid into the indivisible fund. Other sources for annual increments, beyond the contributions of new members are: (a) sums received from the sale of surplus property of collective farms; (b) sums received from the sale of draft and productive livestock if these sums, in accordance with existing law and the decision of a general meeting of the collective farm members, are not to be distributed among collective farm members, are not to be distributed among collective farm members; (c) receipts of insurance payments for damaged or destroyed property; (d) interest payments by the Agricultural Bank on sums kept in deposit with the bank; (e) the value of labor participation in the construction of collective farm buildings and equipment.

Many of the components of the indivisible fund are durable assets

<sup>37/</sup> The indivisible fund is one of a number of collective farm "funds," established and regulated by law. The productive funds, in addition to the indivisible fund, are: (a) the seed fund; (b) the fodder fund. The seed and fodder funds are reserves in kind. There are also: (a) funds for social purposes (e.g. funds for aid to invalids and aged, the cultural fund, etc.); and (b) funds for distribution according to labor days worked. Cf. Shkarednii, op.cit., pp. 40, 44.

<sup>38/</sup> From  $\frac{1}{2}$  to  $\frac{3}{4}$  of the value of collectivized property is considered to be the share of the member and, in principle, an equivalent sum of money is available to him.

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valued in an unspecified way and, in general, not marketable. The liquid components, however, are kept on deposit with the Agricultural Bank<sup>39/</sup> and are used for investment expenditures. These money resources may be used temporarily for other economic needs (e.g. purchase of seed or fodder) but such use must be authorized by a general meeting of the collective farm and must be reimbursed in specified time periods. Provided that the funds are to be used for investment expenditures, the Agricultural Bank is required to pay the funds on demand of the collective farm.

It should not be thought that the category of investment expenditures financed from the indivisible fund is restricted by cost or type. On the contrary such expenditures include the acquisition of agricultural machinery, equipment and means of transport, the construction of buildings for productive and nonproductive use, investment expenditures in draft and productive livestock, etc.

5. Collective farms also receive long-term loans, repayable with interest, from the Agricultural Bank for specified purposes, the most important of which are investment expenditures in livestock production. Such loans may be extended if: (a) the collective farm has observed the indivisible fund regulations; and (b) the collective farm has insufficient resources in the indivisible fund for the specified expenditure. The government exercises greater control over loan-financed investments because USSR Council of Ministers approval of the annual credit plan of the Agricultural Bank implies general approval of the investment projects so financed. Loans from the Agricultural

<sup>39/</sup> According to the regulations of the agricultural artel, collective farms must keep the money components of the indivisible fund with the Agricultural Bank. It is stated, however, that the Agricultural Bank cannot compel this practice but rather must use "mass organizational work," the provision of services, and an interest rate payment to persuade collective farms to comply. (Lovinskii et al., *op.cit.*, p. 104.) I would expect that the "mass organizational work" would be most persuasive, but complaints exist that some collective farms continue to resist. (N. N. Kmelev, Finansovoe Khoziaistvo kolkhozov--Financial Economy of Collective Farms--1946, p. 44.)



Bank are repaid out of indivisible funds. <sup>40/</sup>

The indicated role of the Agricultural Bank in collective farm investments raises a general question of the role of the USSR banking system in capital formation. A brief treatment of this question will reveal: (a) additional sources of investment funds; and (b) the mechanism of investment finance and control.

A basic principle of Soviet finance is to separate the resources to be used for investment and those to be used for current expenses. For example, an enterprise which undertakes its own construction (as against contracting the job with a construction organization) will create a construction section with its own resources and accounting statements. This separation is achieved in general by concentrating resources in special accounts in the banking system.

The USSR banking system consists of the State Bank (Gosbank) and four specialized investment banks. The investment banks are: (a) the Industrial Bank (Prozbank), through which investments in state industry, electric power stations, transport, and industrial housing are financed; (b) the Agricultural Bank (Sel'khozbank), through which investments in state farms, machine tractor stations, and collective farms are financed; (c) the Bank of Commerce (Torgbank), through which investments in trade organizations (both state and cooperative), producers' cooperatives, and supply organizations are financed; and (d) the Central Bank for Municipal Services (Tsekombank), through which investments in housing, municipal services, and social-cultural construction are financed. The first three of the investment banks have regional branches. The last operates not through branches but through independent local banks for municipal services.

The State Bank, among other things, keeps the current accounts of, and

40/ The discussion of collective farm investments is taken from: Khmelev,

extends short-term credit to, economic organizations.<sup>41/</sup> The purposes for which such credit may be granted are rather strictly circumscribed<sup>42/</sup> and confined to working capital requirements. It is, of course, possible that the steady increase in the amount of State Bank credit outstanding may in effect be an indirect source of funds for financing capital investments.

Budget grants for capital investments are placed in the appropriate investment bank which then oversees the use of these funds for the purposes and in the amounts intended.<sup>43/</sup> That portion of profits which is not paid into the budget and is not intended for extra-limit expenditures is also segregated in the accounts of the appropriate investment bank.<sup>44/</sup>

The portion of amortization allowances intended for capital repairs is kept in an enterprise State Bank account segregated for this purpose. The remaining portion of amortization allowances is paid into a ministry account of the appropriate investment bank.<sup>45/</sup> Funds intended for extra-limit expenditures are kept in the ordinary enterprise State Bank accounts<sup>46/</sup> if the cost of the intended object of expenditure does not exceed 100,000 rubles and

<sup>41/</sup> All state khozraschet enterprises and all cooperatives except collective farms are required to keep their free money resources in the State Bank. Collective farms may keep their money resources, except for the cash portion of the indivisible fund, in the State Bank or in the savings bank system, as they wish. Cf. E. V. Atlas and E. I. Bregel, Denezhnoe obrashchenie i kredit SSSR (Money Circulation and Credit in the USSR) Gosfinizdat 1947, p. 252.

<sup>42/</sup> The resemblance between Soviet credit principles and the "real bills doctrine" is very close. Compare Atlas and Bregel, op.cit., pp. 292-339, and Lloyd Mints, History of Banking Theory, University of Chicago Press, 1945, pp. 1-38.

<sup>43/</sup> Rovinskii et al., op.cit., p. 89.

<sup>44/</sup> Slovar' spravochnik po sotsial'no-ekonomicheskoi statistike, p. 415.

<sup>45/</sup> Kantor, Osnovnye fondy promyshlennosti i ikh ispol'zovanie, p. 40. The Kantor statement refers to industry only but presumably can be extended to other sectors.

<sup>46/</sup> Budget (as vs. khozraschet) institutions and social organizations also have current accounts in the State Bank. Funds intended for extra-limit expenditures are, with the cost limitation mentioned, placed in these accounts.

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in the appropriate investment bank if the cost does exceed 100,000 rubles.<sup>47/</sup>  
As we have seen, the indivisible funds of the collective farms are kept in Agricultural Bank accounts.

In addition, the investment banks are independent sources of investment funds. All but the Industrial Bank extend long-term loans, repayable with interest<sup>48/</sup> for capital investments. The Bank of Commerce extends long-term credits to producers' and consumers' cooperatives for capital investments.<sup>49/</sup> The Central Bank for Municipal Services, the local banks for municipal services, and the Agricultural Bank extends long-term loans to individuals for housing construction.<sup>50/</sup> The Central Bank for Municipal Service extends loans to enterprises for the construction of homes which will be sold to individuals.<sup>51/</sup> The Agricultural Bank, as we have seen, extends loans to collective farms for capital investments and, in addition, to the rural population for housing construction and the purchase of productive livestock.<sup>52/</sup> Finally, all the

<sup>47/</sup> Kapital'noe stroitel'stvo, pp. 163-4.

<sup>48/</sup> The interest rates charged by the investment banks for long-term loans are: (a) Central Bank for Municipal Services and local banks for municipal services--1%; (b) Bank of Commerce--1%; (c) Agricultural Bank--3%; (d) on loans to individuals for housing construction (by banks other than the Agricultural Bank which charges 3%)--2%. Except for the last category, these interest charges are those in effect in 1936; the 2% rate is definitely a current charge. I have no evidence of changes in the rates. In addition, the investment banks pay 1.5% on balances of their clients accounts except for the Agricultural Bank which pays 3.5%. Both rates were in effect in 1936 and the latter is also the current charge. Cf.: Arthur E. Arnold, Banks, Credit, and Money in Soviet Russia, Columbia University Press, 1937; Rovinskii et al., op.cit., pp. 104, 321.

<sup>49/</sup> Rovinskii et al., op.cit., pp. 311-312, 319.

<sup>50/</sup> Ibid., p. 320.

<sup>51/</sup> Ibid., p. 324.

<sup>52/</sup> Ibid., p. 329. The livestock is used for meat, dairy, and other products on the individual homestead.

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investment banks extend short-term credits for the working capital needs of contract construction organizations.<sup>53/</sup>

The housekeeping functions implied by this differentiation of accounts--namely, to insure that funds are spent for the purposes and in the amounts intended--are known as "control by the ruble."

6. There are, finally, two sources of labor contributions in kind which are used in investment activities:<sup>54/</sup> (a) by law, collective farm members and individual peasants must contribute labor services towards the building and repair of roads; and (b) collective farm members contribute labor services in kind to construction activities, to land betterment and irrigation projects, and to the planting of perennial crops. Although neither category of services is compensated, the contributions are periodically reported in value terms; the calculation is apparently produced by totalling the labor days so contributed and multiplying by the standard wage per labor day.<sup>55/</sup>

<sup>53/</sup> Atlas and Bregel, *op.cit.*, p. 69.

<sup>54/</sup> Cf. *Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike*, pp. 51, 303-9.

<sup>55/</sup> There are various sources of investment funds which may be lumped together on the grounds that little is written about them and, consequently, they may be presumed to be minor. Such are: (a) net receipts from the sale of surplus elements of fixed capital in operating enterprises (i.e. elements of fixed capital which have lost their productive significance for the enterprise in question or which are to be sold by decision of the government to cooperatives or collective farms); (b) receipts from the sale of surplus construction materials; (c) amortization allowances in construction organizations; (d) receipts from the sale or scrapping of temporary buildings and equipment by construction organizations; (e) receipts from the sale of temporary or surplus construction machinery by construction organizations; (f) receipts from the sale of extractive output obtained as a by-product of construction activity; (g) planned profits and economies from cost reductions in construction sections of existing enterprises. Cf. Novinskii et al., *op.cit.*, pp. 91-93, for a brief discussion of these items. Items (b)-(f) are referred to collectively as "the mobilization of the internal resources of construction."

These sources of investment funds are kept, largely if not wholly, in the appropriate special bank. *Ibid.*, pp. 100-102.

E. The Distinction between Centralized and Noncentralized Investments

The foregoing discussion makes it possible, among other things, to approach an understanding of the Soviet distinction between centralized and noncentralized investments. Centralized investments are defined as investments which "are provided for by the state plan of capital work and are confirmed by the USSR Council of Ministers or by the union republic councils of ministers."<sup>56/</sup> The synonyms used for "centralized" are "planned" and "limited" (i.e. above- and below-limit). Noncentralized investments are defined as investments which are outside the state plan of capital work.<sup>57/</sup>

Analytically, the distinction has a dual importance:

1. It is clear from an examination of Soviet data that announced "total investments" are usually not global totals.<sup>58/</sup> Sometimes the exclusions are explicit, but frequently they must be imputed. Since the Soviet Union is not excessively given to an understatement of economic magnitudes; it is reasonable to suppose that statistical differences between announced and global totals can be explained by institutional differences. Therefore, in order to estimate or explain, as the case may be, the statistical differences, it is important to understand the institutional differences.

2. The distinction between centralized and noncentralized investments implies a sphere for decentralized investment choice the meaning of which is a conclusion of substance about the Soviet economy.

Noncentralized investments are identified with investments provided for by the decrees on extra-limit investments.<sup>59/</sup> Although Soviet statistical

<sup>56/</sup> Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike, p. 372.

<sup>57/</sup> Ibid., p. 372; D'iachkov and Kiparisov, op.cit., p. 15.

<sup>58/</sup> Cf. Tables VI and VII and notes.

<sup>59/</sup> Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike, p. 372; D'iachkov and Kiparisov, op.cit., p. 15.

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practice distinguishes between extra-limit investments and collective farms' investments, the decree of September 19, 1935, provided that all capital investments by collective farms were to be outside the plan of capital work.<sup>60/</sup> In principle, therefore, noncentralized investments consist of extra-limit investments and collective farms' investments. Their distinguishing feature is that they are initiated outside the investment plan procedure. This, however, does not necessarily imply that they are unplanned or that they are uncontrolled.

The financial sources for extra-limit and collective farms' investments are prescribed.<sup>61/</sup> The general objects, and in many cases their costs, for extra-limit investments are prescribed.<sup>62/</sup> The procedure for the deposit of funds intended for extra-limit and collective farms' investments into the appropriate bank is specified; the banks, thus, can insure that the funds are spent as prescribed.<sup>63/</sup> Finally, some extra-limit investments must be approved by the chief administration and others by the ministry (with a report to the appropriate council of ministers); this depends upon the amount of the expenditure.<sup>64/</sup>

Although noncentralized investments are outside the investment plan, they are not necessarily unplanned. Thus, the financial plans of enterprises include extra-limit investments.<sup>65/</sup> Similarly, the estimates of expenditures

<sup>60/</sup> Cf. above, p. 13, footnote 17a, and pp. 22-24.

<sup>61/</sup> Cf. above, pp. 11-14, 23-24.

<sup>62/</sup> Cf. pp. 11-13 above and Table VII, note 2.

<sup>63/</sup> Cf. above, pp. 26-27.

<sup>64/</sup> Cf. above, p. 14.

<sup>65/</sup> Cf. Table VI, note 3. Cf. also S. M. Kutyrev, Analiz balansa dokhodov i raskhodov khoziaistvennoi organizatsii (Analysis of the Balance of Incomes and Expenditures of Economic Organizations) Gosfinizdat 1942, pp. 10-11, 30-33. In the latter source, the financial plan is for a chief administration and includes both "extra-limit" investments (planned and realized) and "nonplanned" investments (realized only). The chief administration appears to be the coordinating unit for the financial plans of enterprises which are not autonomous.

For budget-financed organizations <sup>66/</sup> include extra-limit investments. <sup>67/</sup>

Thus, it is possible to find in Soviet sources planned extra-limit investment figures. <sup>68/</sup> It is possible, also, to find in Soviet sources planned investments by collective farms. <sup>69/</sup> Since collective farms' investments are predominantly from their own resources, I suspect that these figures are simply forecasts, perhaps derived from collective farm income forecasts. <sup>70/</sup>

The relevant points, at the moment, are: (1) that the aforementioned controls simply limit the kinds and amounts of noncentralized investments; and (2) that extra-limit and collective farms' investments are not a part of and are not coordinated with the investment plan. Therefore, the existence of extra-limit and collective farms' investments implies that a roughly corresponding proportion of investment goods produced are produced, so to speak, for the market.

Thus, in the organization of Soviet capital formation there are at least three levels of "decentralized" investment choice:

1. Project-making organizations choose between investment variants which yield identical outputs in kind; the itemized lists of above-limit projects are, however, approved by the USSR Council of Ministers and the itemized lists of below-limit projects by USSR ministries or union republic councils of ministers. <sup>71/</sup>

<sup>66/</sup> I.e., non-khoznaschet organizations; cf. footnote 17, p. 12 above.

<sup>67/</sup> Narodnyi komissariat finansov SSSR, Instruktsiia po bukhgalterskomu ychetu po dvolnoi sisteme v uchrezhdeniakh, sostoiashchikh na gosudarstvennom i mestnom budzhetakh (USSR Peoples Commissariat of Finances, Instructions on Double-Entry Bookkeeping for State and Local Budget-Financed Institutions), Gosfinizdat 1944, p. 13.

<sup>68/</sup> Cf. Table VII.

<sup>69/</sup> Cf. Table I.

<sup>70/</sup> At the very least, the discrepancy between plan and realization seems unusually large in this sphere. Thus, in 1938-39, collective farms' money investments were something like 50-60% of planned 1938-1942 collective farms' money investments. And in 1946-1947, collective farms' money investments were something like 35% of planned 1946-1950 collective farm investments including labor contributions in kind. Cf. Table VII and notes 9-11.

<sup>71/</sup> Cf. footnotes 6, 13, and 15 above. On the criteria for choice by project-makers, cf. N. Kaplan, "The Choice Among Investment Alternatives in Soviet Economic Theory," AM-539. It is there observed: (1) that the prevailing criterion is to minimize the costs of the given future outputs; (2) that are considerable deviations from this criterion in the direction of different criteria; and (3) that there are also deviations from the criterion in the direction of broadening the scope of project-makers' choices beyond the set of investment variants yielding identical outputs.

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2. Ministries (and union republic councils of ministers) make below-limit investment decisions (with a voice for enterprises and chief administrations) within the expenditures for the branch established by the USSR Council of Ministers; these decisions, however, being explicit (i.e. included in an itemized list of projects) on the Ministry level, are coordinated with the investment plan.<sup>72/</sup>

3. Enterprises and collective farms make noncentralized investment decisions outside the investment plan procedure. These would be known on the Ministry level or above only in exceptional cases.<sup>73/</sup> These are, therefore, taken to be more or less genuine instances of decentralized investment choice.<sup>74/</sup>

The Soviet distinction between centralized and noncentralized investments should not be confused with the distinction between investments financed from the budget and those financed from enterprises' own resources. The latter distinction occurs when investment data are announced in sources primarily concerned with budget data.<sup>75/</sup> It is clear: (1) that "enterprises' own resources" refer mainly to retained profits and to that part of amortization allowances not designated for capital repairs;<sup>76/</sup> (2) that budget allowances, as well as enterprises' own resources, are used for both centralized and non-centralized investments; and (3) that in this context, the distinction between the budget and enterprises' own resources is, to a considerable extent, an accounting distinction only.

<sup>72/</sup> Cf. p.10 and footnotes 15 and 16 above.

<sup>73/</sup> I.e. only for extra-limit investments which cost (in 1936) in excess of 500,000 rubles and, perhaps, for collective farms' investments financed by Agricultural Bank loans. Cf. above, pp.14, 24.

<sup>74/</sup> The Soviet literature on the law of value indicates that profitability is not regarded as an index of which branches of the economy should be expanded. Cf. N. Kaplan, "The Law of Value and Soviet Economic Planning," RM-488. It is interesting to note, however, that in so far as noncentralized investments are financed from profits, the marginal expansion of enterprises does depend on their profitability.

<sup>75/</sup> Cf. Table VI.

<sup>76/</sup> N. N. Rovinskii, Gosudarstvennyi biudzhet SSSR (State Budget of the USSR) • Gosfinizdat 1939, p. 178.



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In principle (i.e. by Soviet definition), noncentralized investments include extra-limit investments and collective farms' investments. In Soviet statistical practice, however, centralized plus noncentralized investments fail to equal total investments. This is for two reasons:

1. Since 1938 capital repairs are planned and reported separately from capital investments.<sup>77/</sup> The reason presumably lies in the organizationally separate arrangements for capital repairs.

2. All the data examined state collective farm investments separately, and in addition to, the total of centralized and noncentralized investments.<sup>78/</sup> The reason presumably lies in the "cooperative" (as U. S. state) ownership of productive resources in collective farms.

Thus, in Soviet statistical practice:

- (1) total investments = centralized investments - extra-limit investments - collective farms' investments - capital repairs; and  
 (2) noncentralized investments = extra-limit investments.<sup>79/</sup>

Accordingly, for purposes of estimating and comparing total Soviet investments over time, we will interpret reported noncentralized investments to mean extra-limit investments.

Two puzzling remarks on the subject of noncentralized investments have appeared recently in Soviet sources. The first is that in 1949 and 1950 the "basic part" of noncentralized investments was included in the national economic plan.<sup>80/</sup> The second is that in 1951 the distinction between centralized and

<sup>77/</sup> Cf. Rovinskii et al., Organizatsiia finansirovaniia i kreditovaniia kapital'-nykh vlozhenii, pp. 270-1; D'iachkov and Kiparisov, op.cit., p. 6; Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike, p. 250; Table VII and note 1.

<sup>78/</sup> Cf. Table VII and note 1. Agricultural Bank loans to collective farms, however, seem to be included in the total of centralized and noncentralized investments; cf. Table VII and note 1, Table I and notes 3 and 5.

<sup>79/</sup> Cf. Table XIII, Table VII and note 1.

<sup>80/</sup> Rovinskii et al., Organizatsiia finansirovaniia i kreditovaniia kapital'-nykh vlozhenii, p. 102.

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noncentralized investments is eliminated.

The significance of these remarks is not clear. I would argue in the following way.

1. The implication of the first remark is that prior to 1949 the "basic part" of noncentralized investments was excluded from the national economic plan. I conclude that the specific reference of the remark is to the investment plan.

2. The second remark refers specifically to the investment plan and implies an institutional change (as against a simple change in statistical reporting procedure).

3. There is no evidence of a change in collective farms' investment procedure.

4. There is no evidence that the director's fund, a source of investment finance corresponding uniquely to extra-limit investments, has been eliminated.

5. Depending upon the intended meaning of "noncentralized" investments in the first remark, I translate it more specifically in one of two ways: either (a) in 1949 and 1950 all extra-limit investments, but not collective farms' investments, were included in the investment plan; or (b) in 1949 and 1950 most extra-limit investments, but not collective farms' investments, were included in the investment plan.

6. I interpret the second remark to mean that extra-limit investments, though financed from essentially the same sources as previously, now require centralized approval--probably approval by the Ministry or by the USSR Council of Ministers, depending upon cost--and, to this extent, are indistinguishable

81/ "In order to strengthen control over fulfillment of the plan of capital work and to improve the use of material and financial resources for construction provided for by the national economic plan, the division of capital investments into centralized and noncentralized is this year eliminated and also the relative participation of economic organizations' own resources in financing capital investments is increased." Pravda, March 8, 1951, p. 3.

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from other components of the investment plan.<sup>82/</sup> The motivation and meaning of the change, however, remain as matters of interest and ignorance.

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<sup>82/</sup> I, therefore, connect this change with the other changes in investment organization which occurred in 1950-1951 and which seem to have a common denominator of increased centralized control; cf. footnote 13 above.

I may be interpreting a casual remark too pointedly in support of my explanation but in any case one Soviet writer, after having discussed the 1950-1951 changes, states: "Total above-limit and below-limit construction constitutes the entire amount of state capital investments." (B. Smekhov, "Planning Capital Work," Planovoe khoziaistvo, 1951 No. 4, p. 88.

## II: Soviet Investments, 1924-1951

In the present section I will summarize and discuss the Soviet data on:

- (1) total investments by major components (i.e. centralized investments, extra-limit investments, collective farm investments, and capital repairs);
- (2) investments by major sectors of the economy (i.e. industry, agriculture, transport, communications, trade, and social-cultural services); (3) investments by major sectors of the economy with nonproductive investments eliminated from the economic sectors; and (4) investments by various branches of the economy (e.g. ferrous metallurgy, railroad transport, housing construction).

The tables in this section are distinguished from the appendix tables by the use of Arabic numerals for the former and Roman numerals for the latter. In both sets of tables we adopt the convention of placing estimated figures (but not the totals constructed from them) in parentheses.

### A. Total Investments by Major Components, 1924-1951

Total investments, and their major components, in the socialist sector of the economy for 1924-1951 are given in Table 1.

Within the socialist sector, there are two exclusions from Table 1:

- (1) labor participation in roadbuilding, which averaged about .9 billion rubles annually in the period 1933-1938 and which has continued in unknown magnitudes to date; and, in the annual figures since 1932, (2) labor contributions in kind to collective farm investments, which in Soviet evaluations were about 30% of money investments in the 1933-1940 period and which have continued in unknown magnitudes to date.

In the 1923/4-1927/8 period, investments in the private sector were about 40% greater than in the socialist sector; in the 1928/9-1932 period, investments in the private sector were about 14% of investments in the socialist sector.

After 1932, capital investments in the private sector were apparently insignificant in comparison with the totals. The main components of private investment

<sup>83/</sup> Table XIII, note 1.

TABLE 1: Total Investments in Socialist Sector, 1923/4-1951  
(in billions of rubles; in prices of respective years except where otherwise indicated)

Periods	Prices	Centralized Investments (1)	Extra-limit Investments (2)	Total Centralized and Non-centralized Investments (3)=(1)+(2)	Capital Repairs (4)	Total Investments Exclusive of Collective Farm Investments from Own Resources (5)=(3)+(4)	Collective Farm Investments from Own Resources (6)	Total Investments (7)=(6)+(5)
1923/4-1927/8		n.a.	n.a.	n.a.	-	n.a.	n.a.	11.1
1928/9-1932		n.a.	n.a.	n.a.	-	50.502	1.126	51.628
1929-1933		n.a.	n.a.	n.a.	-	67.821	2.690	70.511
1933-1937		114.675	9.4	124.075	13.4	137.491	13.400	150.891
1934-1938		126.808	-	-	-	155.148	15.452	170.600
Plan 1938-1942		181.0	30.5	211.5	32.8	244.3	24	268.3
1938-1940	1936-7 prices	90.5	17.5	108	17.4	125.4	(11.1)	139.5
July, 1941-June, 1945	1936-7 prices	94.6	(0)	94.6	(14.0)	108.6	(11.8)	120.4
Plan 1946-1950	1945 prices	250.3	(45)	295.3	(50)	345.3	38	383.3
Years								
1923-1924		n.a.	n.a.	n.a.	-	n.a.	n.a.	.861
1924-1925		n.a.	n.a.	n.a.	-	n.a.	n.a.	1.210
1925-1926		n.a.	n.a.	n.a.	-	n.a.	n.a.	2.138
Oct. 1, 1926-Dec. 31, 1927		n.a.	n.a.	n.a.	-	n.a.	n.a.	3.664
1928		n.a.	n.a.	n.a.	-	n.a.	n.a.	4.088
1929		n.a.	n.a.	n.a.	-	n.a.	n.a.	5.805
1930		n.a.	n.a.	n.a.	-	9.495	.170	9.665
1931		n.a.	n.a.	n.a.	-	15.116	.385	15.501
1932		n.a.	n.a.	n.a.	-	19.351	.515	19.866
1933		n.a.	n.a.	n.a.	-	18.1	(1.3)	19.4
1934		n.a.	n.a.	n.a.	-	23.5	(1.7)	25.2
1935		n.a.	n.a.	n.a.	-	27.2	2.1	29.3
1936		n.a.	n.a.	n.a.	-	35.5	(2.6)	38.1
1937		-	1.9	-	-	33.2	3.1	36.3
Plan 1938	1936-7 prices	26.5	3.0	29.5	3.7	40.8	(3.9)	44.7
1938	1936-7 prices	29.3	6.5	35.8	(5.0)	40.8	(3.9)	44.7
1938	1936-7 prices	29.2	6.5	35.7	(5.0)	40.7	(3.9)	44.6

Plan 1939	1936-7 prices	34.7	7.5	42.2	5.8	48.0	(4.7)	52.7
1939	1936-7 prices	29.3	(5)	(34.3)	(5.8)	40.1	(4.7)	44.8
Plan 1940	1936-7 prices	36.1	(4.8)	40.9	6.6	47.5	(5.5)	53.0
1940	1936-7 prices	32	6	38	(6.6)	44.6	5.5	50.1
Plan 1941	1936-7 prices	47	8.9	55.9	7.5	63.2	(6.2)	69.5
1941	1936-7 prices	25.4	(5)	(30.4)	(4)	34.4	(3)	37.4
1942	1936-7 prices	18.6	(0)	18.6	(1.5)	20.1	(2)	22.1
1943	1936-7 prices	19.5	(0)	19.5	(2)	21.5	(2)	23.5
Plan 1944	1936-7 prices	(26.2)	(0)	(26.2)	(5)	31.2	(6.6)	37.8
1944	1936-7 prices	29.0	(9)	29.0	(5)	36.0	6.6	40.6
1945	1936-7 prices	36.3	(0)	36.3	(7)	43.3	(6.6)	49.9
1946	1936-7 prices	44.2	(6.5)	60.7	(9.3)	70.0	7	77.0
1947	1936-7 prices	(53.1)	(8)	61.1	(11.6)	72.7	7	79.7
1948	1936-7 prices	66.2	(12)	78.2	(14)	92.2	(8)	100.2
Plan 1949	1936-7 prices	n.a.	n.a.	105.5	(21)	126.5	(10)	136.5
1949	1936-7 prices	n.a.	n.a.	(112.0)	(21)	133.0	(10)	143.0
1950	1936-7 prices	n.a.	n.a.	(129.7)	26.0	155.7	(11)	166.7
Plan 1951	1936-7 prices	n.a.	n.a.	135.7	29.4	165.1	(12)	177.1

Source: Table XIII. The divided years (e.g., 1923-1924 or 1923/24) are "economic years" running from October 1 of the first year to September 30 of the second year; the other years are calendar years. The sign, "-", denotes "not available"; "n.a." denotes "not applicable."

since 1932 were: (1) investments in the collective farm homesteads, which were probably no more than 1 billion rubles per year, exclusive of housing, in the 1938-1940 period; (2) individually owned housing construction, which seemed to be virtually zero in the prewar period but was, perhaps, 2 billion rubles per year (in 1945 prices) in the postwar period; and (3) investments by private artisans and professionals, for which no magnitudes are available. <sup>83/</sup>

In later papers, I want to attempt an intertemporal comparison of Soviet investments (by deflating the Soviet data) and an international comparison of the Soviet rate of investment. For the moment, I will confine my observations to four: (1) the relationship between centralized and noncentralized investments; (2) the relationship between construction and equipment expenditures; (3) a comparison between the investment totals and the Bergson-Heymann and Hoeffding calculations of gross investment; and (4) the Soviet rate of investment in selected years.

1. In principle, noncentralized investments consist of extra-limit and collective farms' investments. <sup>84/</sup> For years in which there are data on at least one component, the relationship between noncentralized and total investments is given in Table 2.

Thus, something like 20% of total investments has been noncentralized. If my previous argument on the meaning of the distinction between centralized and noncentralized investments is correct, <sup>84/</sup> this implies that something like 20% of investment goods produced has been produced for the market. The recent elimination of the distinction between centralized and noncentralized investments, I have argued, has probably reduced this percentage. <sup>84/</sup>

Capital repairs occupy an anomalous position in the distinction between centralized and noncentralized investments. That part of amortization allowances designated for capital repairs remains at the disposition of the enterprise

<sup>83/</sup> Table XIII, note 1.

<sup>84/</sup> Cf. above, pp. 29-33 and Table VII, note 1.

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Table 2: Noncentralized and Total Investments for Selected Years  
(in billions of rubles; in prices of respective years except where otherwise noted)

Years (1)	Prices (2)	Total Investments (3)	Noncentralized Investments			Total Noncentralized Investments (6)=(4)+(5)	Noncentralized investments as a percentage of total investments (7)=(6) • 100
			Extra-limit Investments (4)	Collective farms Investments (5)			
1936		38.1	1.9	(2.6)	4.5	11.3	
1937		36.3	3.0	3.1	6.1	16.2	
1933-1937		150.9	9.4	13.4	22.8	15.1	
Plan 1938-1942	1936-37	256.3	30.5	24	54.5	20.3	
1938	1936-37	44.6	6.5	(3.9)	10.4	23.2	
Plan 1939	1936-37	52.7	7.5	(4.7)	12.2	23.1	
1940	1936-37	50.1	6	5.5	11.5	23.0	
1933-1940	1936-37	139.5	17.5	(14.1)	31.6	22.7	
Plan 1941	1936-37	67.5	8.9	(6.3)	15.2	21.9	
1944	1936-37	40.6	(0)	6.6	6.6	16.3	
Plan 1946-1950	1945	282.3	(45)	38	83	27.7	
1946		77.0	(6.5)	7	13.5	17.5	
1947		79.7	(8)	7	15	18.9	

Source: Table XIII.



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director, with expenditures subject to approval by the chief administration; but budget allowances for capital repairs may be earmarked for specific expenditures.<sup>85/</sup> From the standpoint of investment goods produced for the market, capital repairs should be considered in part as an addition to the magnitude.

From the standpoint of the sphere for decentralized investment choice, however, capital repairs should probably not be regarded as a significant component. Capital repairs are restricted to renovations which restore the asset to previous productive power.<sup>85/</sup> Given the financial means, the implied sphere for choice is, thus, extremely limited--namely, which of a set of assets under one roof shall be repaired?

2. What proportion of Soviet investments is represented by construction? The Soviet concept of construction (stroitel'nye-montazhnye raboty) includes: (a) the erection, expansion and reconstruction of residential and nonresidential building, mines, dams, roads, bridges, blast-furnaces, etc.; (b) the erection of electric power transmission and communications lines; (c) irrigation and land improvement; and (d) the assembly and installation of technical and power equipment wherever such activities are of sufficient dimensions to require the work of special installation organizations.<sup>86/</sup>

Soviet construction expenditures are presented in Table 3.

<sup>85/</sup> Cf. above, pp. 15.

<sup>86/</sup> Cf. above, footnote 2. It should be noted that not all the remaining investment expenditures are equipment expenditures. Some are investment expenditures which do not result in an increase in fixed capital.

Table 3: Construction Expenditures and Total Centralized Investments  
For Selected Years

(in billions of rubles; in prices of the respective years  
except where otherwise noted)

Year	Prices	Construction	Total Investments	Construction as a Percentage of Total Investments
(1)	(2)	(3)	(4)	(5) = $\frac{(3)}{(4)} \cdot 100$
1928		2.636 <sup>a</sup>	4.083 <sup>a</sup>	64.6
1929		3.612 <sup>a</sup>	5.805 <sup>a</sup>	62.2
1930		5.313 <sup>a</sup>	9.496 <sup>a</sup>	61.2
1931		9.787 <sup>a</sup>	15.116 <sup>a</sup>	64.7
1932		13.015 <sup>a</sup>	19.351 <sup>a</sup>	67.3
1933		10.769 <sup>a</sup>	16.790 <sup>a</sup>	64.1
1934		14.817 <sup>a</sup>	21.909 <sup>a</sup>	67.6
1940		-	-	60.8 <sup>b</sup>
1943		-	-	67.2 <sup>b</sup>
1944		-	-	61.4 <sup>b</sup>
Plan 1946-1950	1945 prices	153 <sup>c</sup>	250.3 <sup>c</sup>	61.1

Sources:

a. Central Administration of Economic and Social Statistics of the USSR State Planning Commission (TSUNKHU), Sotsialisticheskoe stroitel'stvo SSSR (Socialist Construction of the USSR) 1936, pp. 384-5, 407. The total investment figures are exclusive of: (1) collective farms' investments from their own resources; (2) labor participation in road-building; and (3) expenditures for special purposes (in 1933 and 1934). Thus, the total investment figures are the best possible analogue of the later total centralized investments figure (cf. Table II, note 6). It should be noted that this source also presents construction figures by sectors of the economy (*op.cit.*, p. 408).

b. K. N. Plotnikov, Budzhët sotsialisticheskogo gosudarstva (Budget of the Socialist State), Gosfinizdat 1948, p. 307. Only the percentages are given in this source and no indication of the coverage of total investments is mentioned. The percentages are quoted by Plotnikov from another Soviet source which I have not had the opportunity to examine; this source is E. Sokolov, Promyshlennoe stroitel'stvo v gody otechestvennoi volny (Industrial Construction in the Years of the Patriotic War), Gosplanizdat 1946, p. 14.

c. Zakon o piatiletnem plane vosstanovleniia i razvitiia narodnogo khoziaistva SSSR na 1946-1950 gg. (The Law of the 1946-1950 Five Year Plan for the Reconstruction and Development of the USSR National Economy), Gospolitizdat 1946, pp. 9, 35.

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These figures, taken at their face value, indicate little change over the Soviet plan period in the proportion of total investments represented by construction. Two qualifications, however, should be appended: (a) the substantial increase in postwar housing construction as a percentage of total investments<sup>87/</sup> indicates a shift in the proportions of construction between residential and nonresidential buildings; and (b) the substantial decrease in centralized investments as a proportion of total investments may indicate, depending on the proportion of noncentralized investments and capital repairs represented by construction, a more substantial change in construction as a percentage of total investments than Table 3 suggests.

3. The estimates of Soviet national income made by Professor Abram Bergson and Mr. Hans Heymann, Jr.<sup>88/</sup> contain estimates of gross investment in 1937, 1940, 1944, and 1948. Gross investment here includes: (a) investments in fixed capital; (b) inventory accumulations; (c) additions to stockpiles; and (d) net foreign balance.<sup>89/</sup> In principle, therefore, differences between the national income estimates of gross investment and my estimates of investments in fixed capital should be explainable by inventory accumulation, additions to

<sup>87/</sup> Cf. Table XII, note 23.

<sup>88/</sup> A. Bergson, Soviet National Income and Product (in press) Columbia University Press.

A. Bergson and H. Heymann, Jr., "National Income of the USSR in 1940: Preliminary Report" RAND RM-122 (unpublished).

A. Bergson and H. Heymann, Jr., "National Economic Accounts of the USSR in 1944: Preliminary Report," RAND RM-566 (unpublished).

A. Bergson and H. Heymann, Jr., "National Economic Accounts of the USSR in 1948: Preliminary Report," RAND RM-282 (unpublished).

I am indebted to the authors and to RAND for permission to cite figures from these sources in advance of publication. I am indebted to the authors also for making available to me revisions of the estimates contained in the indicated sources. In the nature of the case, I will be unable to cite page references for the relevant figures. Comments on the methodology of the national income estimates will refer to A. Bergson, "Soviet National Income and Product in 1937," Quarterly Journal of Economics, May, August 1951, pp. 203-241, 408-441.

<sup>89/</sup> A. Bergson, "Soviet National Income and Product in 1937," pp. 215-220.

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stockpiles and net foreign balance; of these, the most important quantitatively is inventory accumulation.

In practice, however, this may not be so. In the national income studies, gross investment is calculated as a residual; i.e.,

Gross national product (computed on the income side of national economic accounts) -- total outlays of households or goods and services + communal services + government administration + defense = gross investment.<sup>89/</sup>

The result is that the gross investment figure will reflect any noncompensating errors in the total gross national product figure and in the other outlay figures. Similarly, my investment figures contain conjectured components.

A comparison of investments in fixed and working capital, on the one hand, and the national income estimates of gross investment, on the other, is presented in Table 4.

The figures on increments in working capital (column 3, Table 4) are inadequate representations of inventory accumulations for at least five reasons: (a) except for 1937 and 1940, they are planned figures; (b) except for 1937, the figures refer to "owned" working capital only; (c) the figures include changes in cash and bank account balances;<sup>90/</sup> (d) whether the figures include or exclude cooperative organizations is not clear; and (e) the figures presumably exclude agricultural income in kind which is not consumed. For purposes of the comparison in Table 4, however, the figures will be taken as rough indicators of inventory accumulation.

Because of the curious configuration of differences in Table 4 (column 6), I will discuss each of the years separately. Also, because the deficiencies of the investment in fixed capital totals have been discussed elsewhere,<sup>91/</sup> I will

<sup>89/</sup> A. Bergson, "Soviet National Income and Product in 1937," pp. 215-220.

<sup>90/</sup> Working capital (*oborotnye sredstva*) is defined to include cash and bank account balances. Cf. A. M. Birman, *Planirovaniye oborotnykh sredstv* (The Planning of Working Capital), Gosplanizdat 1950, p. 17.

<sup>91/</sup> Cf. Table VI, notes 1-3; Table VII, notes 1-3, 6, 7, 9, 10; Table XIII, note 1.

Table 4: Gross Investment and Investments in Fixed and Working Capital for Selected Years

(in billions of rubles; in prices of the respective years)

Year	Investments in fixed capital	Increase in working capital	Total investments in fixed & working capital	Gross investment (as a residual in the national income estimates)	Difference between gross investments and investments in fixed and working capital	
					In billions of rubles	As % of gross investment
(1)	(2)	(3)	(4) = (2) - (3)	(5)	(6) = (5) - (4)	(7) = $\frac{(5)-(4)}{(5)} \cdot 100$
1937	36.3 <sup>a</sup>	15 <sup>b</sup>	51.3	56.1 <sup>f</sup>	4.8	8.6
1940	50.1 <sup>a</sup>	7.6 <sup>c</sup>	57.7	59.2 <sup>g</sup>	1.5	2.5
1944	40.6 <sup>a</sup>	4.5 <sup>d</sup> *	45.1	52.7 <sup>g</sup>	7.6	14.4
1948	100.2 <sup>a</sup>	17.1 <sup>e</sup> *	117.3	152.4 <sup>g</sup>	35.1	23.0
* (planned)						

## Sources:

a. Table XIII. The 1940 figure (or at least the major components thereof) is probably in 1936-37 prices (Table VI, note 3); it is believed, however, that 1940 prices were not substantially higher than 1936-37 prices for investment goods (Table VI, note 3).

b. Cited from Soviet sources by Bergson, (Soviet National Income and Product). As pointed out by Bergson, this figure includes increments in "owned" and "loaned" working capital but whether it includes the working capital of cooperative as well as state organizations is problematic. Other Soviet sources mention the following figures. The planned increase in working capital, including the growth in bank credit, for 1937 was 12.2 billion rubles (A. Smilga, "Finances of the Socialist State," Problemy ekonomiki, 1937 No. 2, p. 115). The planned increase in "owned" working capital for 1937 was 11 billion rubles; the realized increase in "owned" working capital for 1936 was 9.9 billion rubles (Ibid., p. 118). Total "owned" working capital was 37.3 billion rubles on January 1, 1937, was planned to be 48.3 billion rubles on January 1, 1938, and was actually 45.7 billion rubles on January 1, 1938 (Ibid., p. 118; G. F. Grinko, Finansovaya programma SSSR na 1937 - Financial Program of the USSR for 1937 - 1937, p. 39; A. G. Zverev, Gosuderstvennye budzhety SSSR 1938-1945 - State Budgets of the USSR 1938-1945 - Gosfinizdat 1946, p. 19). These figures are to be compared with the total "owned" and "loaned" figures cited by Bergson of 7. billion rubles on January 1, 1937, and 86 billion rubles on January 1, 1938.

c. The planned increase in "owned" working capital for 1940 was 10.3 billion rubles (Zverev, op.cit., p. 80). The preliminary realized figure for the increase in "owned" working capital of state organizations was underfulfilled by 2.7 billion rubles (Zverev, op.cit., pp. 107-108). Thus, the preliminary realized figure may be taken to be 7.6 billion rubles. The planned increase in "owned" working capital for 1939 was 10.1 billion rubles; the preliminary realized increase was 8.6 billion (Zverev, op.cit., p. 51; V. P. D'iachenko, Finansy i kredit SSSR - USSR Finances and Credit - 1940, p. 398). The planned increase in "owned" working capital for 1941 was 10.2 billion rubles (Zverev, op.cit., p. 108).

The value of "owned" working capital was planned to be 71.1 billion rubles on January 1, 1941; of this sum, the "owned" working capital of state organizations was to be 68.8 billion rubles (Zverev, op.cit., pp. 80, 107-108). The "pre-war" value of (presumably "owned" and "loaned") working capital was in excess of 100 billion rubles (A. M. Birman, Oborotnye sredstva promyshlennogo predpriyatiya - The Working Capital of an Industrial Enterprise - 1949, p. 3).

d. Zverev, op.cit., p. 133. This figure is the increment in "owned" working capital only. The similar figure, planned for 1945 is 6.8 billion rubles (Zverev, op.cit., p. 154).

e. A. G. Zverev, "On the USSR State Budget for 1948 and Fulfillment of the USSR State Budget for 1946," in Narodnoe khozjaistvo SSSR (USSR National Economy) 1948, a collection of articles, p. 485. This figure is the increment in "owned" working capital only. Similar figures, planned for 1947 and 1949 respectively, are 13.2 and 23.6 billion rubles (A. G. Zverev, "On the State Budget for 1947," Sovetskie finansy, 1947 No. 2, p. 14; A. G. Zverev, "State Budget of the Fourth Year of the Postwar Five Year Plan," Planovoe khozjaistvo 1949 No. 2, p. 45).

f. A. Bergson, Soviet National Income and Product.

g. These figures are unpublished revisions of the figures originally contained in the RAND memoranda cited in footnote 88.

not re-examine here the sources of possible error in these figures.

a. In 1937, as Bergson points out, the observed difference is easily explained by the exclusions from the figure on investments in fixed and working capital. The net foreign trade balance on commodity account was about +387 million rubles (at official exchange rates), gold production was about 1 billion rubles (at official exchange rates), collective farm investments out of income in kind were about 2 billion rubles, and commodity stockpiling was about 1.7 billion rubles.<sup>92/</sup>

b. In 1940, the difference between gross investment and investments in fixed and working capital was smaller than in 1937. Two offsetting considerations must be mentioned. The increase in working capital excludes "loaned" working capital. On the other hand, investments in fixed capital probably include the construction of military facilities and fortifications which may have been 4-5 billion rubles;<sup>93/</sup> in the national income accounts, the construction of military facilities and fortifications are included in defense expenditures. On balance, the effect of these considerations might be to raise the magnitude of the difference between gross investment and investments in fixed and working capital. It is problematic, however, whether the adjusted difference would be large enough to account for commodity stockpiling, collective farm investments out of income in kind, gold production, and the net foreign trade balance. The increase in commodity stockpiles alone was probably about 2-3 billion rubles.<sup>94/</sup>

<sup>92/</sup> Bergson, Soviet National Income and Product.

<sup>93/</sup> Cf. Table VIII, note 6; Table IX, notes 3 and 4; Table X, note 22.

<sup>94/</sup> Voznesensky states: "In the course of the one and one-half years preceding the Patriotic War, state commodity reserves in the USSR increased from 4 billion rubles to 7.6 billion rubles." (N. A. Voznesensky, The Economy of the USSR During World War II, Public Affairs Press, 1948, p. 91.

Bergson and Heymann also cite the following magnitudes: (a) gold production = 250 million dollars or about 2.5 billion domestic rubles; (b) net foreign balance = -.1 billion rubles. (A. Bergson and H. Heymann, Jr., "National Income of the USSR in 1940: Preliminary Report," RAND RM-122, pp. 46-7.)

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c. During 1944, the Soviet Union was virtually freed from Nazi occupation. The reconstruction requirements of the economy may well have brought the realized increase in working capital above the planned increase. When the increase in "loaned" working capital is added, the adjusted difference between gross investment and investment in fixed and working capital is probably not too great to be explained by the exclusions from the latter figure.

d. In 1948, the magnitude of the difference in column (6) of Table 4 is much too large to be explainable by any of the factors mentioned. Either the investment figure in column (2) is too small or the gross national product figure for 1948 is too large or gross investment contains some outlays which belong in other outlay categories.<sup>95/</sup>

4. What has been the Soviet rate of investment? Because of the inadequacies of Soviet data on inventory changes, I will define the rate of investment to mean investments in fixed capital divided by gross national product.

The quantity I want is the proportion of total resources in the Soviet Union which is devoted to investments in fixed capital. The denominator, therefore, should be national income at factor cost - amortization allowances and all categories of the national economic accounts should be net of indirect

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<sup>95/</sup> This discussion is not meant to imply that Bergson and Heymann are unaware of the discrepancies mentioned. The points are raised anew here for whatever light my capital investment estimates may throw on the problem.

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taxes and gross of subsidies.

Bergson and Heymann have calculated gross national product in "adjusted rubles," i.e., net of turnover taxes (which are regarded as indirect taxes) and gross of subsidies. These adjustments significantly alter the totals.

Bergson and Heymann have also attempted to break down turnover taxes and

96/ This is a simple-minded statement, but it seems both out of place and out of proportion to discuss in detail here the problems in the evaluation of "real" national income. Reference should be made to Bergson's discussion in Soviet National Income and Product, Ch. iii. Suffice it to make the following remarks here:

a. Application of the theory of resource allocation to the evaluation of Soviet national income requires a model of the Soviet economy (i.e., a model of "perfect Soviet socialism" which is logically analogous to the model of perfect competition) which will elucidate the role of prices in the Soviet economy. This is because the Soviet economy resembles neither of the models implied by the literature on the economic theory of socialism--i.e., neither the case where consumers' preferences decide everything (or everything but the rate of investment) nor the case where planners' preferences decide everything. The Soviet case may be described roughly as one in which the planners (the Politbureau) decide certain (present and future) outputs and, apart from the consequences of these decisions, consumers decide the remaining allocations. The Lange-Lerner model emerges as a special case if the planners decide only aggregate future output (i.e., the rate of investment). The completely centralized economy emerges as a special case if the decisions made by the planners are sufficient in number to leave no, or virtually no, degrees of freedom in the economy. The determination of the rationality and efficiency conditions, and particularly the role and meaning of prices, remains a problem in the nonextreme cases.

b. If, in the absence of such a model, the model of perfect competition is taken as the guidepost, I have in mind the evaluation of national income in accordance with Bergson's "real" cost standard" (Ibid., Chs. iii and iv). That is, the quantity I have in mind is the proportion of the total volume of resources devoted to investment, where resources are added in proportion to their marginal productivities. Or, to put it in still other words, the intention is to approximate the coordinates of a point on the "production possibilities" surface.

c. The main operational imperatives of Bergson's "real" cost standard, in the Soviet case, is that each category of the national economic accounts should be net of turnover taxes and gross of subsidies.

Throughout this paper I make comparisons between components of investments in rubles. The quantities I have in mind are the same as here--e.g., changes in the proportion of total investment resources devoted to investments in industry. Strictly, I should add subsidies to, and subtract turnover taxes from, each of the components; I am, of course, unable to do this. I must assume, therefore, that the differential incidence of turnover taxes and subsidies within the category of investment goods is virtually zero. Since turnover taxes and subsidies seem to be concentrated on basic fuels and materials, this assumption presumably does not lead to large errors.



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b. If, in the absence of such a model, the model of perfect competition is taken as the guidepost, I have in mind the evaluation of national income in accordance with Bergson's "real" cost standard" (Ibid., Chs. iii and iv). That is, the quantity I have in mind is the proportion of the total volume of resources devoted to investment, where resources are added in proportion to their marginal productivities. Or, to put it in still other words, the intention is to approximate the coordinates of a point on the "production possibilities" surface.

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subsidies by use categories of the national economic accounts for the years 1937, 1940, 1944, and 1948. Except for 1948, the adjustment of investments in fixed capital for turnover taxes (which must be subtracted) and subsidies (which must be added) does not materially affect the investment total. The incidence of turnover taxes is predominantly on agricultural goods and consumers' goods. The incidence of subsidies appear to be predominantly on machine-tractor stations (and, probably also, state farms) and basic industrial materials (e.g., coal and metals). Total subsidies, however, are relatively small except for 1948. In 1948, therefore, the adjustment of investments for turnover taxes and subsidies results in an appreciable increase in the investment figure.

Table 5 presents the Soviet rate of investment, using the Bergson-Heymann gross national product figures in "adjusted rubles" and my investment figures both unadjusted and adjusted for turnover taxes and subsidies.

In view of the discrepancies noted in Table 4 above, the following remarks should be added:

- a. If the causes of the discrepancies are errors in the other outlay categories of the national economic accounts, the rate of investment computed in Table 5 will be unaffected by a correction to the "true" outlays;
- b. If the causes of the discrepancies are errors in my investment figures or errors in the total gross national product estimates, the rate of investment should be decreased slightly in 1940, increased slightly in 1944 and increased appreciably in 1948.
- c. Except for the possibility of a concatenation of compensating and noncompensating errors, only the 1948 rate of investment would appear to be materially affected by a removal of the discrepancies noted in Table 4.

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Table 5: The Rate of Investment for Selected Years

Year	Gross National Product (in "adjusted rubles")	Investments in fixed capital In billions of rubles	Turnover Taxes of rubles	Subsidies	Adjusted Investment In Fixed Capital	(Unadjusted Investment)	(Adjusted Investment)
(1)	(2)	(3)	(4)	(5)	(6)=(3)-(4)+(5)	(7)= $\frac{(6)}{(2)} \cdot 100$	(8)= $\frac{(6)}{(2)} \cdot 100$
1937	223.9 <sup>a</sup>	36.5 <sup>c</sup>	2.7 <sup>d</sup>	1.9 <sup>d</sup>	31.5	16.2	15.9
1940	365.2 <sup>b</sup>	50.1 <sup>c</sup>	3.8 <sup>e</sup>	2.4 <sup>f</sup>	46.7	13.7	13.3
1944	438.7 <sup>b</sup>	40.6 <sup>c</sup>	3.0 <sup>e</sup>	2.3 <sup>f</sup>	40.4	9.3	9.2
1948	648.9 <sup>b</sup>	100.2 <sup>c</sup>	7.5 <sup>e</sup>	19.2 <sup>f</sup>	111.9	15.4	17.2

## Sources:

a. Bergson, Soviet National Income and Product.

b. These figures are unpublished revisions of the figures originally contained in the RAND memoranda cited in footnote 88.

c. Table XIII. The 1940 figure (or at least the major components thereof) is probably in 1936-37 prices (Table VI, note 2); it is believed, however, that 1940 prices were not substantially higher than 1936-37 prices for investment goods (Table VI, note 3).

d. Bergson, Soviet National Income and Product. I have applied the estimated effective turnover tax rate of 7.5% for investments in fixed capital to the investment figure in column (3).

e. Bergson and Hayman assume that the 1937 effective turnover tax rate for investments in fixed capital holds also for 1940, 1944, and 1948. I have applied this rate to the investment figures in column (3).

f. These figures are from unpublished revisions of the RAND memoranda cited in footnote 88.

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## E. Investments by Major Sectors of the Economy, 1924-1950

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Soviet sources report investments by six sectors: (1) industry; (2) agriculture; (3) transport; (4) communications; (5) trade and procurement; and (6) social-cultural services and administration. The sectors have the following meanings.

1. "Industry" includes mining, manufacturing, and most electric power stations. Municipal electric power stations are included in "social-cultural services and administration"; rural electric power stations are included in "agriculture."

2. "Agriculture" includes state farms, collective farms, machine-tractor stations, and such generalized agricultural investments as irrigation and land improvement measures. Capital investments in "agriculture," furthermore, include some but not all expenditures on livestock. Only young livestock and draft livestock (of whatever age) are considered to be fixed capital. Moreover, only expenditures on the acquisition of such livestock seem to be included in the investment figures; for some reason livestock breeding expenditures appear to be excluded.

3. "Transport" includes railroad, water, land and air transportation. Urban trolley systems subways, and the construction of local roads are included in "social-cultural services and administration." The construction of nationally important roads is included in "transport."

4. "Communications" includes mail, telephone, telegraph, and radio.

5. "Trade and Procurement" includes retail trade and "wholesale"

procurement organizations.

97 Cf.: Table I, note 1; Table II, note 1; Table III, note 3; Table IV, notes 2 and 7; Table VIII, note 6; Table IX, notes 3 and 4; Table X, note 22; Table XII, note 20.

98 Cf. Table IV, notes 1 and 6. Table IV presents the following data on capital investments in livestock (in millions of rubles):

	1928	1929	1930	1931	1932	1933
Livestock, poultry, apiaries	50.0	153.9	506.5	939.7	1075.0	1604.7
Including expenditures on the acquisition of livestock and buildings.	32.4	114.3	399.4	688.2	462.4	613.7

Checking the data in Table IV with other data from Soviet sources, I conclude: (a) that the difference between the first and second row represents livestock breeding expenditures; and (b) that only the lower figure is included in agricultural investments as they are usually stated. The second of these conclusions depends, of course, on the validity of identifying the 1928-1933 procedure

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6. "Social-Cultural Services and Administration" includes: (a) housing; (b) education and public health; (c) municipal services, which in turn includes subways and trolley systems, municipal land transport, water supply, sewage systems, city sanitation, bath houses and laundries, municipal electric power stations, gas works, and local roads and bridges; (d) administration and military facilities and fortifications.

The distribution of investments by sectors of the economy is given in Table 6. A comparison of the totals in Table 6 with the totals in Table 1 indicates that from 10 to 25% of total investments is excluded from the post-1937 sector distribution of investments.<sup>99/</sup> These are extra-limit investments or capital repairs or both. The quantitative evidence on the sector distribution of extra-limit investments and capital repairs is rather sketchy. From this evidence, however, and from the nature of capital repairs and extra-limit investments, I conclude that inclusion or exclusion of extra-limit investments and capital repairs will not materially effect the sector distribution of investments.<sup>100/</sup> Accordingly, I assume the sector distributions in Table 6, taken as percentages, to be representative of the sector distributions of total investments in the post-1937 period.

A characteristic of the Soviet economy is that economic organizations invest directly in "nonproductive" assets.<sup>101/</sup> For example, industrial enterprises construct houses for their employees, finance projects for the provision of municipal services, etc; by far the most important of such activities is housing construction. In Table 6, "nonproductive" investments by economic

<sup>99/</sup> Cf., also, Table XIV, note 2. The one exception to these percentages is the 1944 planned sector distribution.

<sup>100/</sup> Cf. Table VII, notes 2 and 3; I would expect at most a 2-3 percentage point increase in industry and decrease in social-cultural services and administration with the inclusion of extra-limit investments and capital repairs in the post-1937 data.

<sup>101/</sup> "Nonproductive investments" include investments in housing, capital formation for the provision of municipal and social-cultural services, the construction of schools, hospital, etc. Cf. above, pp. 15-16.

"Economic sectors" is used to mean industry, agriculture, transport, communications and trade and procurement. "Economic organizations" are those whose principal activities lie in the economic sectors.

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Table 6: Capital Investments by Sectors of the Socialist Ec

(in billions of rubles; in prices of the respective years except where otherwise noted)

Industry	Agriculture			Transport	Communica- tions	Trade and Procurement	Social- cultural services & admin.	Total (9)=(1)+ (4)+(5)+ (6)+(7)+ (8)
	Exclusive of coll- ective farms	Collective farms	Total (4) = (3)+(2)					
(1)	(2)	(3)	(4) = (3)+(2)	(5)	(6)	(7)	(8)	(9)=(1)+ (4)+(5)+ (6)+(7)+ (8)
4.9	n.a.	n.a.	0.7	2.7	0.1		2.7	1.1
24.789	9.687	1.126	10.813	9.933	.565	.943	5.585	51.628
34.458	12.396	2.690	15.086	11.886	.759	1.258	7.064	70.511
65.763	16.760	13.400	30.160	25.411	1.336	3.245	24.976	150.891
72.948	17.714	15.452	33.166	29.019	1.510	1.769	30.188	170.600
103.580	18.000	24	42	35.826	1.748	2.563	26.583	212.300
5	19.9	38	57.9	(53.5)		25.2		294.1
.355	n.a.	n.a.	.056	.214	.019	.236		.861
.481	n.a.	n.a.	.071	.272	.021	.040	.327	1.210
.972	n.a.	n.a.	.126	.523	.021	.051	.445	2.138
1.760	n.a.	n.a.	.213	.860	.043	.078	.709	3.663
1.880	n.a.	n.a.	.384	.905	.054	.065	.801	4.089
2.165	n.a.	n.a.	.804	1.179	.070	.099	1.002	5.805
4.114	2.420	.170	2.590	1.660	.123	.174	1.004	9.665
7.407	3.260	.385	3.645	2.694	.184	.260	1.311	15.501
10.431	3.306	.515	3.821	3.472	.186	.351	1.606	19.867
890	2.495	(1.3)	3.795	3.015	.202	.238	2.404	19.544
868	2.972	(1.7)	4.672	4.250	.278	.486	3.443	24.997
13.024	2.993	2.1	5.093	5.455	.300	.562	4.866	29.300
15.969	3.884	(2.6)	6.484	6.917	.310	1.046	7.374	38.100
15.012	4.146	3.1	7.246	5.774	.246	.913	7.109	36.300
17.46	2.47	(3.9)	6.37	6.82		.66	8.35	39.66
17.075	3.449	(3.9)	7.349	6.623	.376	.763	7.414	39.60
17.59	1.59	(4.7)	6.29	4.96		.49	10.10	39.43
19.19	1.23	(5.5)	6.73	5.44		.37	9.90	41.63
27.48	1.06	(6.3)	7.36	9.21		.51	8.01	52.57
15.26	1.10	n.a.	1.10	1.09		.16	3.18	20.79
46.39	4.32	(8)	12.32	9.00		.84	5.61	74.16
72.23	9.21	(10)	19.21	13.54		.99	9.57	115.54

otes "not applicable."

Economy, 1923/4-1950

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in % of total

Industry	Agriculture	Transport	Communica- tions	Trade and procurement	Social- cultural services & Admin.	Total
(10)	(11)	(12)	(13)	(14)	(15)	(16) = (10) + (11) + (12) + (13) + (14) + (15)
44.1	6.3	24.3	0.9	24.3		100
48.0	20.9	17.3	1.1	1.8	10.3	100
48.9	21.4	16.9	1.1	1.8	10.0	100
43.6	20.0	16.8	.9	2.2	16.6	100
42.8	19.4	17.0	.9	2.2	17.7	100
48.3	19.3	16.9	.3	1.2	12.5	100
52.6	19.7	18.2		3.6		100
41.2	6.5	24.9		27.4		100
39.3	5.9	22.5	1.6	3.3	27.0	100
45.5	5.9	24.5	1.0	2.4	20.8	100
48.0	5.8	23.5	1.2	2.1	19.4	100
46.0	7.4	22.1	1.3	1.6	19.6	100
45.0	14.5	20.3	1.2	1.7	17.3	100
42.6	26.8	17.2	1.3	1.3	10.4	100
47.3	23.5	17.4	1.2	1.7	8.5	100
52.5	19.2	17.5	1.0	1.3	8.1	100
40.6	19.4	15.4	1.0	1.2	12.3	100
47.5	18.7	17.0	1.1	1.9	13.8	100
44.5	17.4	13.6	1.0	1.9	16.6	100
41.9	17.0	18.2	.3	2.7	19.4	100
41.4	20.0	15.9	.7	2.5	19.6	100
44.0	16.1	17.2		1.7	21.1	100
43.1	13.6	16.7	17.2	1.9	18.7	100
44.6	16.0	13.5	.9	1.2	25.6	100
46.1	16.2	13.1		.9	23.8	100
52.3	14.0	17.5		1.0	15.2	100
73.4	5.3	12.2		.8	15.3	100
62.6	16.6	12.2		1.1	7.6	100
62.5	16.6	11.7		.9	8.3	100

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organizations are included in the sector in which the economic organization falls. Since "nonproductive" investments are an appreciable proportion of total investments in the economic sectors, particularly for "industry," an attempt will be made below to eliminate such investments from the economic sectors and to add them to "social-cultural services and administration."<sup>102/</sup>

With these qualifications in mind, one may underline the following trends in the sector distribution of Soviet investments:

1. Investments in "industry" as a proportion of total investments exhibited a decline in 1933-1938 as against 1923/9-1933 and a revival in the Third Five Year Plan period (1938-1942). There is some evidence, also, that the 1939 and 1940 plans were underfulfilled as totals and overfulfilled for industry.<sup>103/</sup>
2. Postwar investments in "industry," as a proportion of total investments, were significantly greater than prewar.
3. Investments in "agriculture" as a proportion of total investments remained virtually constant over the planning period (1923/9-1950) except for the years of intense collectivization, 1930 and 1931. In contrast with

<sup>102/</sup> Cf. below, pp.

It is also characteristic of Soviet economic administration that, for example, the Ministry of Railroad Transport will have under its jurisdiction enterprises which build railroad cars. I have called these investments "extra-sector investments." By this I mean "productive" investments which belong in a sector other than the one in which the economic or economic-administrative organization falls. On the basis of both quantitative and nonquantitative information, I have argued in the appendix: (a) that "extra-sector investments" are relatively small; and (b) that the major proportion of such investments are appropriately placed in the Soviet sector breakdown. (Cf. Table XI, notes 20 and 21, and Table XI A.) In any case, it should be noted that the 1941 plan distribution of investments is not, in Soviet sources, a sector distribution of investments. To obtain the indicated distribution I have classified into sectors the Soviet breakdown by ministries and departments. (Cf. Table VIII and note 20; Table IX.)

<sup>103/</sup> Cf. Table IX, note 5.



the 1923/4-1927/8 period, there has certainly been a forced industrialization at the expense of agriculture. In the 1923/4-1927/8 period investments in "industry" and "agriculture" were, respectively, 19.6% and 56.6% of total investments, inclusive of the private sector. <sup>104/</sup> Since 1929, however, there has been virtually no decrease in emphasis on agricultural investments.

4. Investments in "transport" as a proportion of total investments exhibited little change in the pre-war period and in the Fourth Five Year Plan. The 1948 realized and 1949 planned distributions, however, indicate an appreciable decrease in the postwar proportion of total investment represented by "transport."

5. The 1936-1941 increase in "social-cultural services and administration" as a proportion of total investments probably reflects the construction of military facilities and fortifications. <sup>105/</sup>

C. Investments by Major Sectors of the Economy with "Nonproductive" Investments Eliminated from the Economic Sectors.

As I have already mentioned, Soviet economic organizations invest directly in "nonproductive" assets and Soviet statistical sources include "nonproductive" investments by economic organizations in the sector in which the economic organization falls. By far the most important of the "nonproductive" investments by economic organizations is housing construction; others are investments for the provision of municipal services and the construction of schools, hospitals and sanatoria. <sup>106/</sup>

It is by no means obvious that for all purposes "nonproductive" investments should be eliminated from the economic sectors. If, for example, the objective were to approximate marginal capital coefficients and if the housing construction undertaken by ferrous metallurgy enterprises were necessary to

<sup>104/</sup> Cf. Table I.

<sup>105/</sup> Cf. Table VIII, note 6; Table IX, notes 3 and 4; Table X, note 22.

<sup>106/</sup> Cf. Table XI and note 1.

obtain the given expansion in steel capacity, then "nonproductive" investments by ferrous metallurgy enterprises should not be eliminated. For the purpose of international comparison of the direction of investment, however, "nonproductive" investments should be eliminated from the economic sectors and I have, accordingly, attempted to do so.

For the early years, Soviet sources indicate the magnitude of "nonproductive" investments in "industry" (through 1934) and "agriculture" (through 1935). For the rest of the years and for the other sectors, only indirect indications can be obtained. I have ignored "nonproductive" investments in "transport," "communications," and "trade and procurement" prior to 1933 on the grounds that such investments were insignificant. In order to estimate "nonproductive" investments by economic organizations for the remaining prewar years, I have applied percentages ("nonproductive" investments as percentages of total investments) obtained from the Second Five Year Plan and the 1935 and 1936 annual plans for the various economic sectors. (Similar percentages obtained from the 1941 plan suggested that the percentages did not change appreciably in the later years of the prewar period.) For the postwar years, I have used percentages estimated from the Fourth Five Year Plan data on: (a) housing construction; (b) percentage of housing construction undertaken by economic organizations; and (c) municipal services investments.

Two checks are possible for these estimates of "nonproductive" investments by economic organizations. Since housing construction is the predominant portion of such investments, independent data on housing construction and the percentage of housing construction undertaken by economic organizations can be compared with estimates of "nonproductive" investments by economic organizations. Pre-war distributions of "productive" fixed capital by economic sectors can be compared with the distribution of annual investments exclusive of "nonproductive" investments by economic sectors. Both checks are, of course, rough. The first was applied in the appendix and the estimates seemed

reasonable. <sup>107/</sup> The second will be applied in a later paper.

In any case the results of the procedures described <sup>108/</sup> are presented in Table 7. The estimates of "nonproductive" investments in each of the economic sectors (from Table 7) are, then, subtracted from total investments in the economic sector (Table 5); and the total of "nonproductive" investments in the economic sectors (column (8) of Table 7) is added to investments in "social cultural services and administration" (Table 5). The result is a sector distribution of investments with "nonproductive" investments by economic organizations eliminated from the economic sectors; the result is presented in Table 8.

It should be noted that the trends in the sector distribution of Soviet investments which were mentioned above (pp. 53-54 ) reappear in Table 3.

<sup>107/</sup> Cf. Table XI, note 4.

<sup>108/</sup> For details, cf. Table XI and notes 1-4.

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Table 7: "Nonproductive" Investments by Economic Sectors, 1923/4-1950  
(In billions of rubles; in prices of the respective years except where otherwise noted)

Period	Prices	Industry	Agriculture	Transport	Communi- cations	Trade & procurement	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1923/4-1927/8		531	41	0	0	0	632
1928/9-1932		3617	960	0	0	0	4577
1933-1937		(9749)	(1326)	(1917)	(33)	(271)	(13346)
Plan 1933-1942	1936-7	(14703)	(634)	(2637)	(39)	(218)	(18336)
Plan 1946-1950	1945	(33100)	(1600)	(4300)	-	-	(39500)
<b>Years</b>							
1924-1925		65	3	0	0	0	68
1925-1926		126	6	0	0	0	132
Oct. 1926-Dec. 1927		207	12	0	0	0	219
1928		193	20	0	0	0	213
1929		307	32	0	0	0	339
1930		607	281	0	0	0	888
1931		1066	292	0	0	0	1358
1932		1637	355	0	0	0	1992
1933		1682	292	(190)	(15)	(21)	2199
1934		1947	418	(268)	(17)	(43)	2693
1935		(1719)	310	(507)	(19)	(40)	(2595)
1936		(2268)	(148)	(517)	(16)	(89)	(3040)
1937		(2132)	(158)	(433)	(18)	(78)	(2819)
Plan 1938	1936-7	(2480)	(90)	(510)	(60)	(3140)	
1938	1936-7	(2425)	(131)	(497)	(20)	(3133)	
Plan 1939	1936-7	(2500)	(60)	(370)	(40)	(2970)	
Plan 1940	1936-7	(2720)	(50)	(410)	(30)	(3210)	
Plan 1941	1936-7	(3900)	(40)	(490)	(40)	(4670)	
1948		(9740)	(350)	(810)	(30)	(10930)	
Plan 1949		(15170)	(740)	(1220)	(90)	(17220)	

Source: Table XI and note 4; "-" denotes "not available."

Table 8: Capital Investments by Sectors of the Socialist Economy, 1923/4-1950  
(Nonproductive investments eliminated from economic sectors)

Periods	Prices	Billions of rubles; in prices of respective years except where otherwise noted							% of total						
		Industry	Agriculture	Transport	Communi- cations	Trade and procurement	Social- cultural & admin.	Total	Industry	Agriculture	Transport	Communi- cations	Trade and procurement	Social- cultural & admin.	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)+(1)+(2)+(3)+(4)+(5)+(6)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1923/4-1927/8		4.31	.66	2.7	.1	.943	3.33	11.1	38.8	5.9	24.3	0.9	30.0	19.7	100
1927/8-1928		21.172	9.853	8.933	.565	2.974	10.162	51.628	41.0	19.1	17.3	1.1	2.0	25.4	100
1928-1942	1936-7 prices	56.014	28.834	23.494	1.253	2.974	30.322	150.891	37.1	19.1	15.6	.8	1.1	21.2	100
1946-1950	1945 prices	88.872	41.316	33.139	1.709	2.345	42.919	212.300	41.9	19.5	15.6	.8	1.1	21.2	100
		124.4	56.3	48.7		54.7		294.1	42.3	19.1	16.6		22.0		100
1925-1926		.416	.068	.272	.019	.040	.395	1.210	34.4	5.6	22.5	1.6	3.3	32.6	100
1926-1927		.846	.120	.523	.021	.051	.577	2.138	39.6	5.6	24.5	1.0	2.4	27.0	100
1927-1928		1.553	.201	.860	.043	.078	.928	3.663	42.4	5.5	23.5	1.2	2.1	25.3	100
1928-1929		1.687	.364	.905	.054	.065	1.014	4.029	41.3	8.9	22.1	1.3	1.6	24.8	100
1929-1930		2.308	.808	1.179	.070	.099	1.341	5.805	39.8	13.9	20.3	1.2	1.7	23.1	100
1930-1931		3.507	2.309	1.660	.123	.174	1.892	9.665	36.3	23.9	17.2	1.3	1.8	19.6	100
1931-1932		6.341	3.353	2.694	.134	.260	2.659	15.501	40.9	21.6	17.4	1.2	1.7	17.2	100
1932-1933		8.794	3.466	3.472	.186	.251	3.598	19.867	44.3	17.4	17.5	0.9	1.8	18.1	100
1933-1934		8.207	3.503	2.825	.189	.217	4.503	19.544	42.0	17.9	14.5	1.0	1.1	23.6	100
1934-1935		9.921	4.254	3.982	.261	.443	6.136	24.997	39.7	17.0	15.9	1.0	1.8	24.5	100
1935-1936		11.305	4.783	4.948	.281	.522	7.461	29.300	38.6	16.3	16.9	1.0	1.8	25.5	100
1936-1937		13.701	6.336	6.398	.294	.957	10.114	38.100	36.0	16.6	16.8	0.8	2.5	27.3	100
1937-1938		12.880	7.088	5.341	.228	.835	9.928	36.300	35.5	19.5	14.7	0.6	2.3	27.3	100
1938-1939	1936-7 prices	14.98	6.28	6.31	.60	1.149	39.66	37.8	15.8	15.9	15.9	0.9	1.5	29.0	100
1939-1940	1936-7 prices	14.650	7.218	6.126	.356	6.98	10.552	39.600	37.0	18.2	15.5	0.9	1.8	26.6	100
1940-1941	1936-7 prices	15.09	6.23	4.59	.45	13.07	39.43	38.3	15.8	11.6	11.6	1.1	1.1	33.1	100
1941-1942	1936-7 prices	16.47	6.68	5.03	.34	13.11	41.63	39.6	16.0	12.1	12.1	0.8	0.8	31.5	100
1942-1943	1936-7 prices	23.58	7.32	8.52	.47	12.68	52.57	44.9	13.9	16.2	16.2	0.9	2.4	24.1	100
1943-1944	1936-7 prices	36.65	11.97	8.19	.76	16.59	74.16	49.4	16.1	11.0	11.0	1.0	1.0	22.4	100
1944-1945	1936-7 prices	57.06	18.47	12.32	.90	26.79	115.54	49.4	16.0	10.7	10.7	0.8	0.8	23.2	100

#### D. Investments by Various Branches of the Economy.

I have used the word "sector" to refer to the major subsections of the economy--i.e. to industry, agriculture, transport, communications, trade and procurement, and social-cultural services and administration. I use the word "branch" to refer to lower levels of aggregation, to components of the sectors--e.g. to ferrous metallurgy as a "branch" of industry. I will summarize the Soviet data on: (1) investments by branches of industry; (2) investments by branches of agriculture; (3) investments in railroad transport; and (4) housing construction. A comparison of investments in a branch with investments in the sector of which it is a part or with total investments will be a comparison of data from the same Soviet source wherever possible and even if sector or total investments are known to be incomplete. This is on the grounds that if an increment must be added to the sector or total investments figure to make it complete, it is likely that some portion of the increment must be added also to the branch figure. Since the latter portion is unknown, it seems preferable to use both figures from the same source wherever possible.

1. There are at least three sets of Soviet data which bear on the question of the direction of investment within industry: (a) the division of investments between consumers' and producers' goods industries; (b) the distribution of investments by industrial ministries; and (c) the distribution of investments by principal branches of industry. I will discuss each in turn.

Soviet sources divide industry into groups A and B. Group A industry embraces those branches of industry which produce producers' goods. Group B industry produces consumers' goods. Where a branch of industry produces both producers' and consumers' goods, it is classified according to the "predominant destination of its output."<sup>109/</sup> It should be noted that the subdivision of

<sup>109/</sup> Slovar'-spravochnik po sotsial' no-ekonomicheskoi statistike, pp. 107-108. Cf. Table XII, note 15, for the Soviet classification of actual branches of industry into groups A and B. No mention of defense industry is made in this classification; it seems clear, however, that defense industry would be regarded as group A.

Soviet industry into branches seems to be fine enough so that the obvious gross classification errors do not appear. Thus, the fuel industry is not classified in entirety as group A industry simply because the value of fuels produced for industrial consumption exceeds the value of fuels produced for individual use; rather, the production of illuminating gas is separated from the fuel industry and is classified as group E industry. <sup>109a/</sup>

An indication of the Soviet direction of investment, therefore, may be obtained from a comparison of investments in group A industry and a total industry. The comparison is presented in Table 9.

Table 9: Investments in Industry and in Group A Industry, 1929-1942

Year (1)	Prices (2)	In billions of rubles; in prices of the respective years except where otherwise noted		Investments in Group A Industry as a percentage of investments in industry (5) = $\frac{(3)}{(4)} \cdot 100$
		Investments in: Group A Industry (3)	Industry (4)	
1929	1922 prices	2.127	2.615	81.3
1930		3.425	4.111	83.3
1931		6.513	7.407	87.9
1932		9.030	10.431	87.0
Plan 1933-1937		53.442	69.545	76.3
1933		7.101	8.363	83.5
1934		8.692	10.624	81.8
1935		10.516	12.542	83.8
Plan 1936		10.647	13.756	76.3
Preliminary 1936		11.510	14.259	80.7
Plan 1937		10.919	13.923	78.4
1933-1937		54.565	65.763	83.0
1934-1938		60.777	72.948	83.3
Plan 1938-1942	1936-7 prices	87.162	103.580	84.1

Source: Table XII.

<sup>109a/</sup>For details, cf. Table XI and notes 1-4.

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Granting the difficulties of classification, I regard the percentages in column (5) of Table 9 as succinct expressions for the overwhelming emphasis in Soviet investment policy on the growth of producers' goods industries. <sup>110/</sup> Apart from a perceptible but unappreciable decline in the percentages for 1936 and 1937, there has been no relaxation of this emphasis.

A similar picture emerges from a slightly different point of view. Soviet sources have presented distributions of investments by ministries and other administrative departments (Table X). Prior to the proliferation of industrial ministries in the late 1930's, there were four industrial ministries: (a) the Ministry of Heavy Industry; (b) the Ministry of Light Industry; (c) the Ministry of Timber Industries; and (d) the Republic Ministries of Local Industry.

Under the jurisdiction of the Ministry of Heavy Industry were the following branches: electric power stations, the coal industry, the petroleum industry, ferrous and nonferrous ore mining, ferrous and nonferrous metallurgy, the automobile and tractor industry, the machine-building industry, the construction materials industry, the chemicals industry, the defense industry. Under the jurisdiction of the Ministry of Light Industry were: the textile industry, the clothing industry, the leather, boot, and shoe industries, the glass industry.

Under the jurisdiction of the Ministry of Timber Industry were: the

<sup>110/</sup> It is interesting to note that the percentages are sensitive, but only slightly so, to the exclusion of capital repairs and extra-limit investments from investments in industry. Thus, investments in Group A industry as a proportion of investments in industry, exclusive and inclusive of capital repairs and extra-limit investments, are as follows (from Table I):

	Investments in Group A industry as a percentage of investments in industry	
	Excluding extra-limit investments and capital repairs	Including extra-limit investments and capital repairs
1933-1937	85.0	83.0
1934-1938	85.8	83.3

The planned 1938-1942 figures in Table 9 are exclusive of extra-limit investments and capital repairs.



woodworking industry, the furniture industry, the wood chemical industry, the paper industry, the match industry, the logging industry. The jurisdiction of the Ministry of Food Industry is self-evident. Under the jurisdiction of the Republic Ministries of Local Industry were local industrial branches of all national administrative classifications. <sup>111/</sup>

Thus, if "heavy industry" is taken to mean the branches of industry which are basic to economic growth (and to economic war potential), the ratio of investments by the Ministry of Heavy Industry to total investments in industry serves as an excellent indicator of the Soviet emphasis on "heavy industry." It is true that investments by the industrial ministries include "nonproductive" investments; but an examination of the data on "nonproductive" investments by ministries (Table XI) leads to the conclusion that the ratio of investments by the Ministry of Heavy Industry to total investments in industry would be unchanged, if anything, slight increased, by the exclusion of "nonproductive" investments from both numerator and denominator.

Table 10 presents investments by the industrial ministries in billions of rubles and as percentages of total investments in industry. From column (c)

<sup>111/</sup> Cf: Central Administration of Economic and Social Statistics of the USSR State Planning Commission (GOSPLAN), Sotsialisticheskoe stroitel'stvo SSSR (Socialist Construction of the USSR), Moscow 1934, pp. 388-399; State Planning Commission of the USSR (Gosplan), Narodno-khoziaistvennyi plan na 1935 god (National Economic Plan for 1935), Moscow 1935, pp. 460, 461, 462, 474-3; State Planning Commission of the USSR, Narodno-khoziaistvennyi plan na 1936 god (National Economic Plan for 1936), Moscow 1936, pp. 391, 504-7, 512, 521-3.

No attempt was made to list all industrial branches under the jurisdiction of any ministry; indeed, it is doubtful whether this could be done. The intention was simply to present the principal industrial branches under the Ministry and to indicate the kinds of industries under each.

In the case of the Ministries of Local Industry, about 45% of total investments were planned for 1935 and 1936 in heavy industry, 40% in light industry, 5% in timber industry, and 10% in food industry. Narodno-khoziaistvennyi plan na 1936 god, pp. 524-28). The Ministries of Local Industry, however, represented at most 25% of total investments in industry in the prewar period (Table 10).

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Table 10: Investments by Industrial Ministries, 1929-1941

in millions of rubles; in prices of the respective years

Year	Ministry of <sup>1/</sup> heavy industry	Ministry of light industry	Ministry of timber industry	Ministry of food industry	Ministry of local industry	Other <sup>2/</sup>	Total investments in industry	Ministry of heavy industry	Ministry of light industry
	(1)	(2)	(3)	(4)	(5)	(6)	$\frac{(7)=(1)+(2)+(3)+(4)+(5)+(6)}{(6)}$	$(8)=\frac{(1)}{(7)} \cdot 100$	$(9)=\frac{(2)}{(7)} \cdot 100$
1929	1981	3.4	96	204	n.a.	40	2635	75.2	11.9
1930	3147	318	200	411	n.a.	95	4171	75.4	7.6
1931	6113	276	382	592	n.a.	146	7509	81.4	3.7
1932	8505	389	444	868	n.a.	197	10403	81.8	3.7
1933	7420	513	409	919	n.a.	214	9475	78.3	5.4
1934	8458	629	467	934	471	285	11244	75.2	5.6
1935	8959	720	559	852	500	199	11789	76.0	6.1
Plan 1936	10269	1370	1042	1165	1057	115	15019	68.4	9.1
1936 preliminary	9300	1100	850	1050	750	362	13412	69.3	8.2
Plan 1937	8667	1406	1010	970	770	323	13146	65.9	10.7
(1936-7 prices) Plan 1941 <sup>2/</sup>	25393	757	469	545	247	65	27476	92.4	2.8

SOURCE:  
Table X; "n.a." denotes "not applicable."

## Notes:

1. Explicitly includes defense industry for 1935-1937 and presumably for the earlier years as well. Cf. Table X, note 13.
2. Consists of: (a) producers' cooperatives; and (b) the Chief Administration of Photography and Cinema Industry. Cf. Table X.
3. By 1941, the ministry structure of Soviet industry had proliferated tremendously. In order to make the 1941 plan figures comparable with earlier years, the 1941 Ministries were classified into the earlier ministries from which they proliferated. Cf. Table VIII, note 20.

## Investments by Industrial Ministries, 1929-1941

in percent of total

Other <sup>2/</sup>	Total investments in industry	Ministry of heavy industry	Ministry of light industry	Ministry of timber industry	Ministry of food industry	Ministry of local industry	Other	Total
(6)	$\frac{(7)+(1)+(2)+(3)+(4)+(5)}{(6)}$	$(8) = \frac{(1)}{(7)} \cdot 100$	$(9) = \frac{(2)}{(7)} \cdot 100$	$(10) = \frac{(3)}{(7)} \cdot 100$	$(11) = \frac{(4)}{(7)} \cdot 100$	$(12) = \frac{(5)}{(7)} \cdot 100$	$(13) = \frac{(6)}{(7)} \cdot 100$	$(14) = \frac{(8)+(9)+(10)+(11)+(12)+(13)}{(14)}$
40	2635	75.2	11.9	3.6	7.7	n.a.	1.5	100
35	4171	75.4	7.6	4.8	9.9	n.a.	2.3	100
146	7509	81.4	3.7	5.1	7.9	n.a.	1.9	100
197	10403	81.8	3.7	4.3	8.3	n.a.	1.9	100
214	9475	78.3	5.4	4.3	9.7	n.a.	2.3	100
285	11244	75.2	5.6	4.2	8.3	4.3	2.5	100
199	11789	76.0	6.1	4.7	7.2	4.3	1.7	100
115	15019	68.4	9.1	6.9	7.8	7.0	0.8	100
2	13412	69.3	8.2	6.3	7.3	5.6	2.7	100
323	13146	65.9	10.7	7.7	7.4	5.9	2.5	100
65	27476	92.4	2.8	1.7	2.0	.9	.2	100

as well. Cf. Table X, note 13.  
 phy and Cinema Industry. Cf. Table X.  
 der to make the 1941 plan figures comparable with  
 h they proliferated. Cf. Table VIII, note 20.

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of Table 10, three conclusions emerge: (a) in the 1936-1937 period when tempos and totalitarianism relaxed perceptibly and living standards increased, the Soviet emphasis on heavy industry also relaxed somewhat; (b) prior to 1936-1937, at least three-fourths of Soviet investments in industry went into heavy industry; (c) despite the previously meager commitments to light and consumer goods industries, the Soviet Union found practicable a war preparation plan (the 1941 plan) in which investments in industry increased substantially and the ratio of heavy and defense industries to total industry increased to more than 90%.

The data on investments by specific branches of industry are scattered and somewhat ambiguous. The particular ambiguities are as follows:

- a. Whether the data refer to administrative classifications or to genuine branches (i.e. to the branch regardless of the administrative jurisdiction of a particular enterprise) is frequently unknown.
- b. Whether the branch includes or excludes "nonproductive" investments by enterprises in the branch is frequently unknown.
- c. What the coverage of the branch is and whether branch coverage over time is constant are unknown.
- d. Highly conjectural estimates have been employed for the postwar years. The postwar data are confined to percentage figures which express branch investments in a given year as a percentage of branch investments for the previous year. The general procedure has been to link the percentages into an index number series and to search for a ruble figure for one of the postwar years. In most cases, the latter figure had to be estimated from a planned figure. Thus, the dependence of the postwar estimates on a single and doubtful ruble figure makes the post-war estimates particularly tenuous.

Accordingly the following table should not be used without further investigation for anything but an indication of the most gross orders of magnitude.

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It is hoped that an analysis of Soviet data on the distribution of fixed assets within industry will both add to the present data and remove some of the present ambiguities. This will be discussed in a later paper.

Table 11 presents investments by principal <sup>112/</sup> branches of industry. I include Table 11 without detailed comment for whatever intrinsic interest it bears; more extensive comment will attend a similar but more complete and less ambiguous table in a later paper.

suffice it to make the following observations here. In 1948 and 1949, investments in electric power stations, the coal and petroleum industries, and ferrous and nonferrous metallurgy together accounted for about 60% of total investments in industry. The corresponding percentage for the prewar years was about 40% or less. The difference in these percentages becomes accentuated with the realization that the postwar ratio of investments in all industry to total investments significantly exceeded the prewar ratio. <sup>113/</sup>

The most interesting component of these five industries is the coal industry. Its relative place in total industry investments increased from a prewar ratio of 4-9% <sup>114/</sup> to a postwar ratio of 20%. From a prewar situation in which its relative position was about the same as that of the petroleum industry, the postwar coal industry emerged as a substantially more important object of investment than the petroleum industry. Moreover, the difference in the prewar and postwar positions of the five industries mentioned is in greatest part accounted for by the increase in the relative position of the coal industry. Investments in electric power stations and in the petroleum

<sup>112/</sup> The specified branches of industry are "principal" in the sense that a number of minor branches for which prewar data exist have been eliminated. On the other hand, there are major branches of industry which could not be included for lack of data.

<sup>113/</sup> Cf. Tables 6 and 7.

<sup>114/</sup> With the exception of 1938 when the ratio was 13.4%; I am inclined to believe, in the absence of other information, that the data from which this percentage is calculated may have contained a misprint. Cf. Table XII, note 21.

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Table 11: Investments by Principal Branches of Industry, 1929-1950

A. in billions of rubles (in prices of the respective years except where otherwise noted)

Period	Prices	Total industry	Electric power stations	Coal industry	Petroleum industry	Ferrous metallurgy	Non-ferrous metallurgy	Machine building industry	Chemicals industry	Construction materials industry	Paper industry	Textile industry	Light industry	Food industry
1929		2615	251	230	249	263	91	-	-	-	-	194	314	162
1930		4114	395	309	350	418	150	-	-	-	-	193	318	270
1931		7407	550	599	415	836	320	-	-	-	47	122	276	416
1932		10431	719	782	452	1422	544	-	-	-	65	144	389	632
1932		69545	5350	3500	4700	9340	2791	8060	4770	-	-	-	9200	-
Plan 1933-37	1933 prices	8863	609	561	483	1726	406	-	-	180	60	209	498	715
1933		11834	799	430	730	1627	630	2179	1030	-	147	353	743	848
Plan 1934		10624	640	595	698	1827	464	-	-	156	92	349	774	804
1934		12205	841	625	960	1549	857	2345	1032	-	207	405	740	790
Plan 1935		12542	-	-	-	-	-	1760	1735	100	415	766	1380	1130
1935		15956	976	500	1000	1050	1100	-	-	-	-	-	1406	970
Plan 1936		15928	-	-	-	-	-	-	-	-	270	551	-	990
Plan 1937		(18800)	1250	1026	1150	850	-	-	-	255	-	1005	436	1054
Plan 1938	1936-37 prices	17075	1031	2339	-	1210	-	-	-	474	-	1040	451	1292
1938		(17400)	1245	1549	1440	1326	-	2214	-	-	-	-	-	-
1939		(17900)	1011	-	2402	2238	1731	2273	1176	-	141	587	170	296
1940		27476	1477	1680	2955	2730	1610	-	-	369	-	-	(1500)	-
Plan 1941	1936-37 prices	-	(2600)	(4300)	-	(5800)	-	-	-	-	-	-	5600	-
1945	1945 prices	-	-	-	-	-	12000	-	-	-	-	-	-	(2500)
Plan 1946-50	1945 prices	157500	-	-	-	(4500)	(2000)	-	-	-	-	-	-	3300
1946	1945 prices	-	(2900)	(5800)	-	2800	-	-	-	-	-	-	-	(3300)
Plan 1947	1945 prices	-	3000	6300	2800	4300	-	-	-	-	-	-	-	(4400)
1947	1945 prices	-	(3000)	(5300)	(2800)	(7500)	-	-	-	-	-	-	-	(5000)
1948	1945 prices	(10400)	(3600)	(8100)	(3000)	-	-	-	-	-	-	-	-	(5500)
1949	1945 prices	(47300)	(5000)	(9900)	(4400)	(10000)	-	-	-	-	-	-	-	-
1950	1945 prices	-	(3600)	(6700)	(5700)	-	-	-	-	-	-	-	-	-

B. in percentages of total investments in industry

Period	Prices	Total industry	Electric power stations	Coal industry	Petroleum industry	Ferrous metallurgy	Non-ferrous metallurgy	Machine building industry	Chemicals industry	Construction materials industry	Paper industry	Textile industry	Light industry	Food industry
1929		100	9.6	8.8	9.5	10.1	3.5	-	-	-	-	7.4	12.0	6.2
1930		100	9.6	7.5	8.5	10.2	3.6	-	-	-	-	4.7	7.7	6.6
1931		100	7.4	8.1	5.6	11.3	4.3	-	-	-	0.6	1.6	3.7	5.6
1932		100	6.9	7.5	4.3	13.6	5.2	-	-	-	0.6	1.4	3.7	6.1
1932		100	6.9	5.0	6.8	15.4	5.5	11.6	6.9	-	-	-	13.2	-
Plan 1933-37		100	7.7	5.0	5.4	14.5	4.6	-	-	-	0.7	2.4	5.6	8.1
1933		100	6.9	4.3	5.4	15.7	5.7	18.4	9.1	1.5	1.2	3.0	6.3	7.2
Plan 1934		100	6.8	5.3	6.2	17.2	4.4	-	-	-	0.9	3.3	7.3	7.6
1934		100	6.3	5.6	6.5	17.2	4.4	19.2	8.5	1.3	1.7	3.3	6.1	6.5
Plan 1935		100	6.7	5.1	7.0	12.7	7.0	-	-	-	-	-	5.7	6.8
1935		100	-	-	-	-	7.9	14.0	11.0	0.7	3.0	5.5	9.9	8.1
Plan 1936		100	7.0	3.6	7.2	7.5	7.9	-	-	-	-	-	10.1	7.0
Plan 1937		100	6.6	4.5	6.1	4.5	-	-	-	1.5	1.4	2.9	-	5.3
Plan 1938		100	6.3	15.7	-	7.1	-	-	-	2.7	-	5.9	2.6	6.2
1938		100	7.2	4.9	8.3	7.6	-	-	-	-	-	6.0	2.6	7.4
1939		100	7.2	-	13.4	12.5	9.7	12.4	-	-	-	-	-	-
1940		100	5.6	-	10.3	9.9	5.3	3.2	4.3	1.3	0.5	2.1	0.6	1.1
Plan 1941		100	5.4	6.1	-	-	-	-	-	-	-	-	-	-
1945		100	-	-	-	-	7.6	-	-	-	-	-	3.6	-
Plan 1946-50		100	-	-	-	-	-	-	-	-	-	-	-	-
1946		100	-	-	-	-	-	-	-	-	-	-	-	-
Plan 1947		100	-	-	-	-	-	-	-	-	-	-	-	-
1947		100	2.9	20.0	8.9	-	21.0	-	-	-	-	-	-	10.9
1948		100	3.7	10.3	4.3	-	21.1	-	-	-	-	-	-	10.6
1949		100	-	-	-	-	-	-	-	-	-	-	-	-
1950		100	-	-	-	-	-	-	-	-	-	-	-	-

SOURCE: Table XII. The sign, "-", denotes "not available." Cf. Table XII, note 22, for the details of the post-war estimates.

Notes: 1. The total industry figure is probably in 1940-41 prices; it is believed, however, that 1939 and 1940 prices were not substantially higher than 1936-37 prices for investment goods. Cf. Table VI, note 3.

industry, as percentages of total investments in industry, were slightly higher in 1948 and 1949 than in almost all prewar years. There were a number of prewar years in which the relative importance of ferrous and nonferrous metallurgy was greater than in the postwar years.

One possible explanation of the extraordinary role of the coal industry might be war damage and the greater costs of reconstruction. Another might be greater capital costs per additional ton of coal as new reserves are exploited. In the search for explanations, however, the highly conjectural nature of the postwar estimates should not be forgot.

2. The post-1935 data on the distribution of investments within agriculture are quite sketchy; a preliminary survey indicates that little, if any, help can be expected from an examination of the data on the distribution of fixed assets within agriculture. Nevertheless, the sketchy data do point to some general trends within Soviet agriculture.

The distribution of investments within agriculture is presented in Table 12. Noteworthy are the following developments: (a) the tremendous decline in state farm investments as a proportion of total agricultural investments; (b) the decline in machine-tractor station investments as a proportion of the total in the Third and Fourth Five Year Plan, in comparison with 1925-1935

Table 12: Investments by Principal Branches of Agriculture, 1928-1950

Period	Prices	in millions of rubles; in prices of the respective years except where otherwise indicated					in percentages of total investments in agriculture				
		Total investment in agriculture	State farms <sup>2/</sup>	Machine-tractor stations	Collective farms	Other <sup>3/</sup>	State farms	Machine-tractor stations	Collective farms	Other	Total
(1)	(2)	(3)	(4)	(5)	(6)	(7) $\frac{(7)-(3)}{(4)+(5)+(6)}$	(8) $\frac{(4)}{(3)} \cdot 100$	(9) $\frac{(5)}{(3)} \cdot 100$	(10) $\frac{(6)}{(3)} \cdot 100$	(11) $\frac{(7)}{(8)}$	(12) $\frac{(8)}{(9)+(10)+11}$
1928		402	109	-	81	212	27.1	-	20.1	52.7	100
1929		888	260	10	266	352	29.3	1.1	30.0	39.6	100
1930		2685	1169	113	874	529	43.5	4.2	32.6	19.7	100
1931		3883	1848	378	1034	623	47.6	9.7	26.6	16.0	100
1932		4411	2192	589	1358	272	49.7	13.4	30.8	6.2	100
1933		4842	1814	827	2090	111	37.5	17.1	43.2	2.3	100
1934		5828	2368	1075	2226	159	40.6	18.4	38.2	2.7	100
1935		5881	1932	1306	2462	181	32.9	22.2	41.9	3.1	100
Plan 1938-42	1936-7 prices	42000	(6650)	5250	(28800)	1300	15.3	12.5	68.6	3.1	100
Plan 1946-50	1945 prices	57900	(5300)	8800	(41800)	2000	9.5	15.2	72.2	3.3	100

## SOURCES:

1928-1935 data from Table IV.  
Plan 1938-1942 and Plan 1946-1950 data from Table I and note 5.

## Notes:

- The 1928-1935 data are not comparable with the later data or with the agricultural data in other tables. This is because the 1928-1935 data include expenditures on the breeding and feeding of young stock as well as expenditures on the acquisition of livestock. Apparently only the latter are included in other tables. Cf. Table IV, note 6; Table I, note 1.
- The 1928-1935 data on investments in state farms include investments in cooperative farms. (On the meaning of "cooperative farms" Cf. Table IV, note 2). Cooperative farms have always played a minor role in Soviet agriculture and declined in importance after 1932. Investments in cooperative farms as a percentage of total investments in agriculture were: 1929 - 2%; 1930 - 3.3%; 1931 - 5.3%; 1932 - 6%; 1933 - 2.6%; 1934 - 2.6%; 1935 - 1.3%. (Cf. Table IV, note 7.) In the later 1930's, cooperative farms ceased to be mentioned.
- These are generalized agricultural investments which are not identified with any of the Soviet agricultural organizations. In the 1928-1935 data, the most important of "other" investments were land betterment and irrigation measures (Cf. Table IV, note 7).



and after a steady increase in the 1928-1935 period; <sup>115/</sup> (c) the rise in machine-tractor station investments as a proportion of the total in the Fourth as against the Third Five Year Plan; (d) the greater importance of machine-tractor stations in comparison with state farms as objects of investment in the Fourth Five Year Plan; and (e) the very large increase in collective farm investments as a proportion of total agricultural investments.

3. Investments in railroad transport should be compared with: (a) investments in total transport, as an index of the importance of railroads as against other forms of transport; and (b) investments in industry, as an index of the relationship between railroad and industrial developments. These magnitudes are presented in Table 13.

It appears: (a) that, with the exception of the 1929, 1932, 1941 plan,

<sup>115/</sup> The decline is more substantial than it appears. The 1928-1935 data include expenditures on the breeding and feeding of young stock as well as expenditures on the acquisition of livestock. Apparently, only the latter are included in other tables (cf: Table IV, note 6; Table I, note 1). Examining the data from a source which explicitly excludes livestock breeding expenditures, I find the following figures for machine-tractor station investments and total agricultural investments:

Year (1)	Investments in: Agriculture      Machine- tractor stations (in millions of rubles)		Machine-tractor station investments as a proportion of total investments in agriculture  (4) = $\frac{(3)}{(2)} \cdot 100$
	(2)	(3)	
1929	840	10	1.2%
1930	2590	113	4.4%
1931	3645	405	11.1%
1932	3820	589	15.4%
1933	3900	826	21.2%
1934	4661	1052	22.6%

(cf. Table II)

Here, machine-tractor station investments as a proportion of total investments are less than in Table 12 because total agricultural investments here exclude livestock breeding expenditures and machine-tractor stations did not engage in such activities.

It is believed that the Third and Fourth Five Year Plan data in Table 12 also exclude livestock breeding expenditures (cf: Table IV, note 6; Table 1, note 1).

Table 13: Investments in Railroad Transport, Total Transport and Industry, 1929-1950

Period	Prices	in billions of rubles; in prices of the respective years except where otherwise noted			in percentages	
		Investments in railroad transport	Investments in total transport	Investments in industry	Investments in railroad transport as a percentage of investments in total transport	Investments in railroad transport as a percentage of investments in industry
(1)	(2)	(3)	(4)	(5)	(6) = $\frac{(3)}{(4)} \cdot 100$	(7) = $\frac{(3)}{(5)} \cdot 100$
1929		1.873	1.179	2.615	74.0	33.4
1930		1.112	1.660	2.114	67.0	27.0
1931		1.710	2.694	7.307	70.9	25.3
1932		2.369	3.472	10.451	74.0	24.6
Plan 1933-37	1933 prices	17.164	26.342	69.515	65.9	25.0
1933		4.107	3.034	8.343	68.3	25.3
1934		2.928	4.393	10.524	66.6	27.6
1935		3.752	5.435	12.542	63.8	29.9
Plan 1936		4.762	7.173	13.936	67.4	34.1
Preliminary 1936		4.423	6.922	14.339	64.0	31.1
Plan 1937		5.323	7.370	15.928	72.2	32.2
1937-1937		17.077	25.411	65.763	67.2	26.0
Plan 1938	1936-7 prices	5.000	-	(13.30)	-	25.6
1934-1938		19.627	29.019	72.948	67.6	26.7
Plan 1938-42	1936-7 prices	24.245	35.326	103.520	67.7	26.6
Plan 1941		7.350	3.975	27.475	61.9	26.8
Plan 1946-50	1945 prices	40.1	(53.5)	157.5	75.0	25.5
1948	1945 prices	(6.7)	-	(40.1)	-	16.6
1949	1945 prices	(8.8)	-	(47.3)	-	18.6

SOURCE: Table XII. The sign, "-", denotes "not available."

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and the Fourth Five Year Plan, <sup>116/</sup> investments in railroad transport have been a virtually constant proportion of investments in total transport (from, roughly, 2/3 to 7/10); and (b) that, with the exception of 1929, 1936 plan, 1937 plan, 1948 and 1949, <sup>117/</sup> investments in railroad transport have been a virtually constant proportion of investments in industry (from, roughly, 1/4 to 3/10).

It should be noted that the data on investments in railroad transport and industry include "nonproductive investments by railroad and industrial enterprises. The exclusion of such investments would probably increase the ratio of railroad transport to industry investments. <sup>118/</sup>

4. Table 14 presents the Soviet data on housing construction in billions of rubles and as percentages of total investments. Although it is reasonably clear that the housing construction figures exclude individually owned housing construction, the scope of the data with respect to housing repairs and collectively owned rural housing is ambiguous. <sup>119/</sup> Nevertheless, on the assumption that the prewar and postwar data are roughly comparable in scope, Table 14 indicates that postwar housing construction, as a percentage of total investments, doubled in comparison with prewar housing construction.

<sup>116/</sup> The 1941 plan figures relate to a distribution of investments by ministries. It is likely, therefore, that the percentage is somewhat overstated because the Ministry of Railroad Transport includes some industrial enterprises. (Cf. Table X, note 20, and Table X-A).

The Fourth Five Year Plan figure is obtained by assumption based on scattered data (Cf. Table I, note 6).

<sup>117/</sup> The 1948 and 1949 figures for investments in railroad transport are highly conjectural. They are derived from the following data: (a) postwar investments in "transport" stated for each year as a percentage of investments for the preceding year; and (i) a ruble figure for railroad transport investments planned in 1947. The assumption is made that, since investments in railroad transport have been such a large proportion of investments in total transport, the percentages for railroad transport are not significantly different from the percentages for total transport. (Cf. Table XII, note 22).

<sup>118/</sup> Cf. Table XI.

<sup>119/</sup> Cf. Table XII, notes 17-19.

Table 14: Housing Construction and Total Investments, 1929-1950

Period	Prices	Total Investments (in billions of rubles; in prices of the respective years except where otherwise noted)	Housing construction	Housing construction
(1)	(2)	(3)	(4)	(5) = $\frac{(4)}{(3)} \cdot 100$ (3)
1929		5.305	.509	8.8
1930		7.496	.75	8.2
1931		15.116	1.116	7.4
1932		19.751	1.591	8.2
Plan 1933-37	1933 prices	133.400	13.412	10.1
1933		16.790	1.343	8.0
1934		21.909	1.729	7.9
1935		24.772	1.930	7.8
Plan 1936		32.365	3.065	9.5
Preliminary 1936		31.750	2.400	7.6
Plan 1937		32.593	2.425	7.4
1933-1937		137.491	12.575	9.1
Plan 1938-42	1936-7 prices	188.300	15.500	8.2
1940	1936-7 prices	38.0	3.2	8.4
Plan 1941	1936-7 prices	47.0	4.050	8.6
1945		36.3	(3.9)	10.7
Plan 1.46-50	1945 prices	250.3	42.3	16.9
1946	1945 prices	(42.5)	6.0	14.1
1947	1945 prices	(46.8)	7.0	15.0
1948	1945 prices	(57.6)	(9.5)	16.5
1949	1945 prices	(69.1)	(12.2)	17.7
1950	1945 prices	(85.0)	(14.4)	16.9

SOURCE: Table XII.

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If individually owned housing construction were taken into account, the difference would probably be even larger. Individually owned housing construction appears to have been insignificant in the prewar years but something like 15% of total housing construction in the postwar years.

120 Cf. Table VII, note 13; Table XII, note 17.

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## APPENDIX

The appendix is intended to state in detail: (1) the data and sources on Soviet investments in fixed capital; (2) the reasons for particular interpretations of the data; and (3) the bases for specific estimates and extrapolations.

The appendix goes somewhat beyond what is necessary to document the text. Soviet capital formation has been virtually ignored by non-Russian students of the Soviet economy. Accordingly, the collection and presentation of the data on Soviet capital formation became something of an end in itself. To this end, the appendix sometimes presents data which have little or no direct bearing on the discussion in the text. (I am concerned here only with investment flows; the Soviet data on capital stock will be presented in an appendix to a later paper.)

No pretense is made to complete coverage of Soviet sources. Indeed, one category of Soviet sources has been scarcely touched - namely, books and periodicals on particular industries and branches of the economy. Attention has been confined to more general sources with some confidence that the most important of these have been examined. That some data exist and have not been mentioned in this appendix is without question. An attempt has been made, however, towards as complete coverage as possible for the data on: (1) total investments in the socialist sector of the economy; (2) the main components of total investments - i.e. centralized investments, extra-limit investments, capital repairs, collective farm investments; and (3) total investments in the main sectors of the economy - i.e. industry, agriculture, transport, communications, trade and procurement, and social-cultural services. The author would, of course, appreciate citations to any data he has overlooked.

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The appendix consists of a series of tables for each of which there is a statement of sources and a set of notes. The appendix tables have been arranged in some semblance of a logical sequence. The reader who is interested in the details of Soviet capital formation or who wishes to use the data for some purpose should read the appendix with care. The arrangement in the form of a series of tables with sources and notes for each makes inevitable some scatter of comments on the same subject. Although an effort has been made to cross-reference the tables, economies had to be admitted. Therefore, an investigator who wishes to use the data may err by ignoring qualifications, cross references, or ancillary tables.

The sequence of tables is as follows. Table I presents capital investments by sectors of the economy, planned and realized, for 3 to 5 year segments of time from 1923/4-1927/8 through 1946-1950. Table II presents annual investments by sectors of the economy from 1924-25 through 1934. Table III presents annual investments by sectors of the economy, planned and realized, from 1933 through 1937. Table IV presents annual investments in agriculture by types of economic organization from 1928 through 1935.

It turns out that Tables II - IV do not yield results consistent with the second Five Year Plan fulfillment data. Table V, accordingly, utilizes additional information to present annual investments by sectors of the economy for 1933-1937 which are consistent with Second Five Year Plan fulfillment data.

Table VI presents annual investments and budget financed investments, planned and realized, from 1933 through 1951 plan. The data on financing the national economy from the budget, also included in Table VI, are used only to estimate investments in particular years.

Table VII presents extra-limit investments, capital repairs, and collective farm investments, 1930-1951. Table VIII presents centralized

investments, capital repairs, and housing construction by ministries and departments for the 1941 plan. Table IX presents the sector breakdown of capital investments for the post-1937 years for which data exist - namely 1938-1941, 1944, 1943, and 1949.

Two problems exist with respect to the sector breakdown of investments. The first is whether the breakdown into economic sectors is mutually exclusive or simply a sector classification of the main activities of ministries and departments. That is, if the Ministry of Railroad Transport builds locomotives, are investments in such activities included in industry or transport? The second problem is the magnitude of nonproductive investments by economic organizations. Table X presents annual investments by ministries and departments for 1929-1938 and 1941 and classifies the ministries and departments into sectors; the main purpose of this table is to make possible a comparison of the sector breakdown, on the one hand, and the sector classification of the ministry and department breakdown, on the other, for identical sources and total investments.

Table XI presents nonproductive investments by ministries and departments for the Second Five Year Plan, the 1935 Plan, the 1936 Plan and the 1941 Plan. Its main purpose is to make possible an estimate of the magnitude of nonproductive investments included in the economic sectors.

Table XII presents scattered data on investments in the principal branches of industry and of the national economy. Included are, perhaps, interesting but highly conjectural estimates of post-war investments in certain of the principal branches of industry, in railroad transport and in housing construction.

Tables XIII-XV are essentially summary tables. Table XIII presents total investments in the socialist sector of the economy, including centralized



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and non-centralized investments and capital repairs, for 1923/24 through 1951 plan. Table XIV presents the sector breakdown of investments for 1923/24 - 1941, 1946-1950 plan, 1948, and 1949 plan. Table XV presents the sector breakdown of investments, with nonproductive investments excluded from the economic sectors, for 1923/24 - 1941, 1946-1950 plan, 1948, and 1949 plan.

The notes to the tables should be prefaced by a few general remarks.

1. I will have occasion to speak of various segments of time in Soviet economic history. To prevent ambiguities the time references will be clarified here.

a. The hyphenated years, for example 1924-1925, are "economic years" running from October 1 of the first year to September 30 of the second year. The other years are the usual calendar years.

b. The First Five Year Plan was to embrace the period from October 1, 1928 to September 30, 1933. The First Five Year Plan was stated to have been fulfilled in  $4\frac{1}{2}$  years; accordingly, realized data for the First Five Year Plan period refer to October 1, 1928 - December 31, 1932.

c. The Second Five Year Plan covered the period from January 1, 1933 to December 31, 1937.

d. The Third Five Year Plan covered the period from January 1, 1938 to December 31, 1942.

e. The "4 war years" seem to refer to July 1, 1941 - June 30, 1945. (Cf. Table VI, note 5).

f. The Fourth Five Year Plan covered the period from January 1, 1946 to December 31, 1950.

2. I use "sector" and "branch" in a fairly precise sense. "Sector" is used in two ways: (a) to refer to the private and socialist parts of the

economy; and (b) to refer to the main sub-aggregates of the socialist part of the economy - i.e. industry, agriculture, transport, communications, trade and procurement, and social-cultural services. "Branch" is used to refer to lower levels of aggregation, i.e. to components of the sectors in the socialist part of the economy - for example, railroad transport is a branch of transport and ferrous metallurgy is a branch of industry. It is true, however, that the tables on investments by sectors of the economy also contain data on branches and that the table by branches also contains data on sectors. The titles of the tables are intended to convey the main orientation of the tables.

3. The appendix contains data on investments in the private sector of the economy for only 1923/4-1927/8 and 1927/8-1932/3 (cf. Table I). Omission of the private sector of the economy is presumed not to be serious in the post-1932 period (cf. Table XIII, note 1).

4. For simplicity, I refer to "ministries" and "councils of ministers" for the entire period rather than to the pre-1946 designations of "commissariats" and "councils of peoples' commissars". In the breakdown of capital investments by "ministries and departments", "department" is a translation of the Russian word vedomstvo and refers to administrative organizations other than ministries.

5. I refer occasionally to economic sectors and ministries and to industrial ministries. In this context "economic" means other than "social-cultural" -- i.e. the economic sectors are industry, agriculture, transport, communications, and trade and procurement and the economic ministries (and departments) are those whose principal activities lie in the economic sectors. Industrial ministries are those whose principal activities lie in industrial

production (in the Soviet sense of mining, manufacturing and electric power generation).

6. In the notes to the tables, cross references take the following forms:

- a. Table VI - the reference is to Table VI;
- b. Table VI, note 3 - the reference is to note 3 to Table VI;
- c. Table VI and note 3 - the reference is to Table VI and to note 3 to Table VI.

7. I adopt the convention of placing estimated figures in parentheses except: (a) where a figure has been obtained by mechanical processes (addition, subtraction, etc.) from other Soviet figures for the same period of time; and (b) in Tables XIII-XV where the summary figures are naked but the estimated components are clothed with parentheses.

A methodological antithesis exists between the kopeck counting in the pre-1937 data and the frequent extrapolations of a point in the post-1937 data. This has been conscious, if psychotic. As the Soviet data becomes thin, it is necessary to use historical analogy as a method of interpretation. On the other hand, it is by no means certain that complete understanding of a point improves extrapolations of it. One should not lose sight of the conjectural nature of some estimates contained in the appendix.

TABLE I: CAPITAL INVESTMENTS, PLANNED AND REALIZED, BY PERIODS FROM 1923/4-1927/8 TO 1946-50  
(In billions of rubles)

	1923/4-1927/8	Planned 1928/9-1932/3	Realized 1928/9-1932	Realized 1929-33	Planned 1933-37	Planned 1933-37	Realized 1933-37	Realized 1933-37	Realized 1934-38	Realized 1934-38	Planned 1938-42	Realized 1938-40	Realized 1938- June 1941	Realized "4 War Years"	Planned 1946-50			
	In prices of respective years				In 1933 Prices				In prices of respective years				In 1936 Prices		In 1936-7 prices		In 1945 Prices	
	Includes Capital Repairs		Includes Capital Repairs	Includes Capital Repairs			Excludes Extra-Limit Expenditures and Capital Repairs	Includes Extra-Limit Expenditures and Capital Repairs	Excludes Extra-Limit Expenditures and Capital Repairs	Includes Extra-Limit Expenditures and Capital Repairs	Excludes Extra-Limit Expenditures and Capital Repairs		Includes Noncentralized Investments		In prices of respective years	Includes Non-centralized Investments		
Industry	4.9 <sup>a</sup>	19.1 <sup>a</sup>	24.78 <sup>c</sup>	34.45 <sup>b</sup>	62.49 <sup>7c</sup>	69.54 <sup>d</sup>	58.61 <sup>b</sup>	65.76 <sup>b</sup>	63.61 <sup>9</sup>	72.94 <sup>8</sup>	103.58 <sup>0c</sup>				157.5 <sup>f</sup>			
A. Group A Industry	3.6 <sup>a</sup>	14.7 <sup>a</sup>	21.22 <sup>c</sup>	29.42 <sup>b</sup>	48.22 <sup>9c</sup>	53.44 <sup>d</sup>	49.80 <sup>b</sup>	54.56 <sup>b</sup>	54.53 <sup>9</sup>	60.77 <sup>7</sup>	87.16 <sup>2c</sup>							
Agriculture	0.7 <sup>a</sup>	7.2 <sup>a</sup>	9.68 <sup>7c</sup>	12.39 <sup>6</sup>	14.06 <sup>1c</sup>	15.23 <sup>9d</sup>	11.33 <sup>4b</sup>	16.76 <sup>0b</sup>	11.45 <sup>1</sup>	17.74 <sup>0</sup>	18.00 <sup>0c</sup>	7 <sup>1</sup>			19.9 <sup>f</sup>			
A. State Farms			4.47 <sup>5d</sup>	5.09 <sup>3</sup>	5.47 <sup>5d</sup>	6.36 <sup>0d</sup>					(6.65) <sup>1</sup>				(5.3) <sup>1</sup>			
B. Machine Tractor Stations			1.17 <sup>3d</sup>	5.78 <sup>8d</sup>	6.36 <sup>0d</sup>						5.25 <sup>5</sup>				8.8 <sup>2</sup>			
Transport	2.7 <sup>a</sup>	9.9 <sup>a</sup>	8.93 <sup>3c</sup>	11.88 <sup>6</sup>	23.84 <sup>5</sup>	26.34 <sup>d</sup>	20.69 <sup>9b</sup>	25.41 <sup>1b</sup>	23.94 <sup>7</sup>	29.01 <sup>9</sup>	35.82 <sup>6</sup>				(53.5) <sup>0</sup>			
A. Railroad	2.3 <sup>3</sup>		6.39 <sup>8c</sup>	8.43 <sup>6</sup>	13.78 <sup>8</sup>	17.36 <sup>d</sup>	13.23 <sup>2b</sup>	17.07 <sup>7b</sup>	15.45 <sup>7</sup>	19.65 <sup>7</sup>	24.24 <sup>5</sup>				40.1 <sup>2</sup>			
B. Water			1.18 <sup>9c</sup>	3.92 <sup>4</sup>	4.31 <sup>d</sup>		4.49 <sup>3b</sup>	4.95 <sup>0b</sup>			6.64 <sup>6</sup>							
C. Road			1.10 <sup>0c</sup>	3.06 <sup>9</sup>	3.45 <sup>5</sup>		2.19 <sup>8b</sup>	2.59 <sup>3b</sup>			3.95 <sup>0</sup>							
D. Civil Aviation			0.24 <sup>6d</sup>	1.07 <sup>7</sup>	1.20 <sup>7d</sup>		.71 <sup>7b</sup>	.79 <sup>1b</sup>			.98 <sup>2k</sup>							
Communications	0.1 <sup>a</sup>	0.3 <sup>a</sup>	0.56 <sup>5c</sup>	.75 <sup>9m</sup>	1.56 <sup>6</sup>	1.67 <sup>7d</sup>	1.16 <sup>2b</sup>	1.33 <sup>6b</sup>	(1.29) <sup>m</sup>	(1.51) <sup>m</sup>	1.74 <sup>8c</sup>							
Trade and Procurement		2.7 <sup>m</sup>		0.94 <sup>3</sup>	1.25 <sup>8</sup>	1.55 <sup>6</sup>	1.74 <sup>0d</sup>	2.06 <sup>2b</sup>	3.24 <sup>5</sup>	2.17 <sup>2</sup>	3.76 <sup>9</sup>				(25.2) <sup>0</sup>			
Social-Cultural Services and Administration			5.58 <sup>5</sup>	7.06 <sup>4n</sup>	16.55 <sup>8</sup>	18.85 <sup>d</sup>	20.80 <sup>5b</sup>	24.97 <sup>6b</sup>	(24.33) <sup>n</sup>	(30.188) <sup>n</sup>	26.58 <sup>3</sup>							
ML: Socialist Sector of National Economy	11.1 <sup>a</sup>	46.9 <sup>a</sup>	50.50 <sup>2c</sup>	67.82 <sup>1</sup>	120.08 <sup>3d</sup>	133.40 <sup>d</sup>	114.67 <sup>5b</sup>	137.49 <sup>1b</sup>	126.80 <sup>8</sup>	155.14 <sup>8</sup>	188.30 <sup>0</sup>	108 <sup>h</sup>	130.0 <sup>8</sup>	94.6 <sup>8</sup>	(256.1) <sup>0</sup>			
Buildings:															250.3 <sup>f</sup>			
1. All Social-Cultural Services			10.32 <sup>0</sup>	28.03 <sup>3</sup>	32.49 <sup>9d</sup>			29.92 <sup>0</sup>			50.00 <sup>0</sup>				42.5 <sup>f</sup>			
a. Housing			4.64 <sup>0</sup>	11.48 <sup>0</sup>	13.41 <sup>2d</sup>			12.57 <sup>5</sup>			15.5 <sup>2</sup>							
b. Education			2.25 <sup>0</sup>	3.37 <sup>8</sup>	3.97 <sup>9</sup>			6.62 <sup>0</sup>										
Additional:																		
1. Private Sector	15.4 <sup>a</sup>	17.6 <sup>a</sup>	7.5 <sup>a</sup>															
2. National Economy	26.5 <sup>a</sup>	64.5 <sup>a</sup>	60.0 <sup>k</sup>															
1. Total Industry	5.2 <sup>a</sup>																	
2. Total Agriculture	15 <sup>a</sup>																	
Additional:																		
1. Labor Participation in Road Building			.84 <sup>0d</sup>	1.91 <sup>6</sup>	1.70 <sup>0d</sup>			4.20 <sup>6b</sup>		4.30 <sup>7</sup>								
2. Capital Investments of Collective Farms from Own Resources			1.12 <sup>6d</sup>	2.69 <sup>0</sup>	5.00 <sup>0d</sup>			13.40 <sup>0c</sup>		15.45 <sup>2</sup>	24 <sup>0</sup>				36 <sup>f</sup>			

## SOURCES:

- a. Summary of the Fulfilment of the First Five Year Plan For the Development of the National Economy of the USSR (Report of the State Planning Commission of the Union of Soviet Socialist Republics), Second Revised Edition, International Publishers, New York 1934, pp. 50,55,280. Hereinafter referred to as First Five Year Plan Fulfilment.
- b. State Planning Commission, Itogi vypolneniia vtorogo piatiletnego plana razvitiia narodnogo khoziaistva Soluza SSR (Summary of the Fulfilment of the Second Five Year Plan for the Development of the National Economy of the USSR), Gosplanizdat 1939, p.71. Hereinafter referred to as Second Five Year Plan Fulfilment.
- c. State Planning Commission, Tretii piatiletnii plan razvitiia narodnogo khoziaistva Soluza SSR (Third Five Year Plan for the Development of the National Economy of the USSR), Gos planizdat 1939, pp. 120,197,225. Hereinafter referred to as Third Five Year Plan.
- d. State Planning Commission, The Second Five Year Plan for the Development of the National Economy of the USSR, International Publishers, New York, 1936, pp. 558,559. Hereinafter referred to as Second Five Year Plan.
- e. Sotsialisticheskoe stroitel'stvo soluza SSR (1933-1938) (Socialist Construction of the USSR 1933-38), Gosplanizdat 1939, p.113, p.115. Hereinafter referred to as Socialist Construction 1933-38.
- f. Zakon o piatiletneni plane vosstanobleniia i razvitiia narodnogo khoziaistva SSSR na 1946-1950 gg. (Law of the Five Year Plan for the Reconstruction and Development of the National Economy of the USSR for 1946-1950). Gospolitizdat 1946, pp. 9,13,38,45,54. Hereinafter referred to as Fourth Five Year Plan.
- g. N. Rovinskii et al, Organizatsiia finansirovaniia i kreditovaniia kapital'nykh vlozhenii (Organization of Finances and Credits for Capital Investments), Gosfinizdat 1951, pp.15,16.
- h. N. Voznesensky, The Growing Prosperity of the Soviet Union, Workers Library Publishers, New York, 1941, p.8.
- i. E. Lokshin, Promyshlennost' SSSR (USSR Industry), 1947, p.50.
- j. SSSR, Strana sotsializma (USSR, Land of Socialism), 1936, p.8. This figure includes the fourth quarter of 1928, whereas the other data for this period excludes the fourth quarter of 1928. The figure for total transport including the fourth quarter of 1928 is 2.8 billion. (Ibid., p.8).
- k. Obtained as a residual from the transport total.
- l. Estimated; cf. note 5 to this table.
- m. Estimated by assuming that 1929-33 (1934-38) investments in communications bear the same ratio to 1929/9-1932 (1933-1937) investments in communications as do total investments in the socialist sector of the economy for the same periods.

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- n. Obtained as a residual from the total for the socialist sector of the national economy.
- o. Estimated; cf. note 6 to this table.

## NOTES TO TABLE I

1. The sector break-down of capital investments requires some explanations:

a. "Industry" includes manufacturing, mining, and electric power stations. (D. Savinskii, Kurs promyshlennoi statistiki - Industrial Statistics Course - 1949, pp.50-51). Not all electric power stations are, however, included in "industry". Municipal stations are included in the municipal economy (kommunal'noe khoziaistvo) which is a part of "social-cultural services and administration". (V.P. Maslakov, N.L. Filatov, and V.V. Barmin, Finansirovanie zhilishchno-kommunal'nogo khoziaistva - Financing the Housing-Municipal Economy - 1948, p.8; Table II, note 3). Agricultural stations are included in "agriculture" (Table II, note 3). The basis for the division is not clear. The electric power stations included in industry embrace generating stations, transmission lines, and substations. (Savinskii, op. cit., p.50). It may be that the division is geographic or by prime user. In any case it seems that the predominant portion of investments in electric power stations is included in "industry"; in the period 1924-1932, 80-90% of total investments in electric power stations were included in "industry". (Table II, note 3).

b. Soviet industry is divided into groups A and B. Group A industry produces producers' goods; group B industry produces consumers' goods. Where a branch of industry produces both consumers' and producers' goods, it is classified according to the "predominant destination of its output". (Slovar - spravochnik po sotsial'no-ekonomicheskoi statistike, pp.107-108; cf. Table XII, note 15, for the classification of branches of industry into groups A and B).

c. Sector VI is stated to be investments for social, cultural and administrative purposes and to exclude such expenditures by economic ministries. (Second Five Year Plan, pp.558,559; Second Five Year Plan Fulfilment, p.71; Third Five Year Plan, p.225). Such expenditures by economic ministries appear in the sector in which the ministry falls. (Socialist Construction 1933-1938, p.13 footnote 2; Table II, note 4; Table III, note 2; Table XI and note 1.)

The category labelled "All Social-Cultural Services" is referred to by Soviet sources variously as: (1) "all social-cultural construction" (Socialist Construction 1933-1938, p.115); (2) "housing, municipal, social-cultural and administrative construction" (Third Five Year Plan, p.119); and (3) "housing and municipal construction and construction for cultural and social purposes" (Second Five Year Plan, pp.558, 559). According to the last source, the category includes the following kinds of expenditures: (a) housing construction; (b) investments for the provision of municipal services; (c) construction for educational purposes; (d) construction for the training of cadres; (e) public health construction; and (f) construction for workers' supply (i.e. for the supply of commodities to employees of a given organization).

In those cases where the category, "all social-cultural services", is itemized it should be noted that the components are housing,

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municipal services, education, public health and welfare but not administration (cf. Table III). It is believed that: (1) except for the Third Five Year Plan figures, "all social-cultural services" excludes administration; (2) except for the Third Five Year Plan figures, the difference between "all social-cultural services" and "social-cultural services and administration" consists of administration construction (on which, apparently, economic ministries spend little or nothing) and expenditures by economic ministries for social-cultural investments; and (3) in the Third Five Year Plan figures, the difference consists exclusively of expenditures by economic ministries for social-cultural investments. It is believed also that administrative construction probably includes the construction of military facilities and fortifications. (Cf. Table IX, note 3).

d. "Agriculture" includes, in the First and Second Five Year Plan periods, "state financing of collective farm investments by loans from the Agricultural Bank". In the Third Five Year Plan, "agriculture" includes "state investments in agriculture above the basic plan of capital investments". In the Fourth Five Year Plan, "agriculture" includes non-centralized as well as centralized investments. In all cases, "agriculture" excludes collective farms' investments from their own resources. (Second Five Year Plan Fulfilment, p.71; Socialist Construction 1933-1938, p.113; Third Five Year Plan, p.119; Fourth Five Year Plan, p.38). For reasons which will appear below (notes 3-5 to this table), I judge that in the Third and Fourth Five Year Plans the most important inclusion in "agriculture" beyond centralized investments consists of bank loans to collective farms.

e. Since Agricultural Bank loans to collective farms are primarily for livestock expenditures, "agriculture" may be presumed to include at least part of investments in livestock. In the Third and Fourth Five Year Plan, state farm investments in draft livestock are explicitly included (Fourth Five Year Plan, p.38; V. Kabitskii, "Financing State Agricultural Enterprises", Sovetskie Finansy, 1940 No. 1-2, p.60).

Expenditures on "mature" livestock being fattened for slaughter are not considered to be capital investments. (Cf. above, p.2, footnote 1). There seem to be two kinds of investments in livestock: (1) expenditures on the breeding and feeding of young livestock; (2) expenditures on the purchase of livestock (and of buildings for stock-rearing purposes). There is some evidence that the data on investments in "agriculture" include the latter but not the former (Table IV, notes 4 and 6; Table V, note 2). It is possible that purchases of livestock represent the bulk of investments in draft livestock.

f. "Agriculture" excludes the private sector, i.e. particularly the individual homesteads of the collective farm member (Table IV, note 2).

g. "Transport" excludes local road construction, subway construction, and local trolley systems. These items are included in "social-cultural services and administration" as "municipal services" construction. (Table XII, note 20).



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h. "Communications" includes mail, telephone, telegraph, and radio (Table II, note 1).

i. Two general questions emerge in the discussion of the sector breakdown. First, what is the magnitude of investments in non-productive fixed capital (cf. above, p. ) by economic organizations? Secondly, are the sector classifications mutually exclusive with respect to productive fixed capital? That is, are investments by, for example, agricultural organizations in industry included in "industry" or "agriculture" and what is the magnitude of such integration? Scattered information on these questions will appear in a number of the tables below. Additional information will appear in Tables X and XI and the argument on these questions will be stated in the notes to Table X and XI.

It is believed, unless otherwise noted, that similar sector break-downs in other tables have the same meaning.

2. Realized 1928/9-1932 investments, as reported in First Five Year Plan Fulfilment (p.280) are in billions of rubles:

Total for Socialist Sector	52.5
a. Industry	24.8
b. Agriculture	10.8
c. Transport	9.8
d. Communications	0.56

The difference between these figures and those presented in the table is accounted for by the facts that "transport" includes labor participation in road-building and "agriculture" includes collective farms' investments from their own resources. (Second Five Year Plan, p.376).

3. Realized 1933-1937 investments, exclusive of capital repairs and extra-limit investments, as reported by Third Five Year Plan (p.225) include a figure of 14.619 billion rubles for agriculture. I suspect that the 11.334 figure presented in the table excludes and the 14.619 figure includes Agricultural Bank loans to collective farms. The figure for long-term loans to collective farms during the Second Five Year Plan period has been variously stated as 2,2-3 billion rubles. (Table VII, note 12). The observed discrepancy might be entirely explained by adding to loans to collective farms, state-financed extra-limit investments by state farms (and possibly machine tractor stations). The difference between the 14.619 billion rubles and the 16.750 billion rubles for agriculture (including extra-limit expenditures and capital repairs) presented in the table probably consists largely if not wholly of capital repairs. My feeling is that the 14.619 figure, however explained, has the same meaning (i.e. the same exclusions and inclusions) as the figures for "agriculture" in the Third and Fourth Five Year Plans.

4. Different figures for Third Five Year Plan investments have sometimes been stated:

a. Third Five Year Plan itself speaks of 181.0 billion rubles for total investments in the national economy and 10.7 billion for agriculture. It is clear, however, that these figures are derived by excluding "state investments in agriculture above the basic plan of capital investments"

which were planned to be 7.3 billion rubles. (Third Five Year Plan, pp.119, 197,225). Loans to collective farms were planned for this period to be about 6 billion rubles (Table VII, note 12). Since collective farms' investments from their own resources are stated as an addition to the 18 billion rubles for "agriculture", the predominant part of the 7.3 billion rubles must be loans to collective farms. The rest is probably state financed extra-limit investments by state farms and, possibly, machine tractor stations.

b. Various sources present the following figures (in billions of rubles):

Total National Economy	192
1. Industry	111.9
a. Group A	93.9
2. Agriculture	11
3. Transport	37.3

("Report and Concluding Remarks of Comrade V. Molotov", Problemy Ekonomiki, 1939, No. 3, p.58. This source also contains the Third Five Year Plan data - 181.0 for "total national economy" and 10.7 for "agriculture" - with no explanation of the difference between the two sets of data). It should be noted that 192-181 is approximately equal to 111.9-103.6 plus 37.3-35.8; in other words, the other sector totals ("agriculture", "communications", "trade and procurement", and "social-cultural services and administration"), remain virtually unchanged in the two sets of figures. The present figures (192 for "total national economy", etc.) are stated to be in "actual estimate prices" (deistvuiushchikh smetnykh tsenakh). In view of the invariance of the other sector totals, it is extremely doubtful that "actual estimate prices" could mean anything other than the 1936-7 prices in which the Third Five Year Plan data are stated.

5. In the Fourth Five Year Plan, just as in the Third Five Year Plan, "agriculture" includes non-centralized and centralized investments. Collective farms' investments from their own resources are separate from, and in addition to, the 19.9 billion rubles of centralized and non-centralized investments in agriculture. Similarly, in the Third Five Year Plan, the collective farms' investments from their own resources were excluded from the 18 billion rubles of centralized and non-centralized investments in agriculture. Let us compare the specified inclusions of the 18 and 19.9 billion rubles

	Third Five Year Plan	Fourth Five Year Plan
Machine tractor stations	5.3	8.8
Irrigation and land betterment	1.3	2.0
Draft livestock in state farms	2.5	2
Total	9.1	12.8

(V. Kabutskii, "Financing State Agricultural Enterprises", Sovetskie Finansy, 1940 No. 1-2, p.60; Fourth Five Year Plan, p.38). In the Third Five Year Plan, an additional 1.6 billion rubles represented centralized investments in agriculture, and the remaining 7.3 billion rubles were "state investments in agriculture above the basic plan of capital investments". In view of the other components of agricultural investments, the 1.6 billion rubles probably represented investments (other than in draft livestock) in state farms. It should be noted that if we examine the proportions between livestock and other investments in state farms for 1928-1935 (cf. note 7, Table IV), the implied proportions in the Third and, as we shall see, the Fourth Five Year Plans do not seem unreasonable.

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By historical analogy, we might estimate the remainder of centralized investments in agriculture for the Fourth Five Year Plan to be 1.3 billion rubles and regard this also as investments in state farms. Then the amount of noncentralized investments in "agriculture" for the Fourth Five Year Plan would be 5.8 billion rubles.

Since collective farms' investments from their own resources are stated as an addition to the 19.9 billion rubles for "agriculture" in the Fourth Five Year Plan, a large part of the 5.8 billion rubles must be loans to collective farms. The realized figure for 1946-1950 loans (in current prices) seem to be in the neighborhood of 8 billion rubles (Table VII and note 12).

One statement implies that the entire 5.8 billion rubles are loans to collective farms. The statement is that: "Of the 47.1 billion rubles of state and collective farm resources designated by the (fourth) five year plan for capital construction in collective farms, the basic portion will go for an increase of productive assets of agricultural importance...". (A. I. Kuropatkin, "Problems of Mechanizing Socialist Agriculture", *Uchenie zapiski*, p.132; my italics). The 47.1 billion ruble figure is presumably obtained by subtracting the 8.8 billion ruble figure for machine tractor stations and the 2 billion ruble figure for state farms from the 19.9 billion total for "agriculture" and adding collective farms' investments from their own resources. If so, the implication is that the irrigation and land betterment investments are for collective farms and that the rest of investments in "agriculture", 7.1 billion rubles, are state loans to collective farms because these are the only two ways in which the state directly aids collective farms.

Actually, Kuropatkin's statement seems unreasonable for it also implies no investments in state farms except for draft livestock. While state farms seem to have been de-emphasized in the Fourth Five Year Plan, I feel certain that the development of state farms could not have been arrested to this extent. It is, furthermore, undoubtedly true that part of the irrigation and land betterment investments benefit state farms as well as collective farms. (It may also be true that part of the 2 billion rubles for draft livestock in state farms actually are for other kinds of investments in state farms). My feeling is that Kuropatkin concocted the 47.1 billion ruble figure for investments in collective farms hastily and carelessly. The main burden of Kuropatkin's statement I take to be confirmation of the belief that a large part of the 5.8 billion rubles of non-centralized investments in "agriculture" consists of loans to collective farms.

Since machine tractor stations are budget organizations (since 1938), their extra-limit investments, if any, are probably included in Fourth Five Year Plan non-centralized investments in "agriculture". It is very possible, however, that machine tractor stations make no extra-limit investments; I have never seen mention of machine tractor stations in this connection. Since state farms have, on the whole, been unprofitable, budget grants for extra-limit investments by state farms are probably also included.

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In the Third Five Year Plan, loans to collective farms were to be about 6 billion rubles but all of this may not have been for investments in fixed capital (Table VII, note 12). Thus, extra-limit investments by state farms and, possibly, machine tractor stations were to be something like 1.5-2.5 billion rubles in the Third Five Year Plan. If we assume this range to be unchanged in the Fourth Five Year Plan, we obtain 3.5-4.5 billion rubles as loans to collective farms. On other evidence (Table VII, note 12), this seems to be about the right magnitude.

On balance, then, I obtain something like the following distribution of investments within agriculture (in billions of rubles):

	Third Five Year Plan	Fourth Five Year Plan
Centralized Investment:		
1. State Farms	4.15	3.3
2. Machine Tractor Stations	5.25	8.8
3. Irrigation & Land Betterment	1.3	2.0
Non-centralized Investments:		
1. State Farms	2.5	2
2. Machine Tractor Stations	0	0
3. Loans to Collective Farms	4.8	3.8
Collective Farms' Investments from Own Resources.	24	38
Total	<u>42.00</u>	<u>57.9</u>

If my interpretations have been correct, the conclusions are: (a) as objects of investment, machine tractor stations have become relatively more important than state farms in the Fourth Five Year Plan; (b) both machine tractor stations and state farms have become of lesser importance than collective farms as objects of investment in the Third and especially the Fourth Five Year Plans; and (c) collective farm investments are being undertaken in the Fourth Five Year Plan with increased reliance on collective farms' own resources, with decreased reliance on loans from the Agricultural Bank.

6. Let us attempt to estimate the excluded sectors in the Fourth Five Year Plan.

a. In the transport sector we have investments only in railroad transport. In order to expand this figure to total transport, let us consider the pre-war ratios of total transport to railroad transport. These are:

Realized 1928/9-1932	140.0%
Realized 1929-1933	140.9%
Plan 1933-1937 (in 1933 prices)	151.7%
Realized 1933-1937 (excluding extra-limit investments & capital repairs)	155.7%
Realized 1933-1937 (including extra-limit investments & capital repairs)	148.8%
Realized 1934-1938 (excluding extra-limit investments & capital repairs)	154.9%
Realized 1934-1938 (including extra-limit investments & capital repairs)	147.9%
Planned 1938-1942 (excluding non-centralized investments)	147.8%

Since Fourth Five Year Plan investments exclude non-centralized investments (except in agriculture) one would be inclined to extrapolate the Third Five Year Plan ratio of 148%. In my opinion, this would be a mistake. Investments

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in railroad transport as a percentage of total investments were higher in the Fourth Five Year Plan than in the Third Five Year Plan (Table I). At the same time, budget expenditures on transport and communications as a percentage of budget expenditures on the national economy were uniformly lower in 1946-1950 than in 1938-1940. (K. N. Platnikov, Biudzhët sotsialisticheskogo gosudarstva - Budget of the Socialist State - 1948, p.207, A. G. Zverev, Gosudarstveyni biudzhët SSSR na 1946 god - USSR State Budget for 1946 - 1946, p.18; A. G. Zverev, "On the USSR State Budget for 1948 and Fulfillment of the USSR State Budget for 1946", Narodnoe khoziaistvo, volume 2, 1946, a collection of articles and reports, pp.482-3; A. G. Zverev, O Gosudarstvennom biudzhete SSSR na 1950 god i ob ispolnenii gosudarstvennogo biudzheta SSSR za 1948 i 1949 gody - On the USSR State Budget for 1950 and Fulfillment of the USSR State Budget for 1948 & 1949 - 1950, p.12). Therefore, I conclude, investments in railroad transport constitute a larger percentage of investments in total transport than in the immediately pre-war period. Accordingly, I propose to use a ratio of 1 1/3 in order to expand railroad transport to total transport. Investments in total transport would then be 53.5 billion rubles.

b. Subtracting the figures for industry, agriculture, and transport from the total we obtain for communications, trade and procurement and social-cultural services and administration combined 19.4 billion rubles. This, however, seems unreasonably small in comparison with pre-war years.

c. The trouble with the 19.4 billion rubles figure is probably that the 250.3 billion rubles for the "total socialist sector of national economy" exclude the non-centralized investments in agriculture just as in the Third Five Year Plan the total of 181.0 billion rubles excluded state investments in agriculture above the basic plan of capital investments. If we accept the estimate in note 5 of 5.8 billion rubles for non-centralized investments in "agriculture" and add this to "total socialist sector of national economy", we obtain the following sector break-down:

Total Socialist Sector of National Economy	256.1
Industry	157.5
Agriculture	19.9
Transport	53.5
Communications	} 25.2
Trade and Procurement	
Social-Cultural Services and Administration	

This estimate is, of course, conjectural.

7. The 1938-1940 and 1938-1941 totals include non-centralized investments (Table VI, notes 3 and 5). Non-centralized investments in the "4 war years" are assumed to be virtually zero (Table VI, note 2). Since the 1938-1940 and 1938-1941 data are characterized as the "volume of capital investments", they are probably in 1936-7 prices. (On the meaning of "volume of capital investments", cf. above, pp.3-5, and Table VI, note 1; on the 1938-1941 data cf. Table VI, notes 1,3 and 5). The "4 war years" total is probably in prices of the respective years (Table VI, note 1).

Planned 1938-1942 investments are stated by Third Five Year Plan to be in 1936 prices. I assume that all such references are elliptically to

the estimate prices in force at that period. I have accordingly referred to 1936-37 prices where Soviet sources refer to 1936 prices. (Cf. above, p. 4 and footnote 7).

8. Fourth Five Year Plan investments of 250 billion rubles are divided into: (a) capital investments for "new construction" - 135 billion rubles; and (b) capital investments for "reconstruction" - 115 billion rubles. (Atlas istorii SSSR - Atlas of USSR History - edited by K. V. Bazilevich, I. A. Golubtsov and M. A. Zinov'ev, Part III, 1950, p.50). The source also indicates: (a) the location and type of basic industrial enterprises designated by the Fourth Five Year Plan as objects of construction and reconstruction; (b) the railroads designated by the Fourth Five Year Plan as objects of construction, reconstruction, and electrification; (c) the location of the most important irrigation equipment to be constructed during the Fourth Five Year Plan; and (d) the canals to be reconstructed and the gas pipelines to be constructed during the Fourth Five Year Plan. (Ibid., pp.49-50. I am indebted to T. Shabad for pointing out this source to me).

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 TABLE II: CAPITAL INVESTMENTS BY SECTORS OF THE NATIONAL ECONOMY (EXCLUDING PRIVATE INVESTMENT) 1924-1934  
 (In prices of the respective years; in millions of rubles)

	1924-1925	1925-1926	1926-1927 & Oct-Dec 1927	1928	1929	1930	1931	1932	1933	1934
<b>I. Industry</b> Including nonproductive investments.	480.9	971.9	1760.4	1879.7	2614.5	4114.3	7407.4	10431.2	8863	10624
A. Group A	64.6 345.0	125.5 679.5	206.6 1224.7	192.7 1410.6	307 2127	607 3625	1066 6513	1637 9080	1683 7401	1947 8692
<b>II. Agriculture</b> Including nonproductive investments.	70.5	136.0	213.4	384.0	840	2180	3005	3051	2478	2978
A. State Sector	3.3 28.8	6.3 56.0	11.7 107.0	20.3 165.7	37 420	266 1520	320 2530	274 2650	292 2300	414 2788
1. Machine Tractor Stations	-	-	-	-	10	113	405	589	826	1052
B. Collectivized Sector	39.3	67.0	102.4	213.4	420	660	475	401	178	190
<b>III. Transport</b>	272.4	522.9	860.4	905.3	1179	1660	2694	3472	3084	4395
A. Railroad	220.1	429.5	715.0	731.0	873	1112	1910	2569	2107	2928
B. Water	27.4	56.6	85.4	94.8	168	289	368	374	494	745
C. Road	24.9	36.8	60.0	76.0	128	224	335	400	376	548
D. Civil Aviation	-	-	-	3.5	10	35	180	129	107	174
<b>IV. Communications</b>	19.1	20.8	48.0	53.5	70	123	184	186	184	278
<b>V. Trade and Procurement</b>	39.9	51.1	78.0	64.7	99	174	260	351	372	507
<b>VI. Social-Cultural Services and Administration.</b>	326.7	445.0	708.8	800.5	1002	1004	1311	1606	1699	2967
A. Education	18.9	26.0	84.5	130.0	221	241	239	250	234	355
B. Public Health	21.2	42.0	95.5	99.0	116	128	141	148	173	324
C. Administration and Special Construction Projects.	38.5	44.0	62.9	61.0	71	96	213	310	335	624
D. Municipal Services	75.4	138.0	200.6	230.7	300	315	336	469	562	1222
E. Housing Construction	172.7	195.0	265.3	279.8	294	224	352	433	395	442
<b>Total for National Economy</b> (exclusive of private investment)	1209.5	2137.7	3664.0	4087.7	5804.5	9255.3	14861.4	1907.2	16680	21749
In addition:										
1. Collective farm and cooperative investments from their own resources and with their own labor.	-	-	-	-	-	41.0	640	769	1422	1683
a. Collective farms only	-	-	-	-	-	170	385	515	1312	1422
2. Participation of labor in road building.	-	-	-	-	80	120	180	220	330	400
3. Expenditures for special purposes.	-	-	-	-	-	-	-	-	1275	1696

SOURCES: Central Administration of Economic and Social Statistics of the USSR State Planning Commission (GOSPLAN), *Socialist Construction in the USSR* (in English), Moscow, 1936, pp. 346-7. (Hereinafter referred to as *Socialist Construction 1936*.)  
 Central Administration of Economic and Social Statistics of the USSR State Planning Commission, *Sotsialisticheskoe stroitel'stvo SSSR (Socialist Construction in the USSR)*, Moscow 1934, pp. 300-1. (Hereinafter referred to as *Socialist Construction 1934*.)  
 1924/5-1928 data are from *Socialist Construction 1934*; 1929-1934 data are from *Socialist Construction 1936*.



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## SOURCES:

Central Administration of Economic and Social Statistics of the USSR  
State Planning Commission (TSUNKHU), Socialist Construction in the USSR  
(In English), Moscow 1936, pp.346-7. (Hereinafter referred to as Socialist  
Construction 1936).

Central Administration of Economic and Social Statistics of the USSR  
State Planning Commission, Sotsialisticheskoe stroitel'stvo SSSR (Socialist  
Construction in the USSR, Moscow 1934, pp.300-1. (Hereinafter referred to  
as Socialist Construction 1934).

1924/5-1928 data are from Socialist Construction 1934; 1929-1934 data  
are from Socialist Construction 1936.

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## NOTES TO TABLE II

1. In the sector break-down the following explanations should be noted:
  - a. "Industry" excludes industrial enterprises of non-industrial ministries.
  - b. "Agriculture" excludes live-stock breeding (which amounted to 1 billion rubles for 1929-1932). Socialist Construction 1936 states that agricultural expenditures are state budget expenditures. (Cf. also Table IV, note 6).
  - c. "Transport" includes some industrial productive transport. Neither Socialist Construction 1934 nor Socialist Construction 1936 mentions this. However, another source, which presents identical figures for "transport" as Socialist Construction 1934 and Socialist Construction 1936, does indicate this inclusion. (Central Administration of Economic and Social Statistics of the USSR State Planning Commission, Sotsialisticheskoe Stroitel'stvo SSSR - Socialist Construction in the USSR - Moscow 1935, pp.464-465). The source does not explain the meaning of industrial productive transport. But from the knowledge that republican ministries of automobile transport operate motor pools, garages and repair shops we may conclude that some portion of capital expenditures on industrial trucks and automobiles are included in "transport". (L. Bronshtein and B. Budrin, Planirovanie i Uchet Avtomobil'nogo Transporta - Planning and Accounting for Automobile Transport - Gosplanizdat 1948, pp.13-19).
  - d. "Communications" includes mail, telephone, telegraph, and radio.
  - e. "Trade and procurement" excludes investments in industrial enterprises.
  - f. The category, "social-cultural services and administration", does not appear in Socialist Construction 1934 or Socialist Construction 1936; the total is obtained by adding the indicated components.
  - g. Education and public health, exclude investments of industrial ministries for these purposes.
  - h. Housing includes only municipal and cooperative housing; investments by industrial or agricultural enterprises in housing are included in "industry" or "agriculture". (Cf. Socialist Construction 1934, pp.300-1, Socialist Construction 1936, pp.346-7).
2. Socialist Construction 1934 omits subdivision of cooperative industry into groups A and B. Accordingly, the group A data for 1924/5 through 1928 are understated. But total investments in cooperative industry were small for these years - 10.2 million rubles in 1924/5 and 32.7 in 1928. For 1929-1934, group A state industry is added to group A cooperative industry to yield the indicated group A total.

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3. Socialist Construction 1934 (pp.300-1) gives the following data for investments in electric power stations (in millions of rubles):

	1926-27								
	1924	1925	and		1928	1929	1930	1931	1932
	to	to	Oct-Dec						
	1925	1926	1927	1927	1928	1929	1930	1931	1932
Total electric power stations	94.8	116.2	170.4	217.8	308.1	457.0	612.9	803.7	
a. Regional stations	75.4	92.2	137.8	176.2	250.9	394.5	549.6	719.0	
b. Municipal stations	17.0	21.0	28.6	36.7	47.1	46.9	39.6	58.0	
c. Agricultural stations	2.4	3.0	4.0	4.9	10.1	15.6	23.7	26.7	

Socialist Construction 1936 does not present this data. In the present table, regional stations were allocated to industry, municipal stations to municipal services, and agricultural stations to agriculture. It is observed that such allocations result in the Socialist Construction 1936 data except for agriculture. In the case of agriculture, the discrepancies are minor and in both directions. Thus,

	1929	1930	1931	1932	Total
<u>Socialist Construction 1934</u> (with agricultural stations)	907.8	2174.3	3057.1	2954.0	9093.2
<u>Socialist Construction 1936</u>	840	2180	3005	3051	9076

Within industry, electric power stations are added to group A. (Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike, p.105).

4. Of the total investments in 1928, 891 million rubles in the fourth quarter were included in the First Five Year Plan fulfillment data. (Socialist Construction 1934, pp.300-1).

If we total the annual sector data for 1929-32 and compare the totals with First Five Year Plan sector fulfillment data, (cf. Table I and note 2 to Table I) we obtain the following results:

	Total (Socialist Construction) (in billions of rubles)	Total (First Five Year Plan)
Industry	24.58	24.8
Agriculture (excluding investments by collective farms and cooperative farms from own resources)	9.08	9.7
Transport (excluding labor participation in road-building)	9.01	8.9
Communications	.56	.56
Trade and Procurement	.88	.94
Social-cultural services and administration	4.92	5.59
Total for Socialist Sector of National Economy (1929-32)	49.03	
Plus fourth quarter of 1928	.89	
Total for 1928/9-1932	49.92	50.5

The discrepancy in the "agriculture" totals is probably explained by a difference in treatment of cooperative farm investments. Socialist Construction 1934 presents the following data on investments from own resources by collective farms and cooperative farms (in millions of rubles):

	1929	1930	1931	1932	Total 1929-1932
Collective farms and cooperative farms	--	410	640	769	1819
Collective farms only (Table II)	--	170	385	515	1070

For the First Five Year Plan fulfillment data, investments from own resources by collective farms of 1126 million rubles were stated to be in addition to "agriculture" totals. Since the 1930-1932 figure of 1070 for collective farms is virtually the entire amount of their investments from their own resources, and since cooperative farms invested an additional 693 million rubles (subtracting 1126 from 1819), it is very likely that the discrepancy in the "agriculture" totals is explained by the inclusion of cooperative farm investments from their own resources in the "agriculture" total for the First Five Year Plan period. (It should be noted that the Socialist Construction "agriculture" data in Table IV can be reconciled with First Five Year Plan fulfillment data and that the former includes cooperative farm investments - cf. Table IV, note 6).

The correspondence between the two sets of totals indicates that coverage and breakdown of the data are virtually the same. Since the sector breakdown of the Socialist Construction data includes nonproductive investments in at least industry and agriculture, it follows that the First Five Year Plan fulfillment data also include nonproductive investments in industry and agriculture.

5. The sector breakdown of "expenditures for special purposes" can be obtained from Table VI by placing the ministry or department in what appears to be the appropriate sector. Thus, (in millions of rubles),

	1933	1934	Sector Allocation
1. Ministry of Heavy Industry	670	746	Industry
2. Ministry of Light Industry	15	38	Industry
3. Ministry of Timber Industry	37	75	Industry
4. Ministry of Food Industry	8	37	Industry
5. Ministry of Local Industry	--	3	Industry
6. Ministry of Internal Trade	--	3	Trade and Procurement
7. Ministry of Foreign Trade	3	9	Trade and Procurement
8. Ministry of Agriculture	31	25	Agriculture
9. Ministry of State Farms	31	25	Agriculture
10. Ministry of Railroad Transport	--	129	Transport
11. Ministry of Water Transport	6	22	Transport
12. Central Highways Administration	--	64	Transport
13. Chief Administration of Civil Air Fleet	9	9	Transport
14. Ministry of Postal and Electrical Communications	--	6	Communications
15. Committee for Products Collection Attached to Council of Ministers	--	3	Trade and Procurement

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	<u>1933</u>	<u>1934</u>	<u>Sector Allocation</u>
16. Chief Administration of Photo & Cinema Industry	--	2	Industry
17. Special Construction Projects and Administration	<u>465</u>	<u>500</u>	Social-cultural and Administration
Total	1275	1696	
Adding by sectors, we obtain:			
	<u>1933</u>	<u>1934</u>	
Industry	730	901	
Agriculture	62	50	
Transport	15	224	
Communications	--	6	
Trade and Procurement	3	15	
Social-cultural & Administration	<u>465</u>	<u>500</u>	
Total	1275	1696	

The sector breakdown including expenditures for special purposes then becomes:

	<u>1933</u>	<u>1934</u>
Industry	9593	11525
Agriculture	2540	3028
Transport	3099	4619
Communications	184	284
Trade and Procurement	375	522
Social-cultural & Administration	<u>2164</u>	<u>3467</u>
Total	17955	23445

This sector breakdown bears a closer correspondence to that in Table III than does the sector breakdown exclusive of expenditures for special purposes. The differences which remain may be due to differences in coverage or to erroneous sector classifications of expenditures for special purposes.

6. Expenditures for special purposes (tselevye zatraty) are not defined in Soviet sources, so far as I know. As a statistical category, they appear in 1933 and are not mentioned after the realized 1933-1937 data. Since the two sets of realized 1933-1937 investments are sometimes stated as excluding or including extra-limit investments, capital repairs, and expenditures for special purposes (Second Five Year Plan Fulfillment, p.72) and sometimes as excluding or including just extra-limit expenditures and capital repairs (Third Five Year Plan, p.225), it may be tentatively concluded that expenditures for special purposes are somehow related to capital repairs and/or (as antecedents of) extra-limit investments.

7. It is possible to extend the series in the present table one year in both directions with confidence that the coverage is the same. Thus, another source presents figures from 1923/4 through 1935 on investments in: (a) socialist sector of national economy; (b) industry; (c) agriculture; (d) transport; and (e) railroad transport. (SSSR, Strana sotsializma - USSR, The Land of Socialism - 1936, p.8). The figures for 1924/5 through 1934 check with the Socialist Construction data including collective and

cooperative farm investments from own resources, including labor participation in road building and excluding expenditures for special purposes. The data for 1923-1924 and 1935, then, are (in millions of rubles):

	<u>1923-1924</u>	<u>1935</u>
I. Industry	355	11880
II. Agriculture	56	4983
III. Transport	214	6097
A. Railroad	178	4038
IV. Other (by subtraction from annual total).	236	4733
Total for national economy	861	27693

TABLE III. CAPITAL INVESTMENTS BY SECTORS OF THE NATIONAL ECONOMY, 1933-1937  
(In prices of the respective years; in billions of rubles)

	Realized 1933	Planned 1934	Realized 1934	Planned 1935	Planned 1935	Realized 1935	Planned 1936	Planned 1936	Pre- liminary 1936	Planned 1937
I. Industry	10.030 <sup>a</sup>	11.834 <sup>a</sup>	11.695 <sup>b</sup>	10.543 <sup>a</sup>	12.205 <sup>f</sup>	12.542 <sup>d</sup>	13.956 <sup>b</sup>	16.299 <sup>e</sup>	14.259 <sup>d</sup>	13.928 <sup>d</sup>
A. Group A	8.400 <sup>a</sup>	9.617 <sup>a</sup>	9.631 <sup>b</sup>	8.481 <sup>a</sup>	9.986 <sup>f</sup>	10.516 <sup>d</sup>	10.647 <sup>b</sup>	12.977 <sup>e</sup>	11.510 <sup>d</sup>	10.919 <sup>d</sup>
II. Agriculture	2.100 <sup>a</sup>	2.523 <sup>a</sup>	2.474 <sup>b</sup>	1.897 <sup>a</sup>	2.289 <sup>f</sup>	2.297 <sup>d</sup>	2.633 <sup>b</sup>	2.857 <sup>e</sup>	2.577 <sup>d</sup>	2.659 <sup>d</sup>
A. State Farms	1.025 <sup>a</sup>	1.205 <sup>a</sup>	1.115 <sup>c</sup>	.750 <sup>a</sup>	-	-	-	-	-	-
B. Machine Tractor Stations	.713 <sup>a</sup>	.889 <sup>a</sup>	.890 <sup>c</sup>	.925 <sup>a</sup>	-	-	-	-	-	-
III. Transport	3.015 <sup>a</sup>	4.826 <sup>a</sup>	4.250 <sup>b</sup>	5.030 <sup>a</sup>	5.455 <sup>f</sup>	5.455 <sup>d</sup>	7.173 <sup>b</sup>	7.928 <sup>e</sup>	6.922 <sup>d</sup>	7.370 <sup>d</sup>
A. Railroad	2.065 <sup>a</sup>	3.249 <sup>a</sup>	2.757 <sup>b</sup>	3.557 <sup>a</sup>	3.843 <sup>f</sup>	3.752 <sup>d</sup>	4.762 <sup>b</sup>	5.140 <sup>e</sup>	4.428 <sup>d</sup>	5.323 <sup>d</sup>
B. Water	.520 <sup>a</sup>	.852 <sup>a</sup>	.785 <sup>b</sup>	.897 <sup>a</sup>	1.029 <sup>f</sup>	1.122 <sup>d</sup>	1.533 <sup>b</sup>	1.737 <sup>e</sup>	1.546 <sup>d</sup>	1.210 <sup>d</sup>
C. Road	.330 <sup>a</sup>	-	.560 <sup>b</sup>	.440 <sup>a</sup>	.458 <sup>f</sup>	-	.615 <sup>b</sup>	-	-	-
IV. Communications	.202 <sup>a</sup>	.310 <sup>a</sup>	.278 <sup>b</sup>	.286 <sup>a</sup>	.305 <sup>f</sup>	.300 <sup>d</sup>	.393 <sup>b</sup>	.440 <sup>e</sup>	.345 <sup>d</sup>	.370 <sup>d</sup>
V. Trade and Procurement	.238 <sup>a</sup>	.428 <sup>a</sup>	.486 <sup>b</sup>	.456 <sup>a</sup>	.552 <sup>f</sup>	.562 <sup>d</sup>	.683 <sup>b</sup>	1.046 <sup>e</sup>	.904 <sup>d</sup>	.795 <sup>d</sup>
VI. Social-Cultural Services and Administration	2.404 <sup>a</sup>	3.604 <sup>a</sup>	3.443 <sup>b</sup>	2.978 <sup>a</sup>	4.306 <sup>f</sup>	3.566 <sup>d</sup>	7.527 <sup>b</sup>	7.773 <sup>e</sup>	6.743 <sup>e</sup>	7.471 <sup>e</sup>
Total for National Economy	17.989 <sup>a</sup>	23.525 <sup>a</sup>	22.626 <sup>b</sup>	21.190 <sup>a</sup>	24.842 <sup>f</sup>	24.722 <sup>d</sup>	32.365 <sup>b</sup>	36.343 <sup>e</sup>	31.750 <sup>d</sup>	32.593 <sup>d</sup>
Including:										
1. All Social-Cultural Services	2.714 <sup>h</sup>	-	3.802 <sup>h</sup>	3.850 <sup>h</sup>	4.470 <sup>h</sup>	4.310 <sup>h</sup>	6.928 <sup>h</sup>	-	6.300 <sup>h</sup>	6.717 <sup>h</sup>
a. City & industrial housing	1.343 <sup>a</sup>	-	1.729 <sup>b</sup>	1.827 <sup>a</sup>	2.023 <sup>f</sup>	1.930 <sup>d</sup>	3.065 <sup>b</sup>	-	2.400 <sup>d</sup>	2.425 <sup>d</sup>
b. Municipal services	.750 <sup>a</sup>	-	1.283 <sup>b</sup>	1.143 <sup>a</sup>	1.447 <sup>f</sup>	1.400 <sup>d</sup>	1.885 <sup>b</sup>	-	1.800 <sup>d</sup>	1.813 <sup>d</sup>
c. Education	.346 <sup>a</sup>	-	.430 <sup>b</sup>	.437 <sup>a</sup>	.530 <sup>f</sup>	.550 <sup>d</sup>	1.278 <sup>b</sup>	-	1.300 <sup>d</sup>	1.454 <sup>d</sup>
d. Public health, pensions and relief	.275 <sup>a</sup>	-	.360 <sup>b</sup>	.443 <sup>a</sup>	.470 <sup>f</sup>	.430 <sup>d</sup>	.700 <sup>b</sup>	-	.800 <sup>d</sup>	1.025 <sup>d</sup>

## SOURCES:

- State Planning Commission of the USSR, *Narodno-khoziaistvennyi plan na 1935 god (National Economic Plan for 1935)*, Moscow 1935, p. 460. Hereinafter referred to as 1935 Plan.
- State Planning Commission of the USSR, *Narodno-khoziaistvennyi plan na 1936 god (National Economic Plan for 1936)*, Moscow, 1936, pp. 504-505. Hereinafter referred to as 1936 Plan.
- These are preliminary, with a preliminary total for agriculture of 2.458. 1935 Plan, p. 460.
- State Planning Commission of the USSR, *Narodno-khoziaistvennyi plan SSSR na 1937 god (USSR National Economic Plan for 1937)*, Moscow, 1937, pp. 142-143. Hereinafter referred to as 1937 Plan.
- "Basic Indices of the National Economic Plan for 1937," *Planovoe khoziaistvo*, 1937, No. 3, pp. 222-248. The 1936 plan, as stated in this source, includes changes introduced after the plan was confirmed.
- 1936 Plan, p. 391. The 1935 plan, as stated here, includes changes after the plan was confirmed.
- By subtraction from annual totals.
- By addition of indicated components.

## SOURCES:

- a. State Planning Commission of the USSR, (Gosplan) Narodno-khoziaistvennyi plan na 1935 god (National Economic Plan for 1935), Moscow 1935, p.460. Hereinafter referred to as 1935 Plan.
- b. State Planning Commission of the USSR, (Gosplan) Narodno-khoziaistvennyi plan na 1936 god (National Economic Plan for 1936), Moscow, 1936, pp.504-505. Hereinafter referred to as 1936 Plan.
- c. These are preliminary, with a preliminary total for agriculture of 2,458. 1935 Plan, p.460.
- d. State Planning Commission of the USSR, (Gosplan) Narodno-khoziaistvennyi plan SSSR na 1937 god (USSR National Economic Plan for 1937), Moscow, 1937, pp.142-143. Hereinafter referred to as 1937 Plan.
- e. "Basic Indices of the National Economic Plan for 1937", Planovoe khoziaistvo, 1937 No. 3, pp.222-248. The 1936 Plan, as stated in this source, includes changes introduced after the plan was confirmed.
- f. 1936 Plan, p.391. The 1935 Plan, as stated here, includes changes after the plan was confirmed.
- g. By subtraction from annual totals.
- h. By addition of indicated components.



## NOTES TO TABLE III

1. 1936 Plan and 1937 Plan state the following exclusions in the annual capital investments:

a. Expenditures of industrial cooperatives and trade and procurement organizations for the acquisition of small equipment and for small repairs;

b. Expenditures on live-stock breeding and on the acquisition of draft live-stock to replace live-stock which have been discarded or sold or which have perished;

c. Expenditures on housing repairs;

d. Capital investments from own resources of collective farms and collective farm members;

e. Capital investments from long-term loans to collective farms;

f. Labor participation in road construction.

(1936 Plan, pp.504-5; 1937 Plan, pp.142-3). The exclusions refer to realized 1933, 1934 and 1935 totals, to planned and preliminary 1936 totals and to planned 1937 totals. 1936 Plan, further, states that the exclusions amounted to 1.713 billion in 1933 and 2.891 billion in 1934.

2. Sector VI is stated to be construction for social, cultural and administrative purposes and to exclude such expenditures in the plans of industry and other economic sectors. (1935 Plan, p.460; 1936 Plan, pp.504-5). The same sources indicate that the complete total of social-cultural investments is given in items 1., a-d, of the table.

The total, indicated in the table, for "All Social-Cultural Services" was obtained by addition of the indicated components. Comparing these figures with the figures for "Social-Cultural Services and Administration" (which are exclusive of such investments by economic ministries), one is struck by: (a) the absence of discrepancies of the magnitude observed for 1933-1937 in Table I; and (b) the fact that for some years the figure for "All Social-Cultural Services" is less than the figure for "Social-Cultural Services and Administration". The explanation probably is that in the sources for the present table "All Social-Cultural Services" is meant literally, i.e. is exclusive of investments for administrative purposes. If these were added to "All Social-Cultural", it is believed that the result would be in accord with the results of Table I for realized 1933-1937.

3. "Municipal services" includes investments in subway construction, the urban trolley and transport system, municipal water supply, city sanitation and the sewage system, bath-houses and laundries, electric power stations and transmission lines, gas works, and local roads (Table XII, note 20).

In 1933-1937, investments in "municipal services", exclusive of extra-limit investments were 6.5 billion rubles (Table XII, note 20). Totalling investments in "municipal services" for realized, 1933, 1934 and 1935 and planned 1936 and 1937, we obtain 7.1 billion rubles. The difference is probably accounted for by the exclusion of extra-limit investments in the 6.5 figure and by differences between plan and realization in 1936 and 1937.

4. The totals are indicated to be the volume (ob'em) of capital work. For these years, however, the totals are believed to be in prices of the respective years. For one thing, no reference has been found to the use of other than current prices as estimate prices before 1938. In addition, 1935 Plan contains the following passage: "In 1935, the volume of expenditures on capital construction is established at 21,190 million rubles. This stabilization of the amount of financing of construction in comparison with 1934 (the preliminary total in 1934 was 21,500 million) corresponds to the tasks of 1935 in the matter of a further strengthening of the ruble, development of commodity circulation and lowering of prices. One should emphasize that fulfillment of the task established by the 1935 Plan - to lower the cost of pure construction by 12% ... and to lower prices on equipment by 4% - should result in an increase of the physical volume of construction in comparison with 1934 by about 8%." (pp.301-2).

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TABLE IV: CAPITAL INVESTMENTS IN SOCIALIST AGRICULTURAL ENTERPRISES, 1928-1935  
(In millions of rubles; in prices of the respective years)

(Data in Paratheses are S

	1928				1929				1930		
	Socialist Agricultural Enterprises	State farms & cooperative farms	Machine Tractor Stations	Collective Farms	Socialist Agricultural Enterprises	State farms & cooperative farms	Machine Tractor Stations	Collective Farms	Socialist Agricultural Enterprises	State farms & cooperative farms	Machine Tractor Stations
Nonresidence Farm Buildings	39.5	22.5	-	3.9	81.3	35.3	0.3	12.3	310.4	109.0	1.3
Machinery and Implements	66.4	20.0	-	26.4	206.6	69.0	8.5	78.4	672.1	318.5	7.1
A. Agricultural Machinery and Implements	(45.2)	(9.6)	-	(20.8)	(118.6)	(29.4)	(2.1)	(46.4)	(323.7)	(122.8)	(2.2)
B. Tractors	(9.5)	(3.6)	-	(2.6)	(41.1)	(15.5)	(6.0)	(14.6)	(111.5)	(68.2)	(4.1)
C. Vehicles	(7.4)	(4.2)	-	(2.7)	(33.9)	(14.8)	(0.4)	(15.1)	(155.7)	(59.6)	(2.8)
Of which: Motor Vehicles	(-)	(-)	-	(-)	(-)	(-)	(-)	(-)	(-)	(-)	(-)
I. Livestock, Poultry, Apiaries	50.0	30.8	-	18.9	153.9	59.1	0.3	77.1	506.5	255.2	1.1
A. Expenditures on Acquisition of Livestock and Buildings	(32.4)	(16.7)	-	(15.4)	(114.3)	(38.0)	(0.3)	(59.6)	(399.4)	(202.6)	(0.8)
Land Betterment and Irrigation	70.9	2.0	-	3.2	132.9	13.8	-	9.8	226.7	43.9	0.1
Buildings and Equipment of Agricultural Electric Power Stations	4.2	0.3	-	0.2	10.1	2.4	-	1.3	15.6	7.7	0.1
Buildings, Equipment, and Inventory of Industrial Enterprises	25.0	11.9	-	0.6	64.4	15.9	0.6	14.7	139.8	43.4	0.1
A. Repair Shops							(0.6)				
Other Investments	80.8	3.4	-	15.3	102.2	36.8	0	26.3	245.8	88.1	0.1
1. Total Investments in Basic Means of Production (i.e. productive fixed assets)	336.8	90.9	-	68.5	751.4	232.3	9.7	219.9	2116.9	865.8	9.1
2. Total Investments in Fixed Assets (1. + Housing and other Nonproductive Fixed Assets)	357.1	109.0	-	70.7	783.8	260.2	10.1	224.0	2397.9	1101.6	11.1
3. Total Capital Investments (2. + Migration Expenditures and Expenditures on the Organization of Land Exploitation) Including: Capital Investments of Cooperative Farms	402.2	109.0	-	81.2	887.7	260.2	10.1	266.4	2685.2	1169.1	11.1
						(17.7)				(88.6)	

2

(Parentheses are Sub-Totals)

1930			1931				1932				1933				Socialist Agricultural Enterprises	St
State farms & cooperative farms	Machine Tractor Stations	Collective Farms	Socialist Agricultural Enterprises	State farms & cooperative farms	Machine Tractor Stations	Collective Farms	Socialist Agricultural Enterprises	State farms & cooperative farms	Machine Tractor Stations	Collective Farms	Socialist Agricultural Enterprises	State farms & cooperative farms	Machine Tractor Stations	Collective Farms	Socialist Agricultural Enterprises	St
109.0	13.8	146.8	781.3	370.3	30.2	327.2	932.7	561.2	56.0	300.0	807.4	318.6	58.7	417.0	1011.8	
318.5 (122.8) (68.2) (59.6) (-)	74.1 (22.5) (144.4) (47.0) (7.3) (86.8) (2.0) (-)	248.1 (144.4) (7.3) (187.1) (147.1) (-)	936.6 (525.3) (187.1) (147.1) (-)	461.7 (220.6) (98.5) (87.4) (-)	283.4 (161.6) (86.4) (14.5) (3.5)	169.0 (134.0) (2.2) (31.6) (-)	967.8 (447.1) (208.2) (237.9) (92.3)	380.5 (154.6) (80.0) (101.0) (45.2)	340.2 (144.5) (126.0) (54.4) (44.7)	238.0 (148.0) (1.8) (76.8) (-)	1484.0 (513.1) (424.4) (452.4) (176.2)	457.2 (113.2) (171.6) (132.5) (72.2)	596.2 (211.5) (250.9) (109.0) (94.0)	419.4 (188.4) (1.0) (203.4) (-)	1699.2 (455.9) (674.4) (385.7) (181.1)	
2 (202.6)	0.2 (0.2)	191.6 (146.2)	939.7 (688.2)	448.6 (397.8)	4.2 (13.0)	398.4 (222.5)	1075.9 (462.4)	374.4 (219.5)	7.7 (7.7)	691.6 (257.0)	1604.7 (613.7)	563.2 (187.0)	27.5 (45.2)	1021.3 (423.3)	2020.6	
43.9	0.1	27.6	297.8	56.0	0.4	18.6	230.9	51.8	5.1	14.0	142.5	52.1	1.4	19.0	165.0	
7.7		2.2	23.7	20.9		2.0										
43.4	5.2	48.1	118.6	67.1	16.3	19.7	338.6	116.3	159.1 (85.1)	45.8	256.0	70.6	104.8 (68.9)	62.0	309.9	
88.1	0	61.4	310.2	91.8	0	57.7	315.7	245.9	0	56.0	119.0	43.8	0	61.0	150.5	
8	93.4	725.8	3407.9	1516.4	334.5	992.6	3861.6	1730.1	568.1	1345.4	4413.6	1505.5	788.6	1999.7	5357.0	
1101.6	113.0	751.4	3700.1	1782.6	357.5	998.6	4217.0	2040.1	589.3	1358.3	4705.6	1739.9	827.0	2029.7	5775.1	
1169.1 (88.6)	113.0	874.1	3882.6	1847.8 (206.3)	377.5	1033.7	4411.1	2191.7 (264.2)	589.3	1358.3	4841.9	1814.0 (123.5)	827.0	2090.0	5828.3	

3

Collective Farms	1934				1935			
	Socialist Agricultural Enterprises	State farms & cooperative farms	Machine Tractor Stations	Collective Farms	Socialist Agricultural Enterprises	State farms & cooperative farms	Machine Tractor Stations	Collective Farms
17.0	1011.8	355.3	104.2	530.1	856.3	243.5	41.0	533.0
19.4 88.4 (1.0) 03.4 (-)	1699.2 (455.9) (674.4) (385.7) (181.1)	556.5 (140.0) (45.3) (113.8) (74.7)	752.0 (184.3) (428.0) (95.8) (86.3)	334.3 (134.6) (0.8) (168.9) (17.5)	2160.8 (531.7) (1046.2) (433.2) (272.5)	521.6 (117.1) (260.5) (106.2) (79.3)	1176.0 (217.3) (779.2) (128.1) (118.6)	416.8 (195.0) (0.8) (186.0) (66.3)
21.3 23.	2020.6	344.9	31.2	1121.4	1996.8	762.4	23.4	1247.4
19.0	165.0	51.3	3.3	25.0	161.0	34.3	1.7	28.0
62.0	309.9	19.3	103.8 (103.8)	84.1	233.1	81.4	41.3 (41.3)	92.0
61.0	150.5	87.9	.5	91.5	163.2	62.5	.2	100.0
99.7	5357.0	115.2	995.0	2186.4	5571.2	1705.7	1283.6	2417.2
029.7	5775.1	354.8	1049.3	2226.4	5881.3	1932.4	1305.5	2462.2
090.0	5828.3	367.7 (153.6)	1074.5	2226.4	5881.3	1932.4 (77.8)	1305.5	2462.2

## SOURCES:

1928-1931 data from Socialist Construction 1934, pp.168,169,170,171.  
1932-1933 data from Socialist Construction 1935, pp.287,298,289,290.  
1934-1935 data from Socialist Construction 1936, pp.243,244,245,246.

As has been indicated above (sources for Table II), Socialist Construction 1936 is in English. The Russian version - TSUNKHU, Sotsialisticheskoe stroitel'stvo SSSR (Socialist Construction of the USSR), Moscow 1936 - is not identical with the English version. (Let us refer to the Russian version as Sotsialisticheskoe stroitel'stvo 1936). Sotsialisticheskoe stroitel'stvo 1936 has tables of capital investments in agriculture for all the years 1929-1935; the English version has only the years 1928, 1932, 1934, 1935. There are some discrepancies in the figures but all are minor. The list of notes to the tables in the Russian version has been eliminated in the English version.

The present table and its sources have been preserved on the grounds that: (1) Socialist Construction 1934 and Socialist Construction 1935 present more information for the years covered than Sotsialisticheskoe stroitel'stvo 1936; and (2) the discrepancies in the figures between the Russian and English versions are few and minor.

Since the notes to the tables have been eliminated in the English version, we will have occasion to refer to the Russian version in this and other tables. In all cases, references to the English version will be denoted by Socialist Construction 1936 and to the Russian version by Sotsialisticheskoe stroitel'stvo 1936.

## NOTES TO TABLE IV

1. 1935 data are preliminary. (Sotsialisticheskoe stroitel'stvo 1936, p.243).

2. Socialist agricultural enterprises are stated to include:

a. Enterprises of the state sector - i.e. "state farms of all systems of union, republic, and local jurisdictions, machine tractor stations and machine tractor repair shops and other economic organizations within the jurisdiction of agricultural ministries and servicing agricultural production";

b. Collective farms but only with respect to collectivized production, i.e. excluding production in the individual homesteads;

c. Cooperative farms (koopkhozy).

(Sotsialisticheskoe stroitel'stvo 1936, p.706).

Cooperative farms were the farms of the Central Union of Consumers' Cooperatives (Tsentrosoiuz) and farms cooperatively owned by the workers of various enterprises to supply themselves with food. As the data indicate, koopkhozy were of some importance in the early years of collectivization but became far less important after 1932. This was at least in part due to the formation of Workers' Supply Departments in non-agricultural organizations which ran state farms for the provision of food to employees of the organization. (Cf. note 5 below).

3. Capital investments include capital repairs and exclude redistributions of fixed assets within the socialist sector of agriculture. (Sotsialisticheskoe stroitel'stvo 1936, p.706; Slovar'-spravochnik po sotsial'no, Ekonomicheskoi statistike, pp.250-1).

4. The amount of capital investments in livestock is determined by the value of young stock (i.e. by expenditures on livestock until "maturity") plus the value of the net increase per year of young stock plus expenditures on the acquisition of livestock (Sotsialisticheskoe stroitel'stvo 1936, p.706). Such investments apparently include expenditures on buildings for stock-breeding purposes. (Cf. item III A in table).

5. The data for 1932-1935 include capital investments in state farms owned by Workers' Supply Departments of all organizations. (Socialist Construction 1936, p.246). Workers' Supply Departments (Otdel rabochego snabzheniia) are branches of non-agricultural enterprises which procure, produce and distribute various commodities to the workers of the particular enterprise.

6. Let us attempt to reconcile the data in the present table with "agriculture" data from other sources.

a. The data in Table II were stated to exclude livestock breeding (note 1 to Table II). Expenditures on "mature" livestock being fattened for slaughter or, presumably, used for draft purposes are not

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considered to be capital investments; capital investments are stated to be confined to the formation and replacement of draft and productive livestock herds (cf. above, p. 1, footnote 1). There seem to be two kinds of investments in livestock (including buildings for stock-rearing purposes): (1) expenditures on the breeding and feeding of young livestock; (2) expenditures on the purchase of livestock. In the present table we find data for investments in "livestock, poultry, and apiaries" (item III) and, as a subtotal of the former, "expenditures on the acquisition of livestock and buildings" (item III A). There is no evidence that poultry and apiaries as such are considered to be fixed capital; the reference must be to buildings used for these purposes. In any case, the difference between item III and item III A would seem to represent livestock breeding and feeding expenditures by agricultural organizations which intend to use the livestock for its own draft or productive purposes. I add the last clause because without it there would be double counting. If, for example, state breeding farms which sell livestock were to consider increments in young stock as investment the buyers of such livestock would also consider the purchase an investment expenditure and the item would be counted twice. Moreover, since item III is not twice (or more) item III A and since little, if any, purchases of livestock from individual peasants occurred in the period considered, it follows that in fact there is no double counting involved.

Let us subtract from "livestock, poultry, and apiaries" (item III) the "expenditures on the acquisition of livestock and buildings" (item III A). The result is (in millions of rubles):

<u>1923</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>
17.6	39.6	107.1	251.5	613.5	991.0

This series is taken to represent expenditures on livestock breeding for use (as vs. sale). It should be noted that these figures total 1.01 billion rubles for 1929-1932, which is the magnitude of livestock breeding stated to be excluded from the 1929-1932 data in Table II (cf. Table II, note 1).

From Table II we obtain the following data (in millions of rubles):

	<u>1923</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>	<u>1934</u>
Investments in "agriculture" Collective Farm and Cooperative Investments from their own Resources and with their own Labor	---	---	410	640	769	1422	1683
Total Investments in Agriculture	384.0	840	2590	3645	3820	3900	4661

For comparison we obtain from the present table "total capital investments" from which we subtract the livestock breeding expenditures obtained above (item III - item III A) with the following results:

	<u>1928</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>	<u>1934</u>
"Total capital investments"	402.2	887.7	2635.2	3882.6	4411.1	4841.9	5828.3
Livestock breeding expenditures	17.6	39.6	107.1	251.5	613.5	991.0	---
Total capital investments minus livestock breeding expenditures	384.6	848.1	2528.1	3631.1	3797.6	3850.9	---



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The two series so obtained, "total investments in agriculture" from Table II and total capital investments minus livestock breeding expenditures from Table III, are virtually the same. Thus we conclude that although the data in Table II exclude livestock breeding expenditures they do not exclude expenditures on the acquisition of livestock and buildings.

The reasons for such treatment are not clear. Perhaps, the difficulties and ambiguities of statistics on expenditures for breeding young livestock account for their exclusion. Perhaps the intention is to include, in so far as possible, only draft livestock and draft livestock represents the bulk of livestock purchases (i.e. livestock bred for meat, etc., are retained by the enterprise until slaughtered).

b. If we add "total capital investments" for 1929-1932, we obtain 11.8 billion rubles. Total investments in "agriculture", from Table I, were 9.7 billion rubles in 1928/9-1932. If we add to this capital investments of collective farms from their own resources (1.126 billion rubles, from Table J), we obtain only 10.8 billion rubles. The problem is to account for the difference. My belief is that the "agriculture" data in Table I for 1928/9-1932 exclude livestock breeding expenditures but include expenditures on the acquisition of livestock. "Livestock breeding expenditures" for 1929-1932 were 1.012 billion rubles (cf. above, this note). If we subtract this figure from "total capital investments" for 1929-1932, we obtain 10.8 billion rubles. It is concluded that investments in "agriculture" in 1928/9-1932 exclude livestock breeding expenditures but include expenditures on the acquisition of livestock. (Cf. Table I, note 1; Table II, note 4).

c. In Table III, investments in "agriculture" were stated to be 2.100 billion rubles for 1933 and 2.474 billion rubles for 1934. These figures explicitly exclude investments in livestock, and collective farms' investments from their own resources and from state loans. If we attempt to duplicate these figures from the present table by calculating ["total capital investments" in socialist agricultural enterprises --- "total capital investments" in collective farms] --- (investments in livestock, poultry, and apiaries of collective farms)], we obtain 2.168 billion rubles for 1933 and 2.702 billion rubles for 1934. The discrepancies, again, are not large.

d. The general conclusion is that the data contained in Table IV are complete for the socialist sector of agriculture -- i.e. include all livestock investments, investments by agricultural enterprises from their own resources, and investments by collective farms and cooperative farms from state loans.

7. The data in the present table point to a number of characteristics and developments in Soviet agriculture:

a. The relative importance of state farms, cooperative farms, machine tractor stations, and collective farms is indicated by the following percentages of total investments in each:

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	State Farms	Cooperative Farms	Machine Tractor Stations	Collective Farms	Other
1928	27.1		--	20.2	52.7
1929	27.3	2.0	1.1	30.0	39.6
1930	40.2	3.3	4.2	32.6	19.7
1931	42.3	5.3	9.7	26.6	16.1
1932	43.7	6.0	13.4	30.8	6.1
1933	34.9	2.6	17.1	43.2	2.2
1934	38.0	2.6	18.4	38.2	2.8
1935	31.5	1.3	22.2	41.9	3.1

The developments to be noted are: (1) the steady increase in relative importance of machine tractor stations; (2) the rise and fall of cooperative farms; (3) the early predominance of state farms (1928-1932); (4) the subsequent predominance of collective farms (1933-1935). The "other" category was obtained as a residual, i.e. as socialized agricultural enterprises minus the specified types of agricultural organizations. Its meaning is unknown but it seems to be accounted for mainly by generalized land betterment and irrigation measures (i.e. which cannot be allocated to specific agricultural enterprises). The distribution of agricultural investments unallocated by type of organization was as follows (in millions of rubles):

	1928	1929	1930	1931	1932	1933	1934	1935
Total unallocated investments in basic means of production	177.4	289.5	431.9	564.4	218.0	119.8	160.4	164.7
I. Non-residence farm buildings	13.1	33.4	40.8	53.6	15.5	13.1	22.2	38.8
II. Machinery and implements	20.0	50.7	31.4	22.5	9.1	11.2	56.4	46.4
III. Livestock, poultry, apiaries	0.3	17.4	59.5	88.5	2.2	-7.3	23.1	-36.4
IV. Land betterment and irrigation	65.7	109.3	155.1	222.8	160.0	70.0	85.4	97.0
V. Agricultural power stations	3.7	6.4	5.7	0.8	--	--	--	--
VI. Industrial enterprises	12.5	33.2	43.1	15.5	17.4	13.6	2.7	18.4
VII. Other	62.1	39.1	96.3	160.7	13.8	14.2	-29.4	0.5

The negative figures are, of course, meaningless; they probably result from differences in the coverage of item VII as between total socialized agricultural enterprises and each of the specified types of enterprises.

b. The amount of investments in industrial enterprises which are subsidiary to, or connected with agricultural organizations has been relatively small. Such investments, in millions of rubles and as percentages of total investments in agriculture were as follows:

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	<u>1928</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>	<u>1934</u>	<u>1935</u>
Investments in industrial enterprises	25.0	64.4	139.8	118.6	338.6	256.0	309.9	233.1
<u>Investments in industrial enterprises</u>	<u>6.2%</u>	<u>7.3%</u>	<u>5.2%</u>	<u>3.1%</u>	<u>7.7%</u>	<u>5.3%</u>	<u>5.3%</u>	<u>4.0%</u>
<u>Total capital investments</u>								

The identifiable portions of the total investments in industrial enterprises are machine tractor station repair shops and flax and hemp plants attached to machine tractor stations (Socialist Construction, 1936, p.241). The flax and hemp plants were transferred to the Ministry of Light Industry in 1934 and, accordingly, machine tractor station investments in industrial enterprises were exclusively in repair shops in 1934 and 1935.

c. The amount of non-productive investments has been relatively small. The magnitudes may be obtained by subtracting item 1. in the table from item 2. Thus, non-productive investments, in millions of rubles and as percentages of total capital investments, were:

	<u>1928</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>	<u>1934</u>	<u>1935</u>
Non-productive investments	20.3	32.4	281.0	292.2	355.4	292.0	418.1	310.1
<u>Non-productive investments</u>	<u>5.0%</u>	<u>3.6%</u>	<u>10.5%</u>	<u>7.5%</u>	<u>8.1%</u>	<u>6.0%</u>	<u>7.2%</u>	<u>5.3%</u>
<u>Total capital investments</u>								

These figures for non-productive investments correspond roughly to those in Table II (except for 1932). The correspondence is explained by the fact that collective farms have spent only insignificant amounts on nonproductive assets (compare items 1 and 2 in the present table for collective farms),

d. The structure of investments by types of agricultural organizations may be of some interest. In the case of machine tractor stations, the predominant part of investments in productive fixed capital went for machinery and implements. Investments in machinery and implements as percentages of investments in productive fixed capital were:

	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>	<u>1934</u>	<u>1935</u>
	87.6	79.3	84.7	60.0	75.6	75.6	91.6

The structure of investments in productive fixed capital for state and cooperative farms and for collective farms, as percentages of the total, were as follows in selected years:

	1928		1930		1932		1934		1935	
	State & Cooperative Farms	Collective Farms	State & Cooperative Farms	Collective Farms	State & Cooperative Farms	Collective Farms	State & Cooperative Farms	Collective Farms	State & Cooperative Farms	Collective Farms
I. Non-residence farm buildings	24.8	5.7	12.6	20.2	32.4	22.3	17.6	24.2	14.5	22.1
II. Machinery & implements	22.0	38.5	36.8	34.2	22.0	17.7	27.6	15.3	30.4	17.2
III. Livestock, poultry, apiaries	33.9	27.6	29.5	28.4	21.6	51.4	41.9	51.3	44.7	51.6
IV. Land betterment & irrigation	2.2	4.7	5.1	3.3	3.0	1.0	2.5	1.1	2.0	1.2
V. Electric power stations	0.3	0.3	0.9	0.3	—	—	—	—	—	—
VI. Industrial enterprises	13.1	0.9	5.0	6.6	6.7	3.4	5.9	3.3	4.3	3.3
VII. Other	3.7	22.3	10.2	3.5	14.2	4.2	4.4	4.2	3.7	4.1
Total investment in productive fixed capital	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

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The following points are noteworthy: (1) with the expansion of machine tractor stations, the most important object of investment by collective farms was livestock; (2) in the latest years of this series, the most important object of investment by state farms was, also, live-stock; (3) in all but the earliest years of this series, state farm investment expenditures were relatively greater for machinery than in the case of collective farms.

2. There is apparently an error in the machine tractor station data for 1931 and 1933. In 1931, total investments in livestock, poultry, and apiaries were 4.2 million rubles; expenditures on the acquisition of livestock and buildings (a sub-total) were 13.0 million rubles. The same figures for 1933 were 27.5 and 45.2 million rubles respectively.

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TABLE V: CAPITAL INVESTMENTS BY SECTORS OF THE NATIONAL ECONOMY, 1933-1938  
(In millions of rubles; in prices of the respective years)

	1933	1934	1935	1936	1937	1938
TOTAL	13.1 <sup>a</sup>	23.5 <sup>a</sup>	27.2 <sup>a</sup>	35.5 <sup>a</sup>	33.2 <sup>a</sup>	39.7 <sup>d</sup>
I. Industry	9.340 <sup>b</sup>	11.363 <sup>b</sup>	13.024 <sup>b</sup>	15.969 <sup>b</sup>	15.012 <sup>c</sup>	17.019 <sup>d</sup>
II. Agriculture	2.495 <sup>d</sup>	2.972 <sup>d</sup>	2.993 <sup>d</sup>	3.384 <sup>d</sup>	4.146 <sup>d</sup>	3.849 <sup>d</sup>
III. Transport	3.015 <sup>e</sup>	4.250 <sup>f</sup>	5.455 <sup>g</sup>	6.117 <sup>h</sup>	5.774 <sup>h</sup>	6.623 <sup>h</sup>
IV. Communications	.202 <sup>e</sup>	.273 <sup>f</sup>	.500 <sup>g</sup>	.310 <sup>h</sup>	.246 <sup>h</sup>	.376 <sup>h</sup>
V. Trade and Procurement	.238 <sup>e</sup>	.482 <sup>f</sup>	.562 <sup>g</sup>	1.046 <sup>h</sup>	.913 <sup>h</sup>	.763 <sup>h</sup>
VI. Social-cultural and Administration	2.404 <sup>e</sup>	3.443 <sup>f</sup>	4.866 <sup>g</sup>	7.374 <sup>h</sup>	7.109 <sup>h</sup>	7.434 <sup>h</sup>
Computed Total (sum of items I-VI)	18.244	23.297	-	-	-	-

## SOURCES:

- a. E. L. Granovskii and B. L. Markus, Ekonomika sotsialisticheskoi promyshlennosti (Economics of Socialist Industry) 1940, p. 533. Note that these totals, when summed over the period of the Second Five Year Plan, equal the Second Five Year Plan Fulfillment total of 137.5.
- b. A. Arakelian, Osnovnye fondy promyshlennosti SSSR (Fixed Capital of USSR Industry) 1938, p. 71. The same figures appear in Granovsky and Markus, op.cit., p. 375 and in P. Khromov, Amortizatsiia v promyshlennosti SSSR (Amortization in USSR Industry), 1939, p. 16. Khromov indicates TsUNKhU as the source of the data.
- c. Obtained by subtraction of total investments in industry in 1933-36 from total Second Five Year Plan Fulfillment figure of 65,763 for industry. Granovsky and Markus (op.cit., p. 533) state the 1937 figure to be 15.0. Kantor (Osnovnye fondy promyshlennosti i ikh ispol'zovanie, p. 64) states it to be 15.012. These are not necessarily confirmations of the figure. So far as I know, no 1937 realized figure has been published by the State Planning Commission or the Central Statistical Administration. The statements by Granovsky and Markus and Kantor may simply indicate that they are as adept at subtraction as I.
- d. Estimated; for method of estimation see note 2 to this table.
- e. 1935 Plan, p. 460.
- f. 1936 Plan, pp. 504-5.
- g. 1937 Plan, pp. 142-3.

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SOURCES (Cont'd):

- h. Estimated; for method of estimation see note 3 to this table.
- i. This figure is a 1936 plan figure (cf. table III). Preliminary results for 1936 indicate a total of .904 for trade and procurement (1937 Plan, pp. 142-3). The plan figure was, accordingly, used.
- j. Obtained by subtraction of total investments in trade and procurement in 1933-36 from total Second Five Year Plan Fulfillment figure of 3.245 for trade and procurement.
- k. Obtained by subtraction from annual total.
- l. Obtained by the following calculation for each of the indicated sectors and for the national economy as a whole:  
(Total 1934-38) - (Total 1933-37) - 1933.  
1934-38 and 1933-37 data are found in table I ; 1933 data in the present table.

## NOTES TO TABLE V

1. Let us take the realized 1933, 1934, and 1935 data and the planned 1936 and 1937 data from Table III, add them by sectors for the period of the Second Five Year Plan, and compare the results with Second Five Year Plan fulfillment data (from Table I). We obtain the following comparison (in billions of rubles):

	1933	1934	1935	Plan 1936	Plan 1937	Total	Second Five Year Plan Total
a. Industry	10.030	11.695	12.542	16.299	13.928	64.494	65.763
b. Agriculture	2.100	2.474	2.297	2.857	2.659	12.387	16.760
c. Transportation	3.015	4.250	5.455	7.928	7.370	28.018	25.411
d. Communications	.202	.278	.300	.440	.370	1.590	1.336
e. Trade and Pro- curement	.238	.486	.562	1.046	.795	3.127	3.245
f. Social-Cultural and Admin.	<u>2.404</u>	<u>3.443</u>	<u>3.566</u>	<u>7.773</u>	<u>7.471</u>	<u>24.657</u>	<u>24.976</u>
Total	17.989	22.626	24.722	36.343	32.593	134.273	137.491

The 1936 planned data took into account changes in the plan made during the year so its approximation to realized 1936 data should be close.

The noteworthy (absolute) discrepancies lie in "agriculture," in "transportation," and in the totals for the entire period.

a. The annual plan "agriculture" data (Table III) were confined to the state sector, i.e. excluded even state financing of the cooperative sector. In addition, investments in livestock in the state sector were excluded (Table III, note 1; Table IV, note 6).

b. The exclusions just mentioned may also account for part of the discrepancy in totals. Capital repairs were still part of the annual plan of capital work. Extra-limit expenditures had been introduced in September 1935; only part of such expenditures were excluded from the data in Table II (Table III, note 1).

c. The discrepancy in "transportation", as well as other discrepancies (perhaps partly offsetting) may be accounted for by differences between planned and fulfilled investments in 1936 and 1937.

In the present table, we attempt to obtain a more accurate sector breakdown ("more accurate" defined as "in closer correspondence with second Five Year Plan fulfillment data") by deriving 1936 and 1937 realized data from other information, by deriving annual "agriculture" data from other information, and by using other information for annual "industry" totals (which, however, are not substantially different from the annual plan data for 1933-1935). We proceed from the data in Table III rather than the data in Table II because the transport sector in Table II is apparently obtained by summation of investments by transport ministries and departments and, therefore, includes some investments in industry (Table X and note 20).



2. Plotnikov states that: "The financing of capital investments in agriculture in the years of the second five year plan was accomplished through the Agricultural Bank of the USSR". (K. N. Plotnikov, Bindzhet sotsialisticheskogo gosudarstva - Budget of the Socialist State - Gosfinizdat 1948, p. 139.). Plotnikov presents the following data on the role of the Agricultural Bank in the Second Five Year plan period (Ibid, pp. 139-140):

	1933	1934	1935	1936	1937
<b>I. Financing of State Sector of Agriculture (nonrepayable)</b>					
A. Units of Union jurisdiction	2.1245	2.4354	2.3941	3.0089	2.8236
1. Financing of capital investments	1.7879	2.0430	2.0553	2.3983	2.0553
2. Financing of special expenditures	.3366	.3924	.3388	.4694	.6730
3. Financing of other extra-limit expenditures	--	--	--	.1412	.0953
B. Units of Republic jurisdiction	.1561	.1743	.1217	.1760	.4045
1. Financing of capital investments	.1457	.1557	.0840	.0677	.1669
2. Financing of "operational" ( <u>operatsionnye</u> ) expenditures	.0104	.0186	.0377	.1083	.1857
3. Financing of extra-limit expenditures	--	--	--	--	.0519
<b>II. Long Term Credits</b>					
A. To collective farms	.2247	.3809	.5147	.8082	1.1040
B. To collective farmers for purchases of livestock	.1780	.2971	.4484	.6900	1.0073
C. To workers and salaried employees of state farms, machine tractor stations, and rural railroad administrations for housing construction and the purchase of livestock	.0131	.0430	.0051	.0296	.0197

The "agriculture" totals are obtained by totalling these figures exclusive of loans to collective farmers and to workers of state farms, etc. (on the grounds that such expenditures are in the private sector of the economy) and exclusive of the financing of "operational" expenditures (on the grounds that these are not considered to be capital investments). The annual totals so obtained for "agriculture" sum to 16.491 billion rubles for 1933-1937 as against 16.760 from Second Five Year Plan fulfillment data.

This calculation is not entirely satisfactory. The Plotnikov figure for loans to collective farms (3.033 billion rubles for 1933-1937) is contradicted by other sources (Table VII, note 12). If all of the 3.033 billion

rubles was not used for investments in fixed capital (as the other sources suggest), it is possible that some agricultural investments did not go through the Agricultural Bank.

In addition, the investments in "agriculture" obtained by the present calculation are 2.495 billion rubles in 1933, 2.972 in 1934 and 2.993 in 1935; whereas investments in "agriculture" exclusive of collective and co-operative farm investments, as obtained from Table IV are 2.628 billion rubles in 1933, 3.448 in 1934 and 3.341 in 1935. Since we know that the investments in "agriculture" from Tables I, II, and V include collective farm investments financed by state laws, it follows that something has been omitted from the state sector of agriculture in the present calculation. The close correspondence between the present figures and those in Table II for "agriculture" in 1933 and 1934 leads me to believe that livestock breeding expenditures have been excluded, i.e. that only expenditures on the acquisition of livestock are included. If this is true, the investments in "agriculture" in Table I for 1933-1937 have the same exclusions and inclusions as investments in "agriculture" in Table II and for 1928/9-1932 in Table I. (Cf. Table I, note 1; Table II, notes 1 and 4; Table IV, note 6.)

It should also be noted that if we add the financing of capital investments for units of union and republic jurisdiction over the years 1933-37 (from Plotnikov, *op. cit.*), we obtain 10.960 billion rubles as against 11.334 for Second Five Year Plan fulfillment data exclusive of capital repairs and extra-limit expenditures. This tends to confirm the validity of the present calculation.

3. The "transport" and "communications" figures are obtained in the following way. 1933-35 totals are obtained and subtracted from the Second Five Year Plan fulfillment totals for "transport" and "communications". The differences are presumed to be the realized data for 1936 and 1937. They are 12.691 billion rubles for "transport" and .556 for "communications". The budget allowances for capital investments in each of the sectors is known for each of the years of the Second Five Year Plan period. (USSR Ministry of Finance, Gosudarstvennyi bindzhet SSSR za vtoroyi piat'letki 1933-37 -- USSR State Budget in the Second Five Year Plan Period 1933-37 -- 1939, p. 76). Total investments in "transport" and "communications" are assumed to vary in 1936 and 1937 proportionately to budget allowances for investments in "transport" and "communications". Thus, the "transport" total for 1936 is taken to be 54.5% of 12.691 billion because 1936 budget allowances in "transport" was 54.5% of the total budget allowances for 1936 and 1937. Similarly, the percentage was 55.8% in "communications", so 1936 investments in "communications" were 55.8% of .556 billion. The remainder in both cases was attributed to 1937.

The results, again, are not entirely satisfactory for in "communications" budget allowances for investments exceeded estimated total investments for both 1936 and 1937. This may, however, be due to a difference between budget allowances and investment expenditures. The same discrepancy appears for "transport" in 1934 where the investment figure is a realized figure.

4. Granovskii and Markus state that the 1933-1936 "industry" investments are in productive fixed capital only (Granovskii and Markus, *op. cit.*, p. 375). Arakelian does not mention this when he presents the "industry" series in rubles. In connection with a USSR-Germany comparison, however, he presents investments in "industry" as an index number series which, he states,

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excludes housing construction by industry. (Arakelian, *op. cit.* pp. 71, 73, and footnote 1 p. 73). If we express the ruble figures presented by Arakelian as an index number series, we obtain the same index numbers that Arakelian states. The ruble series could include, and the index numbers exclude housing construction only in the unlikely case that housing construction and investments in productive fixed capital increased in exactly the same proportions.

Arakelian also states that beginning in 1933 investments in "industry" include investments in industrial fixed capital by non-industrial ministries. (Arakelian, *op. cit.*, p. 71 footnote 1).

Comments will be made on these points below, tables X and XI and notes. Suffice it to say here that I doubt the exclusion of nonproductive investments.

5. Arakelian presents the following series for investments in the socialist sector of the national economy (in billions of rubles):

<u>1925/6</u>	<u>1926/7</u>	<u>1928</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>	<u>1934</u>	<u>1935</u>	<u>1936</u>
2.138	3.664	4.083	5.885	9.786	15.875	20.512	20.369	26.214	30.665	40.612

(Arakelian, *op. cit.*, p. 71). The corresponding figures from Tables II and V are:

<u>1925/6</u>	<u>1926/7</u>	<u>1928</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>	<u>1934</u>	<u>1935</u>	<u>1936</u>
2.138	3.664	4.088	5.805	9.255	14.861	19.097	18.1	23.5	27.2	35.5

Arakelian makes no explanation for his series. The divergence between the two series may be explained by the inclusion in Arakelian's series of collective farms' investments from their own resources and labor participation in road building. The magnitudes of these two categories seem about right to account for the divergence. (Table VII and notes 10 and 13).

6. The 1938 data are derived from a comparison of 1933-1937 data, 1934-1938 data and 1933 data. All three series are stated to include extra-built investments and capital repairs and to be in prices of the respective years. Therefore, the 1938 data presumably are in 1938 prices and presumably include extra-limit investments and capital repairs. There is, however, some evidence that the 1938 component of the 1934-1938 totals exclude capital repairs (Table VI, note 3). We will return to a discussion of the 1938 data below (Table VI, note 3).

TABLE VI: TOTAL CAPITAL INVESTMENTS, INVESTMENTS FROM THE BUDGET, AND BUDGET FINANCING OF THE NATIONAL ECONOMY 1933-1951  
(In billions of rubles)

Year	Financing the National Economy	Investments in Fixed Capital		Soviet Characterization of the Total Investment Figure
		Total	From Budget	
1933	25.0 <sup>a</sup>	17.2 <sup>a</sup>	14.0 <sup>b</sup>	
1934	31.2 <sup>a</sup>	21.8 <sup>a</sup>	16.2 <sup>b</sup>	
1935	39.4 <sup>a</sup>	24.0 <sup>a</sup>	16.3 <sup>b</sup>	"capital investments financed" ( <u>finansirovanie kapital'nykh vlozhenii</u> )
1936	41.9 <sup>a</sup>	30.3 <sup>a</sup>	21.5 <sup>b</sup>	
1937	43.4 <sup>a</sup>	27.8 <sup>a</sup>	20.7 <sup>b</sup>	
Plan 1938	47.2 <sup>c</sup>	35.8 <sup>c</sup>	24.9 <sup>c</sup>	"volume of capital work" ( <u>ob'em kapital'nykh rabot</u> )
1938	51.7 <sup>a</sup>	35.7 <sup>b</sup>	-	
Plan 1939	59.3 <sup>c</sup>	34.7 <sup>c</sup>	25.1 <sup>c</sup>	"volume of capital work"
1939	60.4 <sup>a</sup>	34.3 <sup>b</sup>	-	
Plan 1940	57.1 <sup>a</sup>	36.1 <sup>b</sup>	24.4 <sup>b</sup>	"volume of capital work"
1940	58.3 <sup>a</sup>	38.1 <sup>b</sup>	25.7 <sup>b</sup>	"volume of capital investments"
Plan 1941	73.2 <sup>c</sup>	60.0 <sup>c</sup>	46.6 <sup>c</sup>	"capital work financed" ( <u>finansirovanie kapital'nykh rabot</u> ); "volume of capital work on 1936 prices" equalled 57 billion.
1941	51.7 <sup>d</sup>	(30.4-34.1) <sup>u</sup>	-	
Plan 1942				
1942	31.6 <sup>a</sup>	18.6 <sup>a</sup>	11.8 <sup>a</sup>	"total amount of capital investments" ( <u>obshchaya summa kapital'nykh vlozhenii</u> )
Plan 1943				
1943	33.1 <sup>a</sup>	19.5 <sup>a</sup>	-	"volume of centralized capital projects"
Plan 1944	44.7 <sup>a</sup>	29.0 <sup>c</sup>	20.8 <sup>c</sup>	"volume of capital work financed" ( <u>ob'em finansirovaniia kapital'nykh rabot</u> )
1944	53.7 <sup>a</sup>	40.1 <sup>c</sup>	31.2 <sup>c</sup>	"volume of capital work financed"
Plan 1945	64.6 <sup>a</sup>	36.3 <sup>b</sup>	27.4 <sup>d</sup>	"volume of centralized capital investments financed"
1945	74.4 <sup>a</sup>	49.4 <sup>b</sup>	41.3 <sup>b</sup>	"volume of centralized capital investments financed"
Plan 1946	102.3 <sup>k</sup>	44.2 <sup>j</sup>	37.4 <sup>j</sup>	"amount of centralized capital investments financed" ( <u>razmer finansirovaniia kapital'nykh rabot</u> )
1946	106.2 <sup>k</sup>	58.8 <sup>j</sup>	49.2 <sup>j</sup>	"amount of centralized capital investments financed"
Plan 1947	131.8 <sup>j</sup>	(53.1) <sup>s</sup>	44.5 <sup>r</sup>	
1947	133.1 <sup>k</sup>	66.2 <sup>l</sup>	60.9 <sup>p</sup>	"total amount of expenditures on capital investments" ( <u>obshchaya summa zatraty na kapital'nye vlozheniia</u> )
Plan 1948	149.0 <sup>k</sup>	105.5 <sup>l</sup>	79.8 <sup>l</sup>	"total amount of expenditures on capital investments"
1948	147.5 <sup>k</sup>	(112.0) <sup>q</sup>	-	
Plan 1949	152.5 <sup>k</sup>	135.6 <sup>m</sup>	106.5 <sup>m</sup>	"centralized and noncentralized capital investments financed" ( <u>finansirovanie tsentralizovannykh i netsentralizovannykh kapitalovlozhenii</u> ).
1949	161.9 <sup>k</sup>	135.7 <sup>m</sup>	101.7 <sup>m</sup>	
Plan 1950	164.4 <sup>k</sup>			
1950	157.3 <sup>n</sup>	(129.7) <sup>q</sup>	-	
Plan 1951	178.5 <sup>n</sup>			"capital investments financed"

## SOURCES:

- a. K. N. Plotnikov, Biudzhët sotsialisticheskogo gosudarstva (Budget of the Socialist State), Gosfinizdat 1948, pp. 126, 129, 207, 303, 307.
- b. USSR Ministry of Finances, Gosudarstvennyi biudzhët SSSR za vtoroi piatiletki 1933-1937 (USSR State Budget in the Second Five Year Plan 1933-1937), Moscow 1939, p. 76.
- c. A. G. Zverev, Gosudarstvennye biudzhety SSSR 1938-1945 (State Budgets of the USSR 1938-1945), Gosfinizdat 1946, pp. 15, 17, 47, 49, 105, 128, 131, 132, 148, 153.
- d. K. N. Plotnikov, "Finances and the Development of the Socialist National Economy," Sovetskie Finansy, 1947 No. 11, p. 28.
- e. A. G. Zverev, Gosudarstvennyi biudzhët SSSR na 1940 goda (State Budget of the USSR for 1940), p. 15.
- f. N. Rovinskii, "25 Years of the USSR Budget System," Sovetskie Finansy, 1942 No. 11-12, p. 45.
- g. V. M. Buzyrev, Vosstanovitel'nye raboty i ikh finansirovanie (Reconstruction Work and its Financing) 1945, p. 59. The statement is that budget allocations for investment constitute 67.5% of the total.
- h. Zasedania verkhovnogo soveta SSSR (Vtoraiia sessiia)--Meetings of the Supreme Soviet of the USSR (Second Session)--1946, p. 16.
- i. Obtained by subtracting from Voznesensky's 1938-1940 total (cf. table \_\_\_) of 108 billion rubles, the 1938 and 1940 totals. Also cf. note 3 to this table.
- j. "On the State Budget of the USSR for 1947," Sovetskie Finansy, 1947 No. 2, pp. 12, 13.
- k. Pravda: October 16, 1946, p. 2; February 1, 1948, p. 2; February 3, 1948, p. 3; March 11, 1949, pp. 2, 3; June 14, 1950, p. 2.
- l. A. Zverev, "State Budget of the Fourth Year of the Post-War Stalinist Five Year Plan," Planovoe Khoziaistvo, 1949 No. 2, p. 43.
- m. A. G. Zverev, O gosudarstvennom biudzhete SSSR na 1950 god i ob ispolnenii gosudarstvennogo biudzheta SSSR za 1948 i 1949 god (On the USSR State Budget for 1950 and Fulfillment of the USSR State Budget for 1948 and 1949) Gospolizdat 1950, p. 13.
- n. Pravda, March 8, 1951, p. 2. Pravda states that this includes circulating capital. A later statement, however, indicates that the circulating capital included is only the circulating capital of construction conducted by the "economic method," i.e. that the figure represents the usual category of "capital investments financed." (A. G. Zverev, "A Budget of Peaceful Economic and Cultural Construction," Planovoe Khoziaistvo, 1951 No. 2, p. 29. Zverev refers to the 132 billion ruble figure as the "total amount of capital work financed.")
- o. N. Voznesensky, The Economy of the USSR During World War II, Public Affairs Press 1948, p. 85.



## SOURCES (Cont'd):

- p. "On the State Budget of the USSR for 1948 and Fulfillment of the State Budget of the USSR for 1946," the report of A. G. Zverev published in Narodnoe khoziaistvo SSSR (National Economy of the USSR), Volume 2, Gosplanizdat 1948, p. 483.
- q. Estimated by assuming that the proportion of actual to planned investments is equal to the proportion of actual to planned "financing the national economy."
- r. Pravda, March 11, 1949, p. 2. The statement is as follows: "Large appropriations were directed to capital construction. Of the total expenditures for this purpose amounting to 66.2 billion rubles, 57.2 billion were appropriated from the budget, i.e. 12.7 billion more than in 1947."
- s. Estimated by assuming that the proportion of total to budget investments is the same as the proportion of planned total to planned budget investments. Particularly little confidence is to be attached to this estimate. Judging from the tone of the complaints about investment plan fulfillment (cf. Pravda, February 4, 1948, p. 2) and from the failure to publish a realized figure for 1947, 1947 was probably an unusually bad year. This may have taken the form of proportionately fewer investments from enterprises' own resources. (cf. also note 7 to this table.)
- t. Table Y. Also cf. note 3 to this table.
- u. Estimated; cf. note 5 to this table.

## NOTES TO TABLE VI

1. In the present table, Soviet characterizations of the total investment figure have been appended to the data in an effort to discover: (a) whether the data include only centralized investments or non-centralized investments as well; (b) whether the data are stated in estimate or current prices; and (c) whether the data include or exclude changes in the stocks of construction materials on hand. For the moment, only problems (b) and (c) will be considered; the inclusion or exclusion of non-centralized investments will be discussed in notes 2 and 3 to this table. Problem (c) is not regarded as important in itself. The magnitude of net changes in the amount of construction materials on hand is certainly small in relation to the magnitude of investment. Moreover, stocks of construction materials held by contract construction organizations seem to be treated like changes in the working capital of any independent enterprise; apparently only changes in the stocks of materials for construction conducted by the "economic method" may be regarded as a component of investment in fixed capital (cf above, p. 10, and below, this note). The significance of the treatment of changes in stocks of construction materials is as an indicator of the concept of investments used.

It has already been noted (pp. 4-5, above) that, in statements of the capital investment plan, Soviet sources use the "volume of capital work" to refer to investments undertaken in estimate prices and the "amount of financing necessary for capital work" to refer to expenditures in current (or planned current) prices including gross increases in materials stocks on hand and excluding previously purchased materials which are used in construction.

Since no reference have been found to the use of estimate prices (in the sense of a set of prices other than current prices) prior to the use of 1936-37 prices, it is assumed that prior to 1938 estimate and current prices are the same.

The pre-1938 difference in concept between "the volume of capital work" and the "amount of investments financed" may be: (a) the exclusion or inclusion of planned economies in construction costs (table X, note 17); or (b) the treatment of changes in stocks of construction materials on hand. The former is irrelevant for realized figures. The latter is quantitatively unimportant.

It is obvious from an examination of the present table that there is no uniformity in the Soviet characterizations of the total investment figure. I interpret the 1942-1951 data to be in current prices, to include gross increases in materials stocks on hand, and to exclude previously purchased materials used up in construction (i.e. to be the analogue of the "amount of financing necessary for capital work" in the investment plan). Justification for this interpretation is as follows:

a. All the figures except realized 1942 and realized 1943, are described in phrases which contain the words "financed" or "expenditures". The 1942 figure, further, is not described as the "volume of capital work".

b. It is stated by one Soviet source that during the war investments were undertaken without the prewar project-making and estimating procedure due to war pressures. (F. Dobrynin and L. Kvitnitskii, "On Improvement of Project-Making and Estimates in Construction", Planovoe Khoziaistvo, 1950 No. 6, p. 49.

c. The planned 1947 figure is stated to include: (1) the volume of centralized capital investments = 50 billion rubles; (2) additional expenditures by ministries = 3.6 billion; (3) compensation of construction organizations for wage increases and increases in working capital = 5.2 billion. (Zosedaniia verkhovnogo Soveta SSSR, tret'ia sessia -- Meetings of the Supreme Soviet of the USSR, Third Session -- Stenographic Report, 1947, p. 24).

d. The planned 1949, 1950 and 1951 figures are explicitly stated to be in current prices. The planned 1951 figure, in addition, is stated to include increases in working capital of construction conducted by the economic method.

e. Pravda states the "volume of capital work" for each of the years 1946-1950 as a percentage of the preceding year (Pravda, April 27, 1951, p. 2). The percentages are:

<u>1946</u>	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>
117	110	123	120	123

If we express the realized investment figures in the present table for each of the years 1946-1950 as a percentage of the preceding year we obtain:

<u>1946</u>	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>
121.8	120.1	124.7	169.1	115.8

Thus, in each of the years except 1950, the Pravda percentages are lower than the percentages we calculate; and in 1950 there was a general decrease in wholesale prices. Moreover, the percentages we calculate reflect, and the Pravda percentages fail to reflect, the known price increases with the removal of subsidies in 1949. Finally, if we assume that the Pravda percentages compare investments in 1945 prices (the Fourth Five Year Plan estimate prices) and use the percentages with 1945 realized investments to calculate realized investments in 1945 prices for the Fourth Five Year Plan as a whole, we obtain 301 billion rubles. This figure is 120% of the Fourth Five Year Plan figure of 250.3 billion rubles; and Pravda (April 17, 1951, p. 2) states that the Fourth Five Year Plan was overfulfilled with respect to capital investments by 22%. I conclude that the Pravda percentages compare investments in 1945 prices and that the realized figures for 1946-1950 in the present table are in prices of the respective years.

(The percentages calculated may be used to construct a rough index of price changes of investment goods. Thus,

	<u>1946</u>	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>
I. Capital investments in 1945 prices (1945 = 100)	117	128.7	158.3	190.0	233.7
II. " " " current prices( " " )	128.1	146.3	182.4	308.4	357.1
III. Index of the price level of investment goods (II ÷ I; 1945 = 100)	104.1	113.6	115.2	162.3	152.8

I will return to the question of changes in investment goods prices in a later report.



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The planned 1938, 1939 and 1940 figures, the realized 1940 figure, and the realized 1938-1940 total are all described as the "volume of capital work". This suggests that these figures are in 1936-7 prices. Although the realized 1938 figure appears to be in 1938 prices (since it is obtained from data which are stated to be in prices of the respective years), we assume that 1938 and 1936-7 prices did not differ substantially and that all the 1938-1940 data are in 1936-7 prices (Cf. also note 3 to this table.)

Though the possibility of error here should not be overlooked, I suspect that 1936-37 prices were not substantially different from current prices for these years. Planned 1941 investments in 1936-37 prices (the "volume of capital work in 1936 prices") were 57 billion; the capital work financed was 60 billion. Let us assume, for the moment, that the gross increases in the stock of construction materials planned were precisely equal to the materials previously purchased and planned to be used in construction. Let us assume, further, that the planned cost decrease for industry of 3.7% was typical of construction. (Gosudarstvennyi plan razvitiia narodnogo khoziaistva SSSR na 1941 god -- State Plan of the Development of the USSR National Economy for 1941 -- p. 566). Then, 1941 planned investments in 1940 prices was 62.3 billion and the ratio of 1940 prices to 1936-37 prices was slightly more than 1.09. To the extent that planned gross increases in the stock of construction materials exceeded (were exceeded by) the amount of previously purchased materials to be used in construction, 1.09 is too high (low). To the extent that the planned cost decrease in industry exceeded (was exceeded by) the planned cost decrease in construction, 1.09 is too high (low).

Another calculation leads to virtually the same figure. Zuerov states that volume of centralized investments planned for 1946 (49.4 billion rubles) is 140% of the volume of capital investments financed in 1940. (A. G. Zuerov, "On the USSR State Budget for 1946 and Fulfillment of the Budget for 1944 and 1945", Den'gi i kredit, 1946 No. 10, p. 10). Since "capital investments financed" is normally in current prices, the realized figure for 1940 would seem to be 35.3 billion rubles in 1940 prices. Our assumptions led to a 1940 figure of 32 billion rubles, exclusive of extra-limit investments, in 1936-7 prices. If the difference between the two figures is accounted for by price differences, a 10% increase in prices from 1936-7 to 1940 is implied.

A similarly rough calculation (note 3, this table) leads to the suggestion that prices may have risen by about 7% between 1936-7 and 1939.

2. The question which remains to be answered is the exclusion or inclusion of noncentralized investments. It should be remembered that, as a matter of Soviet statistical practice, noncentralized investments are identical with extra-limit investments. Collective farm investments and, since 1938, capital repairs are reported separately and in addition to both centralized and noncentralized investments. Pre-1938 capital repairs, it should also be remembered, are not reported separately from other investments. (Cf. above, p. 3, and table VII, note 1).

Let us begin by noting the explicit exclusions and inclusions.

a. The 1933-37 data "include only economic commissariats and departments and do not include capital investments undertaken in expenditures on social-cultural measures, in the financing of the construction of administrative and other institutions, in budget expenditures from operational

(operatsionnykh) and other means which are not reflected in the fulfillment of the financial plans of departments". (Plotnikov, Budget of the Socialist State, p. 129, footnote 1). Capital investments from budget expenditures on social-cultural measures (and "other capital investments" from the budget) were, in billions of rubles:

1933	.35
1934	.60
1935	.84
1936	2.13
1937	2.41

(USSR Ministry of Finances, USSR State Budget in the Second Five Year Plan 1933-37, p. 76). If we add these to the total investment figures in the table we obtain:

1933	17.6
1934	22.4
1935	24.8
1936	32.4
1937	30.2

If we compare these results with the totals in table V (which include capital repairs and extra-limit investments), the deviations are as follows (in billions of rubles)

1933	- .5
1934	-1.1
1935	-2.4
1936	-3.1
1937	-3.0

I suspect that the deviations consist largely, if not entirely, of extra-limit expenditures (and, probably, part of expenditures for special purposes, which seem to be related to capital repairs and extra-limit expenditures; cf. table II, note 7). In this connection it should be noted (though the possibility of accident should not be overlooked) that in 1937 total investments exclusive of extra-limit expenditures but inclusive of capital repairs were stated to be 30.2 billion. (Third Five Year Plan, p. 26).

b. The 1940 planned figure excludes: (1) extra-limit expenditures of 4.8 billion (3.4 billion of which is to be financed from the budget); (2) capital repairs of 6.6 billion (5.2 billion of which is to be financed from amortization allowances); (3) loans to individuals for housing construction which amounted to .243 billion in 1939. (Zuerev, State Budgets of the USSR 1938-1945, p. 79.)

c. The realized 1940 figure includes about 6 billion rubles of non-centralized investments. (N. Voznesensky, The Growing Prosperity of the Soviet Union, Workers Library Publishers, New York 1941, p. 8.)

d. The planned 1941 figure of 57 billion rubles (in 1936 prices) includes 9 billion noncentralized investments. (Zuerev, op. cit., p. 105).

e. The realized 1943, 1945, and 1946 figures and the planned 1946, 1947, and 1948 figures are explicitly confined to centralized investments.

f. The planned 1950 figure is stated to include noncentralized investments.

g. The distinction between centralized and noncentralized investments is abandoned in 1951 (cf. above, pp. 33-34). The 132 billion rubles, stated as the "capital investments financed", for 1951, exclude: (1) capital repairs of 29.4 billion rubles; and (2) expenditures on project-making of 3.7 billion rubles. In order to make the planned 1951 figure comparable with the previous figures the 3.7 billion rubles should be added to the 132 billion rubles. As a consequence of changes introduced in 1950, project-making organizations have been separated from ministries and are financed directly from the budget. (Cf. footnote 13, p. 9).

The 1938-1940 figures will be discussed in note 3 to this table. For the years 1942-45 it is assumed that the total investment figures include only centralized investments but that, in any case, the amount of extra-limit investments must have been small. In discussing the conversion of the Soviet economy to a war economy, Voznesensky states: "The allocation and rationing of metals, fuels, electrical energy, and other types of raw materials and supplies were strictly centralized". (The Economy of the USSR During World War II, Public Affairs Press, 1948, p. 19). Similarly, the Director's Fund was eliminated July 1, 1941, and was not re-instituted until December 12, 1946. The opportunity to exercise decentralized investment choice was certainly much diminished.

On the basis of the explicit exclusion of non-centralized investments for 1946 and 1947 and an examination of the annual changes in investments for 1946, 1947 and 1948, it is assumed that the 1948 figure also excludes noncentralized investments. On the basis of the Rovinskii statement that the "basic part" of noncentralized investments were included in the national economic plan for 1949 (cf. above, p. 33), it is assumed that the 1949 figure includes noncentralized investments. The 1950-1951 figures, as we have observed, explicitly include noncentralized investments.

It must be re-emphasized that, as a matter of Soviet statistical practice, collective farm investments and, since 1938, capital repairs are reported separately and in addition to both centralized and noncentralized investments. In other words, it will be necessary, even when we have centralized and noncentralized investments, to add capital repairs (beginning in 1938) and collective farm investments in order to obtain complete totals.

3. The years 1938-1940 represent something of an enigma in Soviet investment statistics. Voznesensky states that the "volume of capital investments" in 1938-1940 totalled 108 billion rubles, including 17.5 billion noncentralized investments. (The Growing Prosperity of the Soviet Union, p. 8). From table I we obtain the 1938 total of 35.7 billions. Voznesensky states the 1940 total to be 38 billion rubles, including 6 billion noncentralized investments (Voznesensky, op. cit., p. 8). Assuming the Voznesensky 1938-1940 total to be correct, we obtain by subtraction 34.3 billion for 1939.

Buzyrev states that extra-limit investments were 6.5 billion in 1938. (V. M. Buzyrev, Finansirovanie i kreditovanie kapital'nykh vlozhenii - Capital Investment Finances and Loans - 1941, p. 212). We have pointed out elsewhere that "noncentralized investments" in Soviet statistics are identical with

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extra-limit investments. (Cf. above, p. 33, and table VII, note 1). Assuming that the Voznesensky 1938-1940 total for noncentralized investments is correct, we obtain by subtraction 5 billion rubles of noncentralized investments for 1939.

Two sources, however, imply that extra-limit investments were about 7.5 billion in 1939. (A. Lushchitskii, "The Commercial Bank and Extra-Limit Capital Investments", Sovetskie finansy, 1940 No. 4, p. 39; Buzyrev, op. cit., p. 212). Although neither source states specifically that this is a realized figure, in the absence of other evidence one would have little doubt that it is a realized figure. There is, however, other evidence:

a. Buzyrev also has a sector breakdown of extra-limit investments which is stated to be according to 1939 plan and which totals (though the total is not stated by Buzyrev) 7.49 billion. Thus, extra-limit investments by sectors are stated to be (in billions of rubles):

Industry	.917
Transport and Communications	.522
Agriculture (excluding collective farm investments)	.823
Trade and Procurement	.413
Cooperatives	.855
Municipal Economy	.517
Social-cultural measures	1.591
Capital repairs to housing by local soviets; capital investments in public health, education, etc.	<u>1.852</u>
Total	7.490

b. Both sources state that extra-limit investments are about 20% of limited (i.e. above- and below-limit) investments. It is true that 7.5 is about 20% of both the 34.7 billion planned for 1939 and the 34.3 billion realized for 1939. But if Voznesensky's 1938-1940 total is correct, the 34.3 billion includes extra-limit expenditures. The explicit exclusions from the planned 1940 figure (note 2 to this table), the separate mention of extra-limit investments in connection with the 1939 planned figure of 34.7 billion rubles (cf. immediately below) and the identity in language describing the planned 1939 and 1940 figures suggest that both figures exclude extra-limit investments.

c. Zoerev states that in 1939 extra-limit investments of 3.2 billion were planned according to the financial plans of departments and excluding cooperatives. (A. G. Zuerev, Gosudarstvennyi bindzhet Soinza SSR na 1939 god - State Budget of the USSR for 1939 - 1939, p. 20). If we take the total planned extra-limit investments for 1939, as given by Buzyrev, and eliminate cooperatives and those departments which have no financial plans (i.e. social-cultural measures, capital repairs to housing by local soviets, etc.), we obtain 3.192 billion rubles as planned extra-limit investments.

I assume, therefore, that the 7.5 billion rubles of extra-limit investments is a planned figure for 1939 and that realized extra-limit investments were, as given by Voznesensky, 5 billion rubles.

Since the Voznesensky 1938-1940 total presumably excludes capital repairs, the question arises as to the coverage of the realized 1938 figure. The realized 1938 figure by implication includes capital repairs and extra-limit investments. There is evidence, however, which contradicts this. Rovinskii states that beginning in 1938 capital repairs are planned and financed separately from capital investments. (Rovinskii et al, Organizatsiia finansirovaniia i kreditovaniia kapital'nykh vlozhenii, pp. 270-1). This statement is repeated by other writers. (Buzyrev, Finansirovaniia i kreditovaniia kapital'nykh vlozhenii, pp. 220-1; A. M. Aleksandrov, Finansy i kredit SSSR -- USSR Finances and Credit - Gosfinizdat 1948, p. 63). The decree of 1938, which established the new arrangements for capital repairs, was promulgated in January, 1938. Soviet statistical practice since 1938 has been to report capital repairs separately from centralized and non-centralized investments.

Furthermore, if we attempt to calculate 1938 investments exclusive of capital repairs and extra-limit investments, we are led to a contradiction. Total investments exclusive of capital repairs and extra-limit investments were 126.8 billion rubles in 1934-1938 and 114.7 billion rubles in 1933-1937. Total investments in 1933 (from table II) exclusive of expenditures for special purposes (but inclusive of cooperative farm investments) were 16.8 billion rubles. We do not know the magnitude of capital repairs in 1933 because they were not reported or financed separately from other investments. Some, indeed, may have been part of expenditures for special purposes. In any case, if we subtract 114.7 from 126.8 and add 16.8 we obtain 28.9 billion rubles for 1938. The difference between this figure and the 35.7 billion ruble figure for 1938 is almost exactly the magnitude of extra-limit investment for 1938. If the realized 1938 figure did include capital repairs, then capital repairs included in the 1933 figure of 16.8 would have to be the same as capital repairs in 1938. Since most of the fixed capital existing in 1933 had been built during the First Five Year Plan, and since 1938 was a year in which financial provision for capital repairs had been sharply increased, this is manifestly impossible.

The magnitude of the difference between 1933-1937 investments inclusive and exclusive of extra-limit investments and capital repairs was 22.8 billion rubles. It should be recalled (a) that expenditures for special purposes also are included in the 137.5 figure and excluded from the 114.7 figure for 1933-1937; and (b) that expenditures for special purposes seem to resemble capital repairs and extra-limit investments. (Cf. table II, note 7). If we recall the magnitudes of known exclusions from the 114.7 figure, we will see that it is quite possible that only, or not much more than, the stated 1.3 billion rubles of expenditures for special purposes were excluded from 1933 investments to obtain the 1933 component of the 1933-1937 total of 114.7 billion rubles. Thus, extra-limit investments and capital repairs only (i.e. apart from any expenditures for special purposes) were 6.7 billion rubles in 1937. The magnitude of the exclusions was probably greater in 1936 than in 1937 (judging from the magnitude of total investments). The years 1936 and 1937, thus, may have accounted for 14-15 billion of the total 1933-1937 difference of 22.8 billion. Since expenditures for special purposes were 1.3 billion in 1933 and 1.7 billion in 1934, this would leave 5-6 billion

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rubles to be accounted for by the 1935 exclusions. It seems quite possible, therefore, that the 1933 component of the 1933-1937 total of 114.7 billion rubles was about 16.8 billion rubles, i.e. excluded only expenditures for special purposes in 1933.

I conclude that the realized 1938 figure excludes capital repairs and that the realized 1938-1940 data are as follows (in billions of rubles):

	<u>Total investments (Including extra-limit investments and ex- cluding capital repairs)</u>	<u>Extra-limit Investments</u>
1938	35.7	6.5
1939	34.3	5
1940	<u>38</u>	<u>6</u>
	108	17.5

One question remains -- the reconciliation of the realized and planned figures for 1938-1940. Planned investments are:

1938	35.8
1939	34.7
1940	36.1

We have already argued (above, this note), on the basis of the explicit exclusions from the planned 1940 figure, the separate mention of extra-limit investments in connection with the planned 1939 figure, and the identity in language describing the planned 1939 and 1940 figures, that both exclude extra-limit investments. It also seems evident, on the basis of the explicit exclusions from the planned 1940 figure and the post-1937 practice with respect to capital repairs, that all three planned figures exclude capital repairs.

Despite the identity in language between the planned 1938 figure, on the one hand, and the planned 1939 and 1940 figures, on the other, I believe that the planned 1938 figure includes extra-limit investments. My reasons are as follows:

(a) There was no mention of a separate figure for extra-limit investments in connection with the planned 1938 figure.

(b) There is a close correspondence between planned and realized 1938 investments. Since we have no reason to suspect poor plan fulfillment in 1938 and since we have already argued that realized 1938 investments include extra-limit investments and exclude capital repairs (above this note), the correspondence suggests that planned 1938 investments also include extra-limit investments.

(c) Third Five Year Plan (p. 26) states the following investments:

	1937	Plan 1942 (in 1936 prices)	Plan 1938-1942
Capital investments (including capital repairs & excluding extra-limit investments)	30.2	50.0	213.8
Capital investments (excluding capital repairs & extra-limit investments)	26.5	41.5	181.0

If we interpolate linearly between 1937 and plan 1942, we obtain:

	1937	Plan 1938	Plan 1939	Plan 1940	Plan 1941	Plan 1942
Capital investments (including capital repairs & excluding extra-limit investments)	30.2	34.2	38.2	42.2	46.2	50.0
Capital investments (excluding capital repairs & extra-limit investments)	26.5	29.5	32.5	35.5	38.5	41.5

It should be noted: (1) that Third Five Year Plan was published in 1939 and, therefore, should be fairly close to the 1938 and 1939 annual plans; (2) that the result of our linear-interpolations for plan 1939 is a planned capital repairs figure of 5.7 billion which corresponds to the planned 1939 capital repairs figure of 5.8 billion stated elsewhere by Third Five Year Plan (p. 115); (3) that the total of the interpolated figures and the planned 1942 figure corresponds closely to the Third Five Year Plan totals; and (4) that such linear interpolations seem to be consistent with the planned annual developments under the previous Five Year Plans. The point of this calculation is that the planned 1938 and planned 1939 figures exclusive of capital repairs and extra-limit investments correspond fairly closely to the stated 1938 and 1939 planned figures on the assumptions we have made about the latter. If we assume that the planned 1938 figure of 35.8 billion rubles excludes extra-limit investments (as well as capital repairs) and that the amounts of planned and realized extra-limit investments were equal (i.e. 6.5 billion rubles), we obtain 29.3 billion rubles as planned 1938 investments exclusive of extra-limit investments and capital repairs. The interpolated figure from Third Five Year Plan is 29.5 billion rubles. Again, the stated 1939 plan figure of 34.7 billion rubles and the interpolated 1939 plan figure of 32.5 billion rubles seem close enough to be consistent with the assumption that the 34.7 billion rubles exclude extra-limit investments and capital repairs, especially if we recall that planned extra-limit investments were 7.5 billion in 1939.

The close correspondence between the planned and realized 1939 figures suggests either that the planned 1939 figure includes extra-limit investments or that the 1939 plan was significantly underfulfilled. In part, the correspondence may be accidental. The realized 1939 figure was obtained as a residual from the Voznesensky 1938-1940 total with, therefore, any errors reflected in this figure. In any case, there is reason to expect that the 1939 investment plan would be underfulfilled and some evidence that this is so.

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(a) In 1939, the war in Europe began and the Finnish-Russian war occurred. Budget defense expenditures increased sharply in 1939 as against 1938 and as against the 1937-1938 increase. Thus, defense expenditures were (in billions of rubles):

<u>1937</u>	<u>1938</u>	<u>1939</u>	<u>1940</u>
17.5	23.2	39.2	56.7

(Plotnikov, Bindzhet Sotsialisticheskogo gosudarstva, pp. 147, 216). The occurrence of a "local" war and the increased preparation for a probable future war might account for underfulfillment of the investment plan.

(b) It is stated that the volume of capital work planned for 1940 at 36.1 billion rubles (which excludes extra-limit investments) is 115% of the amount of capital work realized in 1939. (A. G. Zverev, "On the State Budget of the USSR for 1940 and Fulfillment of the USSR State Budget for 1938", Sovetskie finansi, 1940 No. 1-2, pp. 17-18). Thus, the realized figure for 1939 would be 31.4 billion rubles. Our assumptions led to a figure of 29.3 billion rubles exclusive of extra-limit investments. It is possible that the difference is accounted for by price differences - namely, that the 29.3 billion ruble figure is in 1936-7 prices and the 31.4 figure is in current prices. This implies a 7% price increase from 1936-7 to 1939. In any case, the suspicion of underfulfillment of the 1939 investment plan seems justified.

(c) It is known that the investment plan with respect to agriculture was underfulfilled in 1939 (note 6, table VIII) and that economic organizations in 1939 failed to achieve the planned amount of profits (Zverev, Gosudarstvennye bindzhety SSSR 1938-1945, p. 78).

In summary, our argument leads to the following picture of planned and realized investments in 1938-1940:

		<u>Total Investments</u>	
	<u>Extra-limit investments</u>	<u>Exclusive of capital repairs and extra-limit investments</u>	<u>Exclusive of capital repairs; inclusive of extra-limit investments</u>
Planned 1938	-	-	35.8
Realized 1938	6.5	29.2	35.7
Planned 1939	7.5	34.7	42.2
Realized 1939	5	29.3	34.3
Planned 1940	-	36.1	-
Realized 1940	6	32	38

It is obvious that the argument of this note has large elements of conjecture in it. The 1938-1940 totals may be taken to be firm, but the determination of the annual figures is based on a number of assumptions any of which could be wrong. There are undoubtedly other explanations for the 1938-1940 data which could not be refuted and which lead to somewhat different conclusions.



One point, in particular, has played little part in this discussion -- namely, the problem of the prices in which the data are stated. The language used in describing the 1938-1940 total, the planned annual figures and the realized 1940 figure -- the "volume" of capital work -- suggests that these are in 1936-7 prices (note 1, this table; note 7, table I). The realized 1938 figure, however, seems to be in 1938 prices since it is obtained from data all of which are stated in prices of the respective years. It is probably true that 1938 prices did not differ substantially from 1936-7 prices; on the assumption that the rest of the data are in 1936-7 prices and to the extent that 1938 prices were higher than 1936-7 prices, the realized 1939 figure would be understated.

On the basis of the language used in describing the stated figures for this period and on the basis of the assumption that 1938 prices were not substantially different from 1936-37 prices, we assume that all the 1938-40 data are in 1936-7 prices. It is certainly possible: (a) that we have been misled by the language and all the 1938-1940 data are in prices of the respective years; or (b) that some of the figures are in 1936-7 prices and others are in current prices.

Some rough calculations indicate that prices rose by something like 10% between 1936-7 and 1940, (note 1, this table). Thus, the error involved in assuming 1936-7 prices if the data are actually in current prices is not substantial. The figures for extra-limit investments for these years have been associated by Soviet sources with the stated investment figures; no errors therefore, occur in the proportion of extra-limit to centralized investments from the assumption that all data are in 1936-7 prices. On the other hand the estimates of collective farm investments are interpolations of data in current prices (table VII, note 10) and the estimates of capital repairs are based on data in the same prices as planned 1938-1940 investments (Table VII, note 7). Thus, if all the data are in 1936-7 prices, we have overestimated the proportion of collective farms' money investments from their own resources. If the planned data are in 1936-7 prices and the realized data are in current prices, we may have underestimated the proportion of capital repairs.

It should also be noted that another source states planned 1938 investments to be 38.5 billion rubles (table X). Since Soviet plans are often changed in the course of the year it is assumed in the absence of other information that the 38.5 figure represents another version of the 1938 plan.

4. In The Economy of the USSR During World War II, (p. 6) Voznesensky states that capital investments in 1940 were almost 43 billion rubles as against 30 billion in 1937, 18 billion in 1932 and 3.7 billion in 1928. The only way I can explain this 1940 figure as against the previously stated 38 billion rubles for 1940, is to assume that the 43 billion includes collective farms' capital investments. The magnitude of the discrepancy between Voznesensky's two 1940 figures seems, on this explanation, to be about right. (Cf. table VII and note 10; cf. also note 5 to table V for an instance of similar unexplained discrepancies.)

5. Let us attempt to estimate the realized 1941 figure. The realized figure for 3½ years of the Third Five Year Plan is 130 billion rubles. (Cf. table I). Subtracting from this the Voznesensky 1938-40 total of 108 billion

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rubles, we obtain 22 billion rubles as the realized figure for the first half of 1941. Since both the 108 and 130 figure are presumably in 1936-7 prices, (table I, note 7) the difference is also presumably in 1936-7 prices. This seems about right (i.e. the two figures of 108 and 130 billion seem to have the same coverage) in view of the well-known seasonality of Soviet plan fulfillment experience.

Rovinskii states that "for the four war years" capital investments were 94.6 billion (Rovinskii et al, Organizatsiia finansirovaniia i kreditovaniia kapital'nykh vlozhanii, p. 16). The time span of this data is very probably July 1941 - June 1945; other sources relate this figure to "the years of the Patriotic War (1941-1945)". (Cf. K. Plotnikov "Finances and the Development of the Socialist National Economy", Sovetskie finansy, 1947 No. 11, p. 5). Total investments for 1942-1945 (from the present table) were:

1942	18.6
1943	19.5
1944	29.0
1945	36.3

Assuming that the first half year 1945 bears the same proportion to total 1945 as the first half year 1941 to total 1941 (i.e. 22/57 or 39%), we obtain for the first half year 1945 total investments of 14.2 billion rubles. Subtracting from 94.6 billion rubles total investments in 1942-1944 and the first half of 1945, we obtain 13.3 billion rubles as total investment for the second half of 1941. This figure is, presumably, in current prices and should be reduced by something like 10% (cf. note 1 to this table) to get it in 1936-37 prices. Thus, realized investment for 1941 would be 34 billion rubles.

If, on the other hand, we assume that 1/2 the total investments of 1945 occurred in the first half of the year (on the grounds that the end of the war and the reconversion of the economy counteracted the usual seasonal pattern) and repeat the same procedure, we obtain 9.3 billion rubles as second half 1941 investments in current prices, 8.4 billion rubles as second half 1941 investments in 1936-7 prices, and 30.4 billion rubles as realized investments for 1941.

6. Voznesensky states that capital investments in 1942-1944 amounted to 79 billion rubles, "exclusive of the value of evacuated equipment". (The Economy of the USSR During World War II, p. 26). The total indicated in the present table for 1942-44 is 67.1 billion. We have assumed, correctly I think, that extra-limit investments were insignificant during these years (cf. note 2 to this table). It would not be correct to assume, however, that collective farm investments were insignificant during these years. Indeed, in 1944 collective farm investments appeared to be about 6.6 billion rubles (Cf. table VII and note 10; the figure may be somewhat too high). I conclude that the difference between the 79 billion rubles and the 67.1 billion rubles is explained largely if not wholly by the inclusion in the former figure of collective farm investments. If this is true, the amount of collective farm investments in 1942 and 1943 might be estimated at something like 2 billion rubles per year (taking into account the possible overestimate of 1944 collective farm investments).

7. The estimate of investments for 1947 is subject to particular doubt. In view of the tone of complaints about investment plan fulfillment for 1947 (Pravda, February 4, 1948, p. 2) and in view of the Soviet failure to publish a realized figure for 1947, one may conclude that 1947 was probably an unusually bad year. This may very well have taken the form of proportionately fewer investments from enterprises' own resources. (The estimate in the table assumes the same ratio between budget financed investments and investments from enterprises' own resources for planned and realized 1947). Baykov and Barker present the following figures for realized 1947 and planned 1948 investments:

	<u>Total</u> <u>Investments</u>	<u>Investments</u> <u>from the budget</u>
Realized 1947	53.8	44.5
Plan 1948	60.9	54.5

(Alexander Baykov and G. R. Barker, "Financed Developments in the USSR", Bulletin on Soviet Economic Development, Bulletin 3, August 1950, kp. 13).

I have checked all the sources cited by Baykov and Barker and find no explicit reference to the 1947 figure for total investments (indeed, I have found no reference anywhere to a realized figure for 1947). The 53.8 billions is presumably derived from the statement that the "volume of capital work" in 1948 was 123% of 1947, since  $66.2/53.8 = 1.23$  (Cf. Pravda, March 11, 1949, p. 2).

This seems to me to be incorrect, since the percentage almost certainly refers to a comparison in constant prices (cf. note 1, this table).

The 60.9 billions planned for 1948 is clearly described as "allowances from the state budget for capital construction". (Pravda, February 1, 1948, p. 2). There is, however, an additional statement in Pravda (February 5, 1948, p. 5) which says: "From the state budget in 1948 will be granted for capital investments 10 billion rubles more than there was in 1947" ("iz gosudarstvennogo bindzheta v 1948g. budet vydeleno na kapitalovlozhenia na 10 mlrd. rub. bol'she, chem eto bylo v 1947g."). Baykov and Barker have apparently interpreted this as a comparison of realized 1947 and planned 1948 budget allowances for capital investments (their 54.5 figure appears nowhere explicitly in their sources) and have ignored the clear characterization of the 60.9 figure. My Russian is too inexpert to make me certain of the nuances of Soviet statements, but it seems to me that the quoted statement may refer to a comparison between planned budget allowances and realized total investments, which is stated ambiguously so as to veil a bad 1947 fulfillment figure. In other words, it may be that total investments in 1947 were not more than 50.9 billion rubles. In any case, the indicated ambiguity should not go without comment.

TABLE VII: EXTRA-LIMIT INVESTMENTS, CAPITAL REPAIRS AND COLLECTIVE FARM INVESTMENTS, 1929-1951  
(In billions of rubles)

	Capital Repairs			Extra-Limit Investments and Capital Repairs (4)=(1)+(2)	Collective Farm Investments		
	Extra-Limit Investments (1)	Total (2)	From Amortization Allowances (3)		Money Expenditures (5)	Total (Incl. Labor Part.) From own Resources (6)	Loans to Collective Farms (7)
1929							
1930						.170 <sup>b</sup>	
1931						.385 <sup>b</sup>	
1932					.9 <sup>t</sup>	.515 <sup>t</sup>	
1928/9-1932						1.126 <sup>p</sup>	1.418 <sup>d</sup>
1929-1933						2.690 <sup>q</sup>	
(In 1933 Prices) Plan 1933-1937						5.000 <sup>p</sup>	
1933					(1.3) <sup>u</sup>	1.312 <sup>b</sup>	
1934					(1.7) <sup>u</sup>	1.523 <sup>b</sup>	
1935					2.1 <sup>l</sup>		
1936	1.9 <sup>a</sup>				2.3 <sup>m</sup>		
1937	3.0 <sup>b</sup>	3.7 <sup>b</sup>			2.8 <sup>m</sup>		
1933-1937	9.4 <sup>b</sup>	13.4 <sup>b</sup>		22.816 <sup>k</sup>	7.5 <sup>n</sup>	13.4 <sup>r</sup>	2.621 <sup>d</sup>
1934-1938				28.340 <sup>k</sup>		15.452 <sup>q</sup>	
(In 1936 Prices) Plan 1938-1942	30.5 <sup>c</sup>	32.8 <sup>o</sup>	26 <sup>c</sup>		14.7 <sup>c</sup>	24 <sup>r</sup>	6 <sup>y</sup>
Plan 1938							
1938	6.5 <sup>d</sup>	(5.0) <sup>v</sup>			(3.9) <sup>u</sup>		.867 <sup>d</sup>
Plan 1939							
1939	7.5 <sup>d</sup>	5.8 <sup>r</sup>	4.2 <sup>h</sup>				
1939	5 <sup>e</sup>	(5.8) <sup>v</sup>			(4.7) <sup>u</sup>		.993 <sup>d</sup>
Plan 1940							
1940	4.8 <sup>f</sup>	6.6 <sup>f</sup>	5.2 <sup>f</sup>				
1940	6 <sup>g</sup>	(6.6) <sup>v</sup>			5.5 <sup>l</sup>		1.095 <sup>d</sup>
1938-1940	17.5 <sup>g</sup>						
Plan 1941							
1941	8.9 <sup>d</sup>	7.3 <sup>j</sup>	5.5 <sup>j</sup>		(6.3) <sup>x</sup>		
1941	(5) <sup>w</sup>	(4) <sup>v</sup>			(3) <sup>x</sup>		
1942	(0) <sup>w</sup>	(1.5) <sup>v</sup>			(2) <sup>x</sup>		
1943	(0) <sup>w</sup>	(2) <sup>v</sup>			(2) <sup>x</sup>		
1944	(0) <sup>w</sup>	(5.0) <sup>v</sup>			6.5 <sup>l</sup>		
1945	(0) <sup>w</sup>	(7) <sup>v</sup>			(6.6) <sup>x</sup>		
(In 1945 Prices) Plan 1946-1950	(45) <sup>w</sup>	(50) <sup>v</sup>				38 <sup>s</sup>	
1946	(6.5) <sup>w</sup>	(9.3) <sup>v</sup>			7 <sup>o</sup>		
1947	(8) <sup>w</sup>	(11.6) <sup>v</sup>			7 <sup>o</sup>		(.5) <sup>y</sup>
1948	(12) <sup>w</sup>	(14) <sup>v</sup>			(8) <sup>x</sup>		(.9) <sup>y</sup>
1949		(21) <sup>v</sup>			(10) <sup>x</sup>		(2.7) <sup>y</sup>
1950		26.0 <sup>l</sup>			(11) <sup>x</sup>		(3.8) <sup>y</sup>
Plan 1951		29.4 <sup>l</sup>			(12) <sup>x</sup>		3.5 <sup>l</sup>

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## SOURCES:

- a. A. Smilga, "Finances of the Socialist State," Problemy ekonomiki, 1937, No. 2, p. 118.
- b. Obtained from the following information (Granovskii and Markus, Ekonomika sotsialisticheskoi promyshlennosti, p. 533; Third Five Year Plan, p. 26; Second Five Year Plan Fulfillment p. 71):

	1937	1933-1937
Total Investments, including Capital Repairs and Extra-Limit Investments.	33.2	137.5
Total Investments, including Capital Repairs but excluding Extra-Limit Investments.	30.2	128.1
Total Investments, excluding Capital Repairs and Extra-Limit Investments.	26.5	114.7

- c. Third Five Year Plan, pp. 116, 120. The statements are: (1) that the total amount of extra-limit investments planned for 1938-1942 is 45.2 billion rubles, which include 14.7 billion rubles of money expenditures on fixed capital by collective farms; and (2) that 32.8 billion rubles of capital repairs were planned above the indicated volume of capital work, including 26 billion rubles from amortization allowances.
- d. V. K. Buzyrev, Finansirovanie i kreditovanie kapital'nykh vlozhenii (Capital Investment Finances and Loans), 1941, pp. 169, 212. Cf. also note 3, table VI on the extra-limit investment data and note 12 to this table on the loans to collective farms data.
- e. Obtained by subtracting realized 1938 and 1940 from realized 1938-1940. Cf. also note 3, table VI.
- f. A. G. Zverev, State Budgets of the USSR 1938-1945, p. 79. The 1940 extra-limit investments probably exclude some elements of extra-limit investments (cf. note 3 to this table).
- g. N. Voznesensky, The Growing Prosperity of the Soviet Union, 1941, p. 8. The figures are described as "noncentralized" investments. On the identity between extra-limit investments and noncentralized investment, cf. note 1 to this table.
- h. A. G. Zverev, Gosudarstvennyi biudzhnet soiuza SSR na 1936 god (USSR State Budget for 1939), 1939, p. 20. The statement is that of the total amortization allowances of 7.933 billion, 3.725 billion is to go to capital construction and the rest to capital repairs.
- i. Pravda, March 8, 1951, p. 2. The capital repair figures are presumed to be total capital repairs because of their magnitudes; the 1939 total of amortization allowances, for example, was 7.9 billion.
- j. Pravda, February 26, 1941, p. 3.
- k. Obtained from Table I by subtracting total investments excluding capital repairs and extra-limit investments from total investments including capital repairs and extra-limit investments.

SOURCES (Cont'd):

- l. Obtained by multiplying money investments per collective farm and the number of collective farms for the indicated years. The source of the first series is: N. Anisimov, Sel'skoe khoziaistvo v novoi stalinskoi piatiletke (Agriculture in the New Stalin Five Year Plan), 1946, p. 13. The source of the second series is: O. D. Shepilov, "The Collective Farm Structure of the USSR," Problemy ekonomiki, 1941, No. 1, p. 35. The number of collective farms for 1944 was estimated. Cf. note 10 to this table for details and checks.
- m. M. Nesnii, "Capital Investments of Collective Farms and the Agricultural Bank," Sotsialisticheskaiia rekonstruktsiia sel'skogo khoziaistva, 1938, No. 1, p. 36.
- n. K. Plotnikov, Budzhzet sotsialisticheskogo gosudarstva (Budget of the Socialist State), 1948, p. 138.
- o. Kovinskii, et al., Organizatsiia finansirovaniia i kreditovaniia kapital'nykh vložhenii, p. 19. The statement is that capital investments of collective farms, excluding labor participation of collective farm members, were 14 billion rubles for 1946-1947. The total was arbitrarily halved to obtain annual amounts.
- p. Second Five Year Plan, pp. 558, 559.
- q. Socialist Construction 1933-38, pp. 113, 115.
- r. Third Five Year Plan, pp. 115, 119. It should be noted, in connection with the capital repairs figure, that Third Five Year Plan was published in 1939.
- s. Fourth Five Year Plan, p. 38.
- t. Socialist Construction 1936, pp. 346-7.
- u. Interpolated linearly. Cf. note 9 to this table for details.
- v. Estimated; cf. note 7 to this table for details. The very rough nature of the post-war estimates should be noted.
- w. Estimated; cf. note 6 to this table for details. The very rough nature of these estimates should be noted.
- x. Estimated; cf. note 10 to this table for details. The very rough nature of these estimates should be noted.
- y. S. Ermilov, "Long-term Loans to Collective Farms and Tasks of the Agricultural Bank," Sovetskie finansy, 1940, No. 1-2, p. 56. It is possible that not all of this sum is to be directed to investments in fixed capita. Cf. note 12 to this table.

## NOTES TO TABLE VII

1. The components of noncentralized investments are, by Soviet definition, those which are undertaken by decentralized decision. Thus, in principle, the components of non-centralized investments are: (a) extra-limit investments; and (b) collective farm investments. (Cf. above, pp. 29-33). In Soviet statistics, however, the category of non-centralized investments is less inclusive:

a. Since 1938, capital repairs are planned separately from capital investments; and since 1938, capital repairs are reported separately, and in addition to, total (centralized and non-centralized) investments. (Cf.: Rovinski et al, Organizatsiia finansirovaniia i kreditovaniia kapital'nykh vozhenii, pp.270-1; R'lachkov and Kiparisov, Uchet kapital'nogo stroitel'stva, p.6; Slovar'-spravochnik po sotsial'no-ekonomicheskoi statistike, p.250; Third Five Year Plan, pp.116,120; Zverev, State Budgets of the USSR 1928-1945, p.79; 1941 Plan, pp.483-509; A. M. Aleksandrov, Finansy i kredit SSSR - Finances and Credit of the USSR - 1948, p.62; Pravda, March 8, 1951, p.2). The reason for separate treatment presumably lies in the organizationally separate arrangements for capital repairs (cf. above, pp. 20-22,26).

b. All the data examined, including data prior to the 1935 decree which established extra-limit investments, state collective farm investments separately from, and in addition to, total investments; similarly, all the data examined state collective farm investments separately from, and in addition to, extra-limit investments. (Cf: Table I and notes 3-5; Table II and note 4; Table III, note 1; Buzyrev, Capital Investment Finances and Loans, p.212; Zverev, State Budget of the USSR for 1929, p.20; A. Smilga, "Finances of the Socialist State", p.118). The reason presumably lies in the "cooperative" (as vs. state) ownership of productive resources in collective farms. In a number of cases, state aid to collective farms via Agricultural Bank loans is included in total investments, exclusive of collective farms' investments from their own resources. (Cf: Table I and notes 3-5; Table II. Cf. Table VII, notes 9 and 10, for the treatment of this factor in our estimates of collective farms' investments).

If we except marginal items like extra-limit investments which must be approved by the Ministry and, in some cases, Agricultural Bank loans to collective farms, the conclusion is that in Soviet statistical practice non-centralized investments and extra-limit investments (exclusive of collective farm investments) are identical. Soviet terminological practice has at least once confirmed this conclusion. In 1941, planned centralized investments were 48 billion rubles. An additional 9 billion rubles of investments have been described both as noncentralized investments (Voznesensky, The Growing Prosperity of the Soviet Union, p.33) and as extra-limit investments (Buzyrev, Capital Investment Finances and Loans, p.212).

Accordingly, reported noncentralized investments are regarded as identical with extra-limit investments and, in order to determine total investments, capital repairs and collective farm investments must be added to centralized and noncentralized investments.

2. It is possible to obtain a sector breakdown of extra-limit investments for only two years - 1937 and 1939. In these years planned extra-limit investments in the indicated sectors of the economy were as follows:

	1937		1939	
	Billions of Rubles	% of Total	Billions of Rubles	% of Total
I. Industry	.3	11.5	.9	12.0
II. Agriculture (exclusive of collective farms)	.5	19.2	.8	10.7
III. Transport and Communications	.1	3.8	.5	6.7
IV. Trade and Procurement	.1	3.8	.4	5.3
V. Cooperatives (producers' and consumers')	.4	15.4	.9	12.0
VI. Other (Municipal economy, housing, education, public health)	1.2	46.2	4.0	53.3
Total	2.6	100.0	7.5	100.0

(A. Smilga, "Finances of the Socialist State", Problemy ekonomiki, 1937 No. 2, p.112; Buzyrev, op. cit. p.212).

Probably little violence would be done to reality if the extra-limit investments of cooperatives were considered as investments in industry. As an indicator of the relative importance of producers' cooperatives we may cite the distribution of Bank of Commerce long-term loans to cooperatives (in billions of rubles):

	1933-1937	1938	1939	1940
Producers' cooperatives	1.66	.63	.79	.92
Consumers' cooperatives	.81	.07	.08	.07
Total	2.47	.70	.87	.99

(Buzyrev, op. cit., p.139).

Let us compare the sector breakdown of planned 1939 investments inclusive and exclusive of extra-limit investments (cf. Table IX and note 1).

	Investments, Extra-limit Investments		Investments	
	Excl. extra-limit	Incl. extra-limit	Excl. extra	Incl. extra
	(billions of rubles)		(% of total)	
I. Industry	17.6	1.8	19.4	50.6
II. Agriculture	1.6	.8	2.4	4.6
III. Transport & Communications	5.0	.5	5.5	14.3
IV. Trade & Procurement	.5	.4	.9	2.1
V. Social-cultural & Administration	10.1	4.0	14.1	29.1
Total	34.8	7.5	42.3	33.3

The inclusion of extra-limit investments, thus, reduces the relative importance of industry and transport and communications, and increases the relative importance of the other sectors, especially of social-cultural and administration.



Since industry in Fourth Five Year Plan centralized investments represents 63% of total centralized investments the extrapolation of pre-war sector breakdowns of extra-limit investments would even more materially affect the sector breakdown of post-war total (i.e. including extra-limit) investments.

It is probably true that the pre-war breakdown of extra-limit investments is inapplicable to the post-war situation. A decree of January, 1941, widened the range of measures admissible as extra-limit investments. Thus, Buzyrev states: "The 1941 national economic plan permits ministries, departments, and the republic councils of ministers to undertake in addition in 1941 as extra-limit investments a series of measures and expenditures the majority of which were earlier limited investments". (Buzyrev, Finansirovanie i kreditovanie kapital'nykh vlozhenii, p.211). While no indications of the relative importance of these measures are given, I judge from the list of measures and from Smilga's characterization of earlier extra-limit investments that the roles of industry and transport and perhaps also of agriculture in extra-limit investments were intended to increase and the role of the social-cultural and administration sector to decrease. Buzyrev lists the new measures as follows: (a) Investments for the extraction and the drying of peat; (b) The acquisition and installation of equipment for operating shops and enterprises; (c) The acquisition of automobiles by the ministries of automobile transport and of trolleys and trolley busses for urban transport; (d) Geological, prospecting, design and research work for future construction; (e) The construction of economic structures in state farms, machine tractor stations and other agricultural enterprises, and also the construction of local state farms and the acquisition of machinery and equipment for them; (f) The construction of stores, warehouses, and other accommodations by trade organizations; (g) Excavation, drainage and levelling work; (h) Irrigation and land improvement work with the participation of collective farms; (i) The construction of roads of republic and local importance; (j) The construction of rural hospitals and schools; (k) Small wooden ship building; (l) The construction of movie theatres; (m) The construction of intra-regional telephone, telegraph and radio systems; (n) The construction of garages and repair shops by the ministries of automobile transport; (o) The acquisition of urban sanitation equipment; and (p) Capital repairs to plants and buildings. Thus, Buzyrev concludes, "beginning with 1941, the range of extra-limit investments will expand significantly in comparison with those established by the USSR Council of Ministers decree of Sept. 19, 1935". (Buzyrev, op. cit., p.211 and footnote 1, p.211).

No post-war data on the sector breakdown of extra-limit investments are available. If an expansion of the roles of industry, transport and perhaps agriculture is a correct interpretation of the 1941 change and if this tendency, interrupted by the war, was resumed in the post-war period, then extrapolations of the 1937 and 1939 sector breakdowns of extra-limit investments will understate the post-war role of industry, transport and agriculture. In this connection, it is of interest to examine the sector breakdowns of 1948 and planned 1949 investments because the former presumably exclude, and the latter include, extra-limit investments (cf. Table VI, note 2). These breakdowns are (in percentages of total investments):

	<u>1948</u>	<u>Planned 1949</u>
I. Industry	70.1	68.4
II. Agriculture	6.5	8.7
III. Transport and Communications	13.6	12.8
IV. Trade and Procurement	1.3	.9
V. Social-cultural and Administration	<u>8.5</u>	<u>9.1</u>
Total	100	100

The direction of the changes between 1943 and planned 1949 investments are identical with the changes noted for 1939 investments when extra-limit investments are added to centralized investments (except for trade and procurement). The magnitude of the changes (in percentage points) between 1943 and planned 1949 investments is less for industry, transport and communications, and social-cultural and administration than in 1939. Thus, the results are not inconsistent with the hypothesis that in the post-war period the roles of industry, transport and agriculture in extra-limit investments have increased and that inclusion or exclusion of extra-limit investments will leave the sector breakdown of investments virtually unaffected.

On the other hand, we cannot rule out the possibility that the observed results are due to an offset between the inclusion of extra-limit investments and changes in the sector breakdown of centralized investments between the two years.

3. It is believed that the planned 1940 extra-limit investments are not comprehensive. The belief arises from a comparison of the figure with contiguous years. In 1939 planned extra-limit investments were 7.5 billion rubles. The figure presented by Zverev for 1939, however, was only 3.2 billion; this figure was stated to be exclusive of cooperatives and collective farms and inclusive only of investments provided for by the financial plans of departments (Table VI, note 3). The 4.8 figure, also stated by Zverev, is unqualified. My suspicion is that its exclusions and inclusions may be the same as those for the 3.2 figure; the total extra-limit investments (excluding collective farm investments) planned for 1939 may, thus, have been something like 8-9 billion rubles. The figure for 1941 is stated to include extra-limit investments by state economic organizations and "cultural" institutions of union republic and local jurisdiction, i.e. excluding cooperatives and collective farms. (Buzyrev, *op. cit.*, p.212). Cooperatives' extra-limit investments were probably planned to be 1 - 1.5 billion rubles for 1941. Thus, total extra-limit investments were probably planned to be 10 - 10.5 billion rubles in 1941.

It is likely, also, that the realized extra-limit investments for 1938, 1940, and 1938-40 exclude such investments by producers' and consumers' cooperatives. In the case at least of producers' cooperatives virtually all of their investments are extra-limit. (A. Lushchitskii, "The Bank of Commerce and Extra-Limit Investments", *Sovetskie finansy*, 1940 No. 4, p.39).

4. The amount of extra-limit investments financed from the budget is not insignificant. The amounts planned from the budget were 1.6 billion in 1937, 2.2 billion in 1939, 3.4 billion in 1940, 6 billion in 1941. (Smilga, *op. cit.*, p.113; Zverev, *State Budgets of the USSR 1938-1945*, pp.51, 79; Buzyrev, *op. cit.*, p.212). On the Soviet statements that extra-limit

investments are outside the plan of capital work, the appropriation of budget funds for such investments reflects a surprising affection for market processes.

5. Extra-limit investments are certainly not all small investments. In 1939, 40% of the total extra-limit investments were from investment bank (as against State Bank) accounts; that is, 40% of the extra-limit investment projects cost 100,000 rubles or more. (Lushchitskii, op. cit., p.39). The first year in which extra-limit investments appear is 1936. It is possible that the stated figure for 1936 extra-limit investments is an understatement. Some of "expenditures for special purposes" may have been an antecedent of extra-limit investments. (Cf. Table II, note 7).

6. Extra-limit investments in comparison with centralized investments were as follows (in billions of rubles):

	Centralized investments	Extra-limit investments	Extra-limit investments Centralized investments
1937 (source b to present table)	26.5	3.0	11.3%
1933-1937 (source b to present table)	114.7	9.4	8.2%
Plan 1938-1942 (Table I & source to present table)	181.0	30.5	16.9%
1933 (Table VI & note 3)	29.2	6.5	22.3%
Plan 1939 (Table VI & note 3)	34.7	7.5	21.6%
1939 (Table VI & note 3)	29.3	5	17.1%
Plan 1940 (Table VI & note 3, note 3, to present table)	36.1	4.8-9	13.3-24.9%
1940 (Table VI & note 3)	32	6	18.8%
1936-1940 (Table VI & note 3)	90.5	17.5	19.3%
Plan 1941 (Table VIII & note 16; note 3 to present table)	48	9-10.5	18.8-21.9%

Thus, in the years following the Second Five Year Plan, extra-limit investments were something like 17-22% of centralized investments. In the years of the Second Five Year Plan, in the last half of which extra-limit investments as such were established, extra-limit investments were something like 8-11% of centralized investments.

Extra-limit investments in 1941 may be assumed to bear the same ratio to planned extra-limit investments as realized investments bear to planned investments, i.e. something like 5 billion rubles in 1936-7 prices. In the war years, extra-limit investments may be presumed to be virtually zero (cf. Table VI, note 2). In the post-war years no data on the magnitude of extra-limit investments are available. In order to arrive at (highly tentative) estimates of the amount of extra-limit investments, we might apply the pre-war percentages to the post-war amounts of centralized investments. Let us use 18% for the Fourth Five Year Plan, 10% for 1946 on the grounds that decentralized investment choice was just getting started after the wartime restrictions, 15% for 1947 on the grounds that this was a relatively bad

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year and 13% for 1948. (Extra-limit investments are included in the published figures for 1949-1951). This results in the following figures for extra-limit investments (in billions of rubles):

Plan 1946-1950	45
1946	6.5
1947	8
1948	12

It is, of course, impossible to know how far from the truth these figures may be. There are, however, some bits of evidence which tend to support these magnitudes.

a. It is stated (Fourth Five Year Plan, p.54) that 1946-1950 housing construction is planned to be 14.5% of the total volume of capital work. Housing construction in 1946-1950 was planned to be 42.3 billion rubles exclusive of individual housing construction. It is observed that 42.3 is more than 14.5% of the planned 1946-1950 total of centralized investments. If we add the estimated 45 billion rubles extra-limit investments to the 250.3 billion rubles of centralized investments, we observe that housing construction turns out to be 14.3% of total investments.

The same source states that Third Five Year Plan housing construction was to be 10.5% of the total volume of capital work (Fourth Five Year Plan, p.54). The figure given by Third Five Year Plan (p.137) for housing construction is 22.1 billion rubles, which is precisely 10.5% of total centralized and non-centralized investments (211.5 billion rubles) for the Third Five Year Plan. It should be noted, however, that Fourth Five Year Plan (p.54) gives a figure of 15.5 billion rubles for Third Five Year Plan housing construction. The difference between the two figures seems to be that the 22.1 billion figure includes extra-limit investments in housing, and capital repairs to housing. (Table XII, note 17). Since 15.5 billion rubles is significantly less than 10.5% of even centralized investments, I assume that Fourth Five Year Plan is making the comparison with the 22.1 figure.

b. Maslakov states that extra-limit investments in the housing-municipal economy planned for 1948 were 2.6 billion rubles from the financial plans of republic and local housing-municipal organizations. (V. P. Maslakov, M. L. Filatov and V. V. Barmin, Finansirovanie zhilishchno-kommunal'nogo khoziaistva - Financing the Housing-Municipal Economy - 1948, p.31). The total figure for extra-limit investments in the housing-municipal economy was apparently larger than this. Maslakov indicates the following financial sources, in addition to financial plans, for extra-limit investments: (a) mobilization of internal resources; (b) above-plan accumulations; (c) special funds for housing repairs; (d) insurance funds; (e) bank loans; (f) budget grants; (g) and sewage taxes. These additional sources are probably not small in relation to the 2.6 billion rubles. In 1939 extra-limit investments provided for by the financial plans were about 40% of total extra-limit investments (Table VI, note 3). To be conservative, let us assume that total extra-limit investments in the housing-municipal economy were to be 4-5 billion rubles in 1948.

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In 1937, extra-limit investments in the housing-municipal economy were planned to be about 1/3 of the total extra-limit investments. (A. Smilga, "Finances of the Socialist State", Problemy ekonomiki, 1937 No. 2, p.118). In 1939, extra-limit investments in the municipal economy were planned to be 517 million rubles, and in housing, public health and education 1852 million rubles. (V. M. Buzryev, Finansirovanie i kreditovanie kapital'nykh vlozhenii, p.212). If we assume that 1500 million rubles of the latter figure represent extra-limit investments in housing, we conclude that in 1939 extra-limit investments in the housing-municipal economy were planned to be about 30% of total extra-limit investments. If we have correctly interpreted the 1941 changes (cf. note 2 to this table), and if this tendency persisted in post-war extra-limit investments, the percentages may even have been less for 1948.

In view of these calculations, our estimate of 1948 extra-limit investments seems to be reasonable.

7. It is the purpose of this note to arrive, with virtually no data, at annual estimates of capital repairs for 1938-1950.

The amount of capital repairs normally depends not on the volume of current investment but on the age of the stock of fixed capital. Thus, in the planned figures for 1939-1941 we see a steady increase in the amount of capital repairs without the sharp increase observed for total investments in 1941. For the pre-war years we will take planned figures as realized figures (except, of course, for 1941) and project backwards to obtain 5 billion rubles as 1933 capital repairs. In comparing 1937 and estimated 1933 capital repairs it should be remembered that in 1938 provision for capital repairs from amortization allowances was established in an environment of comments that the pre-1938 expenditures on capital repairs were inadequate (cf. above, p. 20).

We will assume that realized capital repairs for 1941 bear somewhat the same proportion to planned capital repairs as realized investments bear to planned investments, i.e. something like 4 billion rubles in 1936-7 prices.

In 1942-43, capital repairs were sharply reduced; expenditures were 1/2-1/3 of the allowances for capital repairs. In 1944 capital repairs sharply increased and "approached" the pre-war level. (Kantor, Osnovnye fondy i ikh ispol'zovanie, p.77). One might estimate 1944 capital repairs, taking into account a reduced territory for at least part of the year, to be something like 5 billion rubles, 1943 capital repairs to be 2 billion rubles, 1942 capital repairs to be 1.5 billion rubles.

Kantor also states that amortization allowances in industry were about 5 billion rubles of which 2-2½ billion went for capital repairs (op. cit., p.37). The time reference of the statement is not entirely clear but apparently the reference is to the immediately post-war years. Kantor's book was published in 1947. The pre-war magnitudes of amortization allowances in industry were 3.8 billion in 1937 and 4.1 billion in 1939. (V. Sobol, "On the Question of the Evaluation of Fixed Capital", Planovoe khoziaistvo, 1947 No. 4, p.54).

We will assume, therefore, that the 2-2½ billion rubles refer to 1945. In 1941, capital repairs from current and past unexpended amortization allowances in industry were planned to be 3.1 billion rubles, of which .6 billion were to be in defense industry. Total capital repairs were planned to be 7.3 billion. (Cf. Table VIII and note 19). Since the magnitude of unexpended amortization allowances inherited from the 1942-43 years was probably substantial and since this magnitude was very small for 1941 (1941 Plan, p. 502), we guess that total capital repairs were probably about 7 billion rubles in 1945.

For want of a better estimation procedure we assume that Fourth Five Year Plan capital repairs were somewhat higher in proportion to total centralized investments than were Third Five Year Plan capital repairs. In the Third Five Year Plan, the proportion was 18%; in the Fourth Five Year Plan we assume the proportion to be 20%. Thus, 1946-1950 capital repairs are estimated to be in 1945 prices something like 50 billion rubles.

In 1950 capital repairs were 26 billion rubles; in 1951 capital repairs are planned to be 27.4 billion. In 1950 amortization allowances were changed and presumably raised (cf. above, p. 21, footnote 32). We will assume that the change in amortization allowances accounted for a 1.5 billion ruble increase in capital repairs between 1949 and 1950. In addition, let us assume that the observed difference between realized 1950 and planned 1951 capital repairs is also the 1949-1950 difference, net of the change in capital repairs induced by the change in amortization allowances. On this basis, we arrive at a 21 billion ruble figure for 1949 capital repairs.

In 1949 the "removal" of subsidies was reflected in a sharp price increase of perhaps 40-45%. (Cf. Table VI, note 1). Let us reduce the 1949 capital repairs figure by 20% to reflect the change in prices (on the assumption that capital repairs costs did not rise as much as general capital goods). From the result, 17 billion rubles, we subtract about 3 billion rubles (about 80% of the 1949-1950 difference), to account for the secular increase in capital repairs. On this basis we arrive at a 14 billion ruble figure for 1948 capital repairs.

In order to obtain the 1946-1947 capital repairs figures we will interpolate linearly between 7 billion rubles (estimated for 1945) and 14 billion rubles (estimated for 1948).

Thus, we obtain the following capital repairs series for 1938-1950 (in billions of rubles):

	Plan												
1938	1939	1940	1941	1942	1943	1944	1945	1946-1950	1946	1947	1948	1949	1950
5.0	5.3	6.6	1	1.5	2	5	7	50	9.3	11.6	14	21	26

This series is, of course, highly conjectural. The generally higher level of post-war (as vs. pre-war) capital repairs is to be explained by the admitted failure to make adequate capital repairs during the war years and by the consequences of occupation and more intensive utilization of fixed capital during the war.

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Meshalkin presents the following index of the amount of capital repairs financed (1938 = 100):

<u>1938</u>	<u>1940</u>	<u>1946</u>	<u>1947</u>
100	308	450	600

(G. V. Meshalkin, Finansirovanie kapital'nogo remonta osnovnykh sredstv - Financing Capital Repairs of Fixed Assets - 1948, p. 6). The 1940 figure we have used is fairly firm, being derived only from the assumption that planned and realized capital repairs are identical. Meshalkin's index numbers imply that 1938 capital repairs were only 2 billion rubles. This is certainly not so. Capital repairs in 1937 were 3.7 billion rubles. In addition, we know the following expenditures on capital repairs (in millions of rubles):

	<u>1938</u>	<u>1939</u>
Coal industry	224.5	156.7
Ferrous metallurgy	226.8	273.7
Construction materials industry	35.9	97.5
Timber industry	92.2	121.1
Textile industry	188.2	233.3
Light industry	58.3	73.0
Food industry	138.3	184.1
Local industry	64.4	32.2
Producers' cooperatives	61.2	100.8
Total	1090	1282

(Kantor, Osnovnye formy promyshlennosti i ikh ispol'zovanie, p. 53). It is inconceivable that these few industries could account for one half of the total capital repairs in 1938. Furthermore, if we regard these industries as a representative sample of the economy as a whole, our estimate of 1938 capital repairs seems reasonably accurate. For these industries, capital repairs in 1939 were 118% of capital repairs in 1938; in our estimates total capital repairs in 1939 were 116% of total capital repairs in 1938.

I suspect that Meshalkin, or perhaps the printer, has made an error simply in the specification of the base year. If we assume that this is so and express the 1946 and 1947 indices as percentages of 1940, we obtain:

<u>1940</u>	<u>1946</u>	<u>1947</u>
100	146	195

If we express our estimates as percentages of 1940, we obtain:

<u>1940</u>	<u>1946</u>	<u>1947</u>
100	141	176

This by no means can be regarded as confirmation of our estimates. But if Meshalkin's relations between 1947, 1946, and 1940 are correct, it is an indication that our estimates, and particularly the relationships between the early post-war and the pre-war figures, are of the right order of magnitude. If any changes are called for, our immediately post-war estimates should probably be increased.

9. The post-war data on the sector distribution of investments generally exclude extra-limit investments and capital repairs (cf. Table IX and Table XIV and note 2). The problem is: what effect would the addition of these categories have on the sector distribution?

The sector breakdown of extra-limit investments was discussed in note 2 to this table. No data on the sector breakdown of capital repairs are available except for the breakdown of a portion of the total in 1941 Plan (cf. Table VIII). The sector breakdown of total capital repairs is estimated for the 1941 Plan as follows (cf. Table VIII, note 19):

	<u>Billions of rubles</u>	<u>Percent of total</u>
Industry	3.3	44.6
Agriculture	.5	6.8
Transport	2.0	27.0
Communications	.1	1.4
Trade and procurement	.2	2.7
Social-cultural and administration	<u>1.3</u>	<u>17.6</u>
Total	7.4	100

I would expect the sector breakdown of capital repairs in percentage terms to conform pretty closely to the sector breakdown of capital investments especially if the relative sector breakdown of capital investments has not changed substantially over time. Unfortunately, we have no data to test this hypothesis. The best we can do, in order to estimate the effect of capital repairs and extra-limit investments on the sector breakdown of centralized investments, is: (1) to indicate the 1933-1937 and 1934-1938 sector breakdowns of capital repairs and extra-limit investments; and (2) to observe that the inclusion or exclusion of capital repairs and extra-limit investments has not materially affected the relative sector breakdown of capital investments in the period 1933-1938.

Thus, the sector breakdown of capital repairs and extra-limit investments was (from Table 1):

	<u>Capital Repairs and Extra-Limit Investments</u>			
	1933-1937		1934-1938	
	<u>Billions of rubles</u>	<u>Percent of total</u>	<u>Billions of rubles</u>	<u>Percent of total</u>
I. Industry	7.150	31.3	9.329	32.9
II. Agriculture	5.426	23.8	6.263	22.1
III. Transport	4.712	20.7	5.072	17.9
IV. Communications	.174	0.8	.220	0.8
V. Trade and Procurement	1.183	5.2	1.598	5.6
VI. Social-cultural and Administration	<u>4.171</u>	<u>18.3</u>	<u>5.858</u>	<u>20.7</u>
Total	22.816	100	28.340	100



Also from Table I, I compute the following percentages:

	<u>Investments 1933-1937</u>		<u>Investments 1934-1938</u>	
	<u>Excluding capital repairs &amp; extra-limit</u>	<u>Including capital repairs &amp; extra-limit</u>	<u>Excluding capital repairs &amp; extra-limit</u>	<u>Including capital repairs &amp; extra-limit</u>
I. Industry	51.1	47.8	50.2	47.0
II. Agriculture	9.9	12.2	9.0	11.4
III. Transport	18.1	18.5	18.9	18.7
IV. Communications	1.0	1.0	1.0	1.0
V. Trade and Procurement	1.8	2.4	1.7	2.4
VI. Social-Cultural Services and Administration	13.1	13.2	19.2	19.5
Total	100	100	100	100

(The possibility that the 1934-38 totals exclude capital repairs for 1938 has been suggested previously; cf. Table VI, note 3.)

The Third and Fourth Five Year Plan figures for agriculture include part of noncentralized investments (Table I, notes 4 & 5). The corresponding figure (including part but not all of 11 investments in agriculture) for 1933-1937 agriculture is 14.619 billion rubles (Table I, notes 3-5). I will, therefore, perform the following calculations. I will take the difference between 14.619 billion rubles and 11.334 billion rubles and add it (3.285 billion rubles) to total investments in agriculture, exclusive of extra-limit investments and capital repairs. I obtain 121.245 billion rubles (cf. Table I). I will then compare 14.619 as a percentage of 121.245 with the corresponding figures for agricultural and total investments including all extra-limit investments and capital repairs (from Table I). I obtain the following result:

	<u>Investments 1933-1937</u>			
	<u>Excluding extra-limit investments and capital repairs</u>	<u>Including extra-limit investments and capital repairs</u>		
	<u>Billions of rubles</u>	<u>% of total</u>	<u>Billions of rubles</u>	<u>% of total</u>
Agriculture	14.619	12.1	16.760	12.2
Total Investments	121.245	100	137.491	100

If I add collective farm investments to agriculture and to total investments in both cases above, it is obvious that agriculture as a proportion of total investments will not change with the exclusion or inclusion of all extra-limit investments and capital repairs. Since the Third and Fourth Five Year Plan figures for agriculture include part of noncentralized investments and all collective farm investments, I conclude that agriculture as a percentage of total investment for these periods would probably be unaffected by the exclusion or inclusion of all extra-limit investments and capital repairs.

For the post-war period there is little direct information on the effect of extra-limit investments and/or capital repairs on the sector breakdown. A comparison of 1948 and planned 1949 investments hints that the inclusion

or exclusion of extra-limit investments does not materially affect the relative sector distribution of investments (note 2, this table). The 1941 change in extra-limit investments, if I have interpreted it correctly and if it is extrapolatable, tends to support this (note 2, this table). The planned post-war increase in the percentage of centralized investments in industry (Table I) is certainly, in part, a response to war damage and neglect, the sector distribution of capital repairs may be presumed to follow the same tendency. The post-war (and immediately pre-war) increase in the proportion of total agricultural investments represented by collective farm investments (Table I, note 5) reduces the effect of the inclusion or exclusion of extra-limit investments and capital repairs on agriculture.

On balance, I judge that the relative sector distribution of investments in the post-1938 period (cf. Table XIV) would be virtually unchanged by the inclusion or exclusion of capital repairs and extra-limit investments. On the basis of the available information (cf. also note 2 to this table), I would expect at most a 2-3 percentage point decrease in industry, a 2-3 percentage point increase in social-cultural services and administration, and smaller changes elsewhere with the inclusion of capital repairs and extra-limit investments in the post-1938 data.

9. Socialist Construction 1936 (pp.346-7) presents the following data on investments from own resources (including labor participation) by collective farms and cooperatives:

	1929	1930	1931	1932	1933	Total 1929-1933	1934
Collective farms and cooperative farms	--	410	640	769	1422	3241	1683
Collective farms only	--	170	385	515	1312	2382	1523

I conclude that the totals for 1928/9-1932 and 1929-1933, presented in this table, include collective farms only. Cooperative farm investments seem to be included in the agriculture "totals for the periods in question" (cf. Table II, note 4).

The following figures are stated to include money expenditures and labor participation:

1928/9-1932	1.126
1929-1933	2.690
Plan 1932-1937	5.000
1934-1938	15.452

The following figures are described as "investments by collective farms from their own resources (sredstv)":

1933-1937	13.4
Plan 1938-1942	24

Since both of these figures can be contrasted with figures which are stated to be money expenditures only, there is no doubt that the 13.4 billion and 24 billion include an evaluation of labor participation in kind.

The Fourth Five Year Plan figure is described simply as "capital investments by collective farms themselves". In the absence of additional information,

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the 38 billion rubles figure is regarded as inclusive of labor participation.

The money expenditures of collective farms include, at least in the annual figures, state aid via loans to the collective farms. While these loans are repayable and part of the collective farm payments into the indivisible fund are for purposes of repayment, a secular increase in the amount of loans extended (with a constant period for repayment) would cause the annual money expenditures plus labor participation to exceed total investments from own resources including repayment of loans. This inequality is observed in the present table for 1932 and is strongly suggested by a comparison of money expenditures for 1935-1937 and extrapolated figures for total investments by collective farms for 1935-1937.

The money expenditures from indivisible funds for 1933-37 were 7.5 billion. This figure is less than the total money expenditures for 1933-1937 (including interpolated figures). The inequality may be explained by: (a) the considerations just discussed; or (b) the fact that state aid to the collective farms is included in the five year plan totals for agriculture and the likelihood that the 7.5 billion rubles of collective farm money expenditures is net of state aid via loans.

For purposes of Table XIII, the following procedure will be adopted out of necessity. Total collective farm investments including labor participation [column (6)] will be used for the five year plan periods and for the annual figures, 1930-1932. For the annual figures beginning with 1933 only money expenditures [column (5); note 10, this table] will be used with no effort to distinguish loans to collective farms and no effort to add labor participation. This will mean that the annual figures will not necessarily sum to the five year plan period totals.

10. The following information on collective farms' money incomes and capital investments is obtainable (figures in parentheses are estimated):

	Units of Measurement	1932	1935	1937	1940	1944
I. Money income of collective farms	Millions of rubles	4567.9	9681.0	14180.1	20600	24720
II. Money income per collective farm	Thousands of rubles	21.7	38.8	58.8	88.1	114.1
III. Number of collective farms	Thousands	211.1	245.4	243.7	236.6	(216.7)
IV. Calculated money income of collective farms (IIxIII)	Millions of rubles	4580.9	9521.5	14329.6	20844.5	--
V. Money investments by collective farms	Millions of rubles			2.8		
VI. Money investments per collective farm	Thousands of rubles	4.1	8.5	12.7	23.2	30.5
VII. Calculated money investments by collective farms. (VIxIII)	Millions of rubles	.9	2.1	3.1	5.5	(6.6)

Sources for these figures are:

Money incomes of collective farms - S. Nosyrev, "Strengthen Financial Discipline in Collective Farms," Sovetskie finansy, 1945 No. 11, p.19;

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S. Nosyrev, "Statute of the Agricultural Artel and the Financial Economy of Collective Farms", Sovetskie finansy, 1947 No. 1, p.21; I. I. Shkaradnyi, "Social Funds and their Role in Socialist Expanded Reproduction in Collective Farms", Uchenye zapiski Volume 13, 1951, p.44; N. Anisimov, Sel'skoe khoziaistvo v novoi Stalinskoi piatiletke (Agriculture in the New Stalinist Five Year Plan) p.13. The last source states that the money income of collective farms in 1944 was 537.4% of 1932; the 1944 figure is, accordingly, obtained by multiplying the 1932 figure by 537.4%. The result is probably not accurate but probably also not far wrong; when percentages similarly stated for 1937 and 1940 are multiplied by the 1932 figure, the results are 14080 for 1937 and 22382 for 1940.

b. Money income per collective farm - N. Anisimov, Pobeda sotsialisticheskogo sel'skogo khoziaistva (Victory of Socialist Agriculture) 1947, p.82.

c. Number of collective farms - O. D. Shepilov, "The Collective Farm Structure of the USSR", Problemy ekonomiki, 1941 No. 1, p.35. The number of collective farms for 1944 is estimated by dividing the money income of collective farms by the money income per collective farm.

d. Money investments by collective farms - M. Nesmi, "Capital Investments of Collective Farms and the Agricultural Bank", Sotsialisticheskaiia rekonstruktsiia sel'skogo khoziaistva 1938 No. 12, p.38. Nesmi observes that this figure is obtained from reports which cover only 90.8% of the collective farms; the figure, however, includes the repayment of loans. Nesmi also presents a figure for 1936, exclusive of repayments of loans but covering 96.4% of the collective farms - 2.276 billion. These exclusions may explain the difference between the reported figures of 2.276 and 2.8 billions and the calculated (and interpolated) figures of 2.6 and 3.1 billions for 1936 and 1937.

e. Money investments per collective farm - N. Anisimov, Sel'skoe khoziaistvo v novoi Stalinskoi piatiletke (Agriculture in the New Stalin Five Year Plan), 1946, p.13.

It is observed that multiplying the number of collective farms by the money income per collective farm yields results which are not substantially different from the reported data on money income of collective farms. It is assumed, therefore, that multiplication of the number of collective farms by the money investments per collective farm will yield similarly accurate results. The check for 1937 is reasonably close with the discrepancy explainable by inadequate coverage of the reported money investments figure. Accordingly, in Table XIII the following figures will be used with linearly interpolated figures in parentheses:

	1932	1933	1934	1935	1936	1937	1938	1939	1940	1944
Money investments of collective farms	.9	(1.3)	(1.7)	2.1	(2.6)	3.1	(3.9)	(4.7)	5.5	6.6

It is possible that the 1944 figure is too high. The number of collective farms assumed for 1944 seems reasonable. But since this was a war year,

and since investment figures seem to be obtained by sample coverage, it is possible that the investment figure per collective farm was obtained from an inadequate or unrepresentative sample. It should be noted, however, that if even 75% of the reduced number of collective farms had average investments of 30.5 thousand rubles and the rest had no investments, the total would be 5 billion rubles.

Planned collective farm investments for 1941 might be estimated by extrapolation to be 6.3 billion. Realized 1941 collective farm investments might be estimated, using the ratio of planned to realized total investments for 1941, at something like 3 billion rubles. The 1939-1941 figures should, perhaps, be reduced by something like 10% to put them in 1936-37 prices; because of the rough nature of these estimates, however, this factor will be ignored.

We have already estimated collective farm investments to be about 2 billion per year in 1942 and 1943 (Table VI, note 6). Collective farm investments for 1945 may be taken to be the same as in 1944, i.e. 6.6 billion rubles.

No information about the money investments of collective farms is available for 1948-1950. It is assumed arbitrarily that the money investments for these years increased, from the annual average of the 1946-47 reported figure, by 1 billion rubles per year with an additional 1 billion ruble increase for 1949 to reflect the price increases of 1949. Accordingly, the post-war money investments by collective farms are taken as:

	Plan					
	1946	1947	1948	1949	1950	1951
	7	7	8	10	11	12

11. Because of the absence of information it is necessary to ignore, in the annual figures for recent years, the investment contribution of labor participation in kind. For the years 1933-1940, the magnitude of this factor is probably about 30% of the money investment figure (with the labor contribution evaluated according to the standard return per labor day - cf. above, p. 28). I judge this from the following information. Total collective farm investments (including labor participation) as a ratio of money investments were 178% in 1933-37 and 163% in 1938-1942 (planned). These money investment figures, however, seem to exclude state loans (cf. note 9 this table), which were something like 2.5-3 billion in 1933-37 and were planned to be something like 5-6 billion in 1938-1942. This factor reduces the stated percentages to about 130%.

In the United States some part of agricultural investments goes unreported because farmers do not report their own labor spent on investment activities - digging irrigation ditches, repairing barns, etc. - on the farm. For purposes of a US-USSR comparison, therefore, exclusion of labor participation in kind from the USSR data renders the agricultural investments more comparable. The trouble, however, is that the use of collective farm labor in kind for large scale projects (i.e. the kind which uses hired labor and is fully reported in the U.S.) is organized systematically in the USSR. This seems to be particularly true in recent years when the agricultural aspects of the new power projects call for systematic increases in the use of

collective farm labor without compensation. (Cf., for example, Pravda, June 6, 1951, p.1). It follows that a US-USSR comparison of investments in agriculture which ignores labor participation in kind will understate Soviet investments in agriculture.

12. The data on loans to collective farms and farmers exhibit certain ambiguities. Plotnikov states that in 1933-1937 loans to collective farms were 3.0 billion rubles and loans to collective farmers were 2.6 billion rubles. (Biudzhët sotsialisticheskogo gosudarstva, pp.139, 140). Buzyrev states that the loans to collective farms by the Agricultural Bank are primarily for investments in fixed capital; the State Bank makes short term loans to collective farms for the purchase of seed, fodder, etc. The figures presented by Buzyrev for loans to collective farms are (in billions of rubles):

1928/9-1932	1.418
1933-1937	2.621
1938	.867
1939	.993
1940	1.095

(Finansirovanie i kreditovanie kapital'nykh vlozhenii, p.169)

A third source states that in 1933-1937 collective farms received more than 3 billion rubles of long term loans, of which 2.2 billion were used to increase the fixed capital of collective farms. (S. Ermilov, "Long-term Loans to Collective Farms and Tasks of the Agricultural Bank", Sovetskie f'iansy, 1940 No. 1-2, p.56). The same source states that: (a) in the Third Five Year Plan loans to collective farms were planned to be in excess of 6 billion rubles; (b) in 1938 and 1939 loans to collective farms and farmers were 2.124 billion rubles; and (c) in 1940 loans to collective farms and farmers were planned to be 1.4 billion rubles. (Ibid., p.56).

Nesmi states that collective farms received 2.648 billion rubles in long-term loans from the Agricultural Bank in 1933-37 and that collective farmers received .396 billion in the same period. ("Capital Investments of Collective Farms and the Agricultural Bank", p.40).

I do not know how to resolve these figures but in any case the discrepancy is small and loan financed expenditures are probably included in the money investments of collective farms. The point of including these figures in the table is to indicate the magnitude of state aid to collective farms and the decline in relative importance of state loans over the period of the five year plans.

In this connection it should be noted that the director of the Agricultural Bank has stated that 1949 loans to collective farms will be triple those of 1948 which in turn were double those of 1947, and that 1949 loans will be "considerably greater" than those of 1940 (Pravda, May 13, 1949, p.2). Zverev states that loans to collective farms in 1950 are planned to be 3.8 billion or 41.8% greater than in 1949. (A. G. Zverev, O gosudarstvennom biudzhete SSSR na 1950 god i ob uspolnenii gosudarstvennogo biudzheta SSSR za 1948 i 1949 gody - On the USSR State Budget for 1950 and Fulfillment of the USSR State Budget for 1948 and 1949 - 1950, p.18). Combining these

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statements and assuming that planned 1949 loans were equal to realized 1949 loans and planned 1950 loans were equal to realized 1950 loans, we obtain the following series for loans to collective farms (in billions of rubles):

	1947	.5
	1948	.9
	1949	2.7
	1950	3.8
Plan 1951 (from Table VII)		3.5

The bulk of collective farms' investments, at least in the early years of the Fourth Five Year Plan, have apparently come from their own resources.

The 1949-1951 figures for loans to collective farms may possibly indicate a reversal of this tendency connected with the agricultural aspects of the power construction program. Thus, Zverev states (op. cit., p.18) that the basic part of the 1950 loans are to be used for livestock and for rural electrification. On the other hand, it is not known what proportion of these loans are for investment purposes. It is possible that this proportion has declined sharply at the end of the Fourth Five Year Plan and that the increase in loans is designed as aid to collective farms during the merger program.

13. Certain minor elements of non-centralized investments and their magnitudes are, perhaps, worthy of mention.

a. Loans to individuals for housing construction were as follows (in billions of rubles):

	1939	.243
	Plan 1940	.256
	1941-1942	.008
	1943	.036
	Plan 1944	.258
Plan 1946-1950		4.5

(B. Istomin and A. Frenkel', "Loans for Individual Housing Construction", Sovetskie finansy, 1940, No. 1-2, pp.66,67; A. Dobrovolskii, "Greater Attention to Individual Housing Construction", Sovetskie finansy, 1944 No. 6-7, p.20; M. Arkad'ev, O zheleshchnom stroitel'stve v SSSR - On Housing Construction in the USSR - 1949, p.59).

b. Loans by the Bank of Commerce to producers' and consumers' cooperatives were indicated above (note 2 to this table). Not all of these sums were spent on capital investments. (Rovinskii et al, Organizatsiia finansirovaniia i kreditovaniia kapital'nykh vlozhenii, p.312).

c. Mobilization of internal resources of construction was as follows (in billions of rubles):

	Plan 1939	.7
	Plan 1940	1.3
	Plan 1941	.8
1942-1943 (2 years)		3

(Buzyrev, Finansirovanie i kreditovanie kapital'nykh vlozhenii, p.50;  
 Buzyrev, Vosstanovitel'nye raboty i ikh finansirovanie, p.63.)

d. Labor participation in road-building was evaluated in the following amounts (in billions of rubles):

1928/9-1932	.8
1929-1933	1.9
1933-1937	4.2
1934-1938	4.3

(Second Five Year Plan Fulfillment, p.71; Socialist Construction 1933-1938, p.113). Compulsory rural labor participation in road-building has continued (Slovar'-spravochn'ik po sotsial'no-ekonomicheskoi statistike, pp.308-9) but no recent data are available.



	Capital Investments	Capital Repairs	Housing Construction
<b>I. Industry</b>			
(1) Ministry of Coal Industry	1.680	.2308	.450
(2) Ministry of Petroleum Industry	2.955	.2624	.200
(3) Ministry of Electric Power Stations	1.497	.1850	.083
(4) Ministry of Ferrous Metallurgy	2.730	.3700	.220
(5) Ministry of Nonferrous Metallurgy	1.610	.1483	.1608
(6) Ministry of Chemicals Industry	1.176	.1240	.095
(7) Ministry of Construction Materials Industry	.369	.0650	.020
(8) Ministry of Heavy Machine-Building Industry	1.190	.0720	.1265
(9) Ministry of Medium Machine-Building Industry	.846	.1351	.105
(10) Ministry of General Machine-Building Industry	.222	.0351	.0365
(11) Ministry of Electrical Industry	.595	.0427	.066
(12) Ministry of Construction	.110	.085	.0817
(13) Chief Administration (In NKVD) of Correctional Labor Camps	2.675 <sup>1</sup>		.055 <sup>14</sup>
(14) Chief Administration of Sulphuric Acid and Hydrolysis Industry	.0575		.0065
(15) Ministry of Aviation Industry	3.854 <sup>7</sup>		.465
(16) Ministry of Ship-Building Industry	1.000	.583 <sup>8</sup>	.120
(17) Ministry of Ammunition Industry	1.710		.200
(18) Ministry of Armaments Industry	1.036		.135
(19) Chief Administration of Military Construction	.080		.040
(20) Ministry of Timber Industry	.328	.0986	.045
(21) Ministry of Cellulose and Paper Industry	.1405	.0546	.010
(22) Ministry of Light Industry	.170	.0417	.0104
(23) Ministry of Textile Industry	.587	.1949	.050
(24) Ministry of Fishing Industry	.100	.0879	.0085
(25) Ministry of Meat and Dairy Industry	.149	.0690	.003
(26) Ministry of Food Industry	.296	.1925	.00709
(27) Committee for Cinematography Affairs	.065		.004
(28) Ministry of Local Industry	.062		.001
(29) Local Fuel Industry	.185		.010
<b>TOTAL</b>	<b>27.475</b>	<b>3.0776</b>	<b>2.81499</b>
<b>II. Agriculture</b>			
(30) Ministry of Agriculture	.964		
(31) Ministry of State Farms	.090		.00048
(32) Chief Administration of Forest Protection and Aforestation	.0025		
<b>TOTAL</b>	<b>1.0565</b>		<b>.00048</b>
<b>III. Transport</b>			
(33) Ministry of Railroad Transport	(6.000) <sup>2</sup>	1.470	
(34) Chief Administration (In NKVD) of Railroad Construction	1.350 <sup>1</sup>		.028 <sup>14</sup>
(35) Ministry of Ocean Fleet	.272	.1315	.01410
(36) Ministry of River Fleet	.549	.1393	.044
(37) Chief Administration of Northern Sea Route	.101	.023	.00912
(38) Chief Administration of Moscow-Volga Canal	.003	.008	.0004
(39) Chief Administration (In NKVD) of Highways	.550 <sup>1</sup>		.011 <sup>14</sup>
(40) Ministries of Automobile Transport	.0717		.004
(41) Chief Administration of Civil Air Fleet	.078		.01350
<b>TOTAL</b>	<b>8.9747</b>	<b>1.7718</b>	<b>.12412</b>
<b>IV. Communications</b>			
(42) Ministry of Communications	.230	.050	.00688
(43) Radio Committee	.0025		
<b>TOTAL</b>	<b>.2325</b>	<b>.050</b>	<b>.00688</b>
<b>V. Trade and Procurement</b>			
(44) Ministry of Internal Trade	.030	.00060	
(45) Ministry of Procurement	.193	.083	.00557
(46) Administration of State Reserves	.265		.01250
(47) Ministry of Foreign Trade	.009		.00580
(48) Central Union of Consumers' Cooperatives	.008		
<b>TOTAL</b>	<b>.505</b>	<b>.083</b>	<b>.02447</b>
<b>VI. Other</b>			
(49) Housing	.30655 <sup>3</sup>	.9129 <sup>9</sup>	.30655 <sup>10</sup>
(50) Municipal Services	1.3571 <sup>4</sup>		.07527 <sup>11</sup>
(51) Education, Public, Health, Cultural Services	.45551 <sup>5</sup>		.02438 <sup>12</sup>
(52) Administration, Defense, and Others	(5.88714) <sup>6</sup>		.16040 <sup>13</sup>

Including:

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V. Trade and Procurement				
(44)	Ministry of Internal Trade	.030	.00060	.00557
(45)	Ministry of Procurement	.005	.083	.01250
(46)	Administration of State Reserves	.009		.00580
(47)	Ministry of Foreign Trade	.008		
(48)	Central Union of Consumers' Cooperatives			
TOTAL		.505	.083	.02447
VI. Other				
(49)	Housing	.30655 <sup>3</sup>	.9129 <sup>9</sup>	.30655 <sup>10</sup>
(50)	Municipal Services	1.3571 <sup>4</sup>		.07527 <sup>11</sup>
(51)	Education, Public, Health, Cultural Services	.45551 <sup>5</sup>		.02438 <sup>12</sup>
(52)	Administration, Defense, and Others	(5.88714) <sup>6</sup>		10040 <sup>13</sup>
Including:				
(52a)	Ministry of Defense	} (3.350) <sup>2</sup>		
(52b)	Ministry of Navy			
(52c)	Ministry of Internal Affairs (Excluding Chief Administrations Noted)	2.2351		.046 <sup>14</sup>
TOTAL		(8.00630)	.9129	.50660
VII. Capital Investments by the Baltic Republics				
(53)	Industry	.37194 <sup>7</sup>		
(54)	Agriculture	.0649 <sup>7</sup>		
(55)	Transport	.09855 <sup>7</sup>		
(56)	Communications	.01283 <sup>7</sup>		
(57)	Trade and Procurement	.03270 <sup>7</sup>		
(58)	Other	.16908 <sup>7</sup>		
TOTAL		.750		
TOTAL FOR NATIONAL ECONOMY		47.000	5.8953	3.47754 <sup>15</sup>

SOURCE: Gosudarstvennyi plan razvitiia narodnogo khoziaistva SSSR na 1941 god (State Plan of Development of the USSR National Economy for 1941), pp. 3, 483-485, 490, 492-493, 502, 503, 508, 509. (Hereinafter referred to as 1941 Plan.)

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## Notes to Table VIII.

(Notes 1-16 are to indicated figures in the table)

1. Capital investments by the Ministry of Internal Affairs (NKVD) are indicated to be 6.310 billion rubles, including 2.675 billion by the Chief Administration of Correctional Labor Camps, .550 billion by the Chief Administration of Highways, and 1.350 by the Chief Administration of Railroad Construction. It is assumed that: (1) the Chief Administration of Correctional Labor Camps performs construction for industrial purposes; and (2) the difference between the total for the Ministry of Internal Affairs and the indicated components (i.e.,  $6.310 - 2.675 - .550 - 1.350 = 2.235$  billion rubles) represents expenditures on the construction of military installations. Accordingly, of the 6.310 billion rubles 2.235 billion is allocated to defense, 2.675 to industry and 1.9 to transport. This allocation, of course, has large elements of conjecture in it.

It is not a matter of conjecture that the Ministry of Internal Affairs invests for industrial purposes. It is known that the Ministry of Internal Affairs produces industrial commodities (1941 Plan, p. 9). Furthermore, in the plan of capital investments the Ministry of Internal Affairs is placed among the industrial ministries, and in the plan of budget allowances part of the expenditures by the Ministry of Internal Affairs is listed as financing industry. (Cf. 1941 Plan, pp. 423-4; Vost'naya sessiya verkhovnogo Soveta SSSR - Eighth Session of the USSR Supreme Soviet - Stenographic Report, 1941, pp. 478-516). The sector allocation of investments by the Ministry of Internal Affairs, however, remains highly conjectural.

2. The 1941 plan of capital investments is itemized exclusive of capital investments by the Ministries of Railroad Transport, Defense and the Navy. The total of the itemized ministries and departments is given as 37.650 billion rubles (1941 Plan, p. 423). Since total capital investments have previously been given as 46.0-47.0 billion rubles (1941 Plan, p. 3), capital investments by the three excluded ministries were at most 9.350 billion rubles.

The investment figure for the Ministry of Railroad Transport may be estimated very roughly on the basis of the following data:

a. Payments from profits of the Ministry of Railroad Transport into the budget were planned to be 2.636 billion rubles in 1940 and 2.641 billion rubles in 1941 and were actually 2.661 billion rubles in 1940. (Shestaia sessiya verkhovnogo Soveta SSSR - (Sixth Session of the USSR Supreme Soviet - Stenographic Report 1940, p. 433; Vost'naya sessiya verkhovnogo Soveta SSSR - Eighth Session of the USSR Supreme Soviet - Stenographic Report, 1941, p. 504))

b. Profits in the railroads were 4.637 billion rubles in 1940 (N. G. Vinnichenko, Finansirovanie zheleznnykh dorog - Financing the Railroads - 1942, p. 46). Retained profits for the railroads were, accordingly, about 2 billion rubles ( $4.637 - 2.661$ ) in 1940. Since payments from profits into the budget did not change from 1940 to 1941 plan, it may be assumed that profits and retained profits also did not change from 1940 to 1941 plan.

c. In 1940, investments in transport and communications were planned to be 5.44 billion rubles, of which 1.74 billion came from the budget and 3.70 billion came from the resources of transport and communications enterprises (A. G. Zverev, State Budgets of the USSR 1938-1945, p. 77). We will assume that planned and realized investments in 1940 transport and communications were the same.

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d. In Soviet statistical practice, capital stock figures represent fixed assets in productive operation. That is, a fixed asset is not regarded as a part of capital stock until the project or enterprise of which it is a part is actually producing. Accordingly, the Soviet plans state both investments and fixed capital to be put into operation for the given year. It is possible, therefore, that planned figures on the fixed capital to be put into operation in a given year may represent an approximation of the amount invested in the previous year. If we assume this to be true and if we further assume that the amount actually invested in 1940 in transportation and communications is approximately the amount of planned investments in 1940, we may approximate the amount invested by the Ministry of Railroad Transport in 1940. The amount of fixed capital to be put into operation in 1941 was as follows (in billions of rubles):

Ministry of Railroad Transport	not available
Chief Administration (in NKVD) of Railroad Construction	0
Ministry of Ocean Fleet	.265
Ministry of River Fleet	.440
Chief Administration of Northern Sea Route	.135
Chief Administration of Moscow-Volga Canal	.003
Chief Administration (in NKVD) of Highways	0
Ministry of Automobile Transport	.0783
Chief Administration of Civil Air Fleet	.110
Ministry of Communications	.287
Radio Committee	<u>.001</u>
<b>TOTAL</b>	<b>1.3193 (1941 Plan pp. 483-5.)</b>

Subtracting 1.3 billion from total investments in transport and communications for 1940 (planned), we obtain 4.1 as the estimated investments for the Ministry of Railroad Transport in 1940.

A similar figure may be obtained in another way. It is observed, from Table XII, that railroad transport constituted from 67% to 72% of total investments in transport for the 1933-1937 period and for plan 1938-1942. The addition of communications to the denominator and the addition of nonrailroad investments by the Ministry of Railroad Transport to the numerator probably offset each other (cf. Tables V and IX-A) to leave the percentages unchanged. Using these percentages to obtain the planned 1940 investments by the Ministry of Railroad Transport, we get 3.6 - 3.9 billion rubles.

e. The budget allocations (for all purposes) to the Ministry of Railroad Transport were planned to be 1.922 billion in 1940 and 4.635 billion in 1941. (Pravda sessia verkhovnoe Soveta SSR, p. 436; Vosstania sessia verkhovnoe Soveta SSR, p. 103). Since profits seem to have remained unchanged between 1940 and 1941, any significant change in investments must have come from a change in budget allowances to the Ministry of Railroad Transport. But not all of the increment in budget allowances of 2.7 billion should be attributed to an increase in capital investments; some part certainly was planned for increases in working capital, among other things. If we assume that 2 billion of the increment in budget allowances were to go for increased capital investments by the Ministry of Railroad Transport and if we add this to the 4.1 billion estimate for the Ministry in 1940 (planned), we obtain approximately 6 billion rubles as planned capital investments by the Ministry of Railroad Transport for 1941.

By subtracting 6 billion rubles from the 9.350 billion total for the Ministries of Railroad Transport, Defense, and the Navy, we obtain 3.350 billion rubles as the capital investments of the Ministries of Defense and the Navy.

3. The investment figure for housing includes: (a) housing construction by local soviets--.18155 billion rubles; and (b) housing construction by the Moscow Soviet--.125 billion rubles.
4. The investment figure for municipal services includes: (a) the Moscow subway--.590 billion; (b) municipal service construction by local soviets--.33610 billion; (c) municipal service construction by the Moscow Soviet--.240 billion; and (d) water supply measures of the union republics--.191 billion.
5. The investment figure for education, etc. includes (in billions of rubles): (a) the Ministry of Public Health--.16117; (b) the Committee on Physical Culture--.01185; (c) the All-Union Central Council of Trade Unions--.025; (d) the Union Republic Ministries of Education and Printing--.18215; (e) the Committee on Higher Schools--.0062; (f) the Academy of Sciences--.025; (g) the Committee on Culture--.04014; (h) the Society for Assistance to Aviation and the Chemicals Industry--.004.
6. The investment figure for administration, defence and others includes (in billions of rubles): (a) the Chief Administration of Hydrography and Meteorology--.022; (b) the Committee on Geology--.017; (c) the Chief Administration of Cartography and Geodesy--.009; (d) the Committee on Weights and Measures--.0036; (e) something called the "Khoziaistvennoe upravlenie" attached to the USSR Council of Ministers--.016; (f) the House of Soviets--.075; (g) the Ministry of Finances of the USSR--.016; (h) the USSR State Bank--.0097; (i) the USSR State Planning Commission--.008; (j) the Ministry of Foreign Affairs--.001; (k) the Ministry of Justice--.003; (l) the USSR Procurator--.003; (m) administration construction by the Union Republics--.0377; (n) central institutions and departments--.02114; (o) measures for local anti-aircraft defenses--.060; and (p) the Ministries of Defense and the Navy--3.350 (cf. note 2 to this table); (q) the Ministry of Internal Affairs--2.235 (cf. note 1 to this table).
7. Capital investments of the Baltic Republics are also broken down by ministries and departments (1941 Plan, p. 490). The sector breakdown was obtained by classifying the ministries and departments into the appropriate sector.
8. This figure is given for the "ministries of defense industry" (1941 Plan, p. 502).
9. This figure is for capital repairs to housing and hotels of local soviets (1941 Plan, p. 508). In addition, loans to individuals for housing repairs were planned to be .028 billion rubles (1941 Plan, p. 508).
10. Includes: (a) housing construction by local soviets--.18155 billion rubles; and (2) housing construction by the Moscow Soviet--.125 billion rubles.
11. This figure represents investments in housing construction by the agency responsible for the Moscow subway.
12. Includes investments (in billions of rubles) in housing construction by the following organizations: (a) the Ministry of Public Health--.00390; (b) the All-Union Central Council of Trade Unions--.00430; (c) the Union Republic Ministries of Education and Printing--.00505; (d) the Academy of Sciences--.00350; (e) the Committee on Art--.00763.
13. Includes investments (in billions of rubles) in housing construction by the following organizations: (a) the Chief Administration of Hydrography and Meteorology--.0026; (b) something called the "Upravlenie delami"

of the USSR Council of Ministers--.00585; (c) the House of Soviets--.01280; (d) the Ministry of Finances--.005; (e) the State Bank--.0045; (f) the State Planning Commission--.00597; (g) the Ministry of Foreign Affairs--.001; (h) the Committee on Weights and Measures--.0043; (i) the Ministry of Justice--.0018; the USSR Procurator--.0023; (k) the agencies responsible for union republics' construction for administrative purposes--.00598; (l) central institutions and departments--.0013; (m) the Ministry of Internal Affairs--.046 (cf. note 14); (n) the Committee on Geology--.001.

14. Housing expenditures by the Ministry of Internal Affairs of 140 million rubles are given without breakdown by chief administrations. Housing expenditures are assumed to be distributed in the same proportions as total investments (cf. note 1). Thus, we obtain (in billions of rubles):

	<u>Investments</u>	<u>Housing Construction</u>
Ministry of Internal Affairs	6.310	.140
Including:		
Chief Administration of Correctional Labor Camps	2.675	.055
Chief Administration of Railroad Construction	1.250	.025
Chief Administration of Highways	.550	.011
Other	2.235	.046

15. The data on housing construction exclude investments for these purposes by: (a) the Ministry of Railroad Transport; (b) the Ministry of Defense; and (c) the Ministry of the Navy (1941 Plan, p. 492).

16. The total volume of capital work of 46.0-47.0 billion rubles is stated to exclude 2.14 billion "supplementary" (dopolnitel'nye) extra-limit expenditures (1941 Plan, p. 3, footnote 1). Zverev states the planned volume of capital work to be 57 billion rubles in 1941, including 9 billion noncentralized investments. (A. G. Zverev, Cosudarstvennye biudzhety SSSR 1938-1945, p. 105.) Buzyrev states that in 1941 extra-limit investments were to be 8.940 billion rubles, including "supplementary" extra-limit expenditures of 2.207 billion. (V. M. Buzyrev, Finansirovanie i kreditovanie kapital'nykh vlozhenii, p. 212). From this information I conclude: (a) that the total investments of 46.0-47.0 billion rubles, mentioned in 1941 Plan, represent centralized investments (with the difference of 1-2 billion rubles from the Zverev figure for centralized investments explained by rounding or by unitized expenditures); and (b) that the extra-limit investments of 2.14 billion rubles, mentioned in 1941 Plan, are part of the 9 billion noncentralized investments. The segregation of this 2.14 billion rubles is explained apparently by the following circumstances. In 1941, it was decided to permit certain kinds of investment expenditures, previously made in centralized fashion, to be undertaken as extra-limit investments. (Cf. Buzyrev, op.cit., p. 211, for an itemization of such expenditures.) These were referred to as "supplementary" extra-limit investments; the identity of language and the near-identity of amount in the 1941 Plan and the Buzyrev citation yield the conclusion that the references are identical.

17. Expenditures on the construction of schools in 1941 were to be 386.21 million rubles, of which 134.37 million rubles were in cities and workers' settlements and 251.84 million rubles in rural areas (1941 Plan, p. 494.) The 134.37 million rubles are explicitly included, and the 251.84

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18. Expenditures on geological-prospecting work in 1941 were to be 1.1007 billion rubles, of which .342 billion were included in the plan of capital work, .4197 billion were included in extra-limit expenditures and .345 billion were included in general budget expenditures (1941 Plan, pp. 497-501).

19. Capital repairs for 1941 were planned to be 7.3 billion rubles of which 5.5 billion were to be financed by amortization funds (Pravda February 26, 1941, p. 3). Of the capital repairs itemized in 1941 Plan: (a) those in industry are explicitly from amortization funds; (b) those in housing, transport, communications and trade are probably in part from amortization funds though the financial sources are unspecified. Notable exclusions from the list of capital repairs are those for agriculture and the municipal economy (from amortization funds and the budget) and those for social-cultural, administrative and defense construction (presumably, from the budget). From a glance for the gaps in the stated capital repairs, the difference between the capital repairs itemized in 1941 Plan (5.9 billion) and total capital repairs (7.3 billion) may be more or less arbitrarily allocated as follows (in billions of rubles):

Additional capital repairs in industry (from sources other than amortization allowances)	.2
Capital repairs in agriculture (for state farms from amortization allowances and for machine- tractor stations from the budget)	.5
Additional capital repairs in transport	.2
Municipal services (from amortization allowances)	.2
Additional capital repairs in trade and procurement	.1
Social-cultural services	.1
Administration and defense	.1
	1.4

The sector breakdown of capital repairs would then be something like the following:

Industry	3.3
Agriculture	.5
Transport	2.0
Communications	.1
Trade and procurement	.2
Other	1.3
	7.4

20. In order to make the 1941 Plan figures comparable with earlier data (when the ministry breakdown was less complex), we may perform the following classifications:

- a. Items (1)-(19) represent the equivalent of the earlier Ministry of Heavy Industry (which, according to 1937 Plan, p. 46, included defense industry);
- b. Items (22) & (23) represent the equivalent of the earlier Ministry of Light Industry;
- c. Items (20) & (21) represent the equivalent of the earlier Ministry of Timber Industry;
- d. Items (24)-(26) represent the equivalent of the earlier Ministry of Food Industry;
- e. Items (28) & (29) represent the equivalent of the earlier Ministry of Local Industry;
- f. Items (30) & (32) represent the equivalent of the earlier Ministry of Agriculture;
- g. Items (33) & (34) represent the equivalent of the earlier Ministry of Railroad Transport;
- h. Items (35) & (36) represent the equivalent of the earlier Ministry of Water Transport;
- i. Items (39) & (40) are classified together and called the Chief Administration of Highways;
- j. Items (42) & (43) represent the equivalent of the earlier Ministry of Communications;
- k. Items (45) & (46) represent the equivalent of the earlier Committee for Commodity Procurement attached to the Council of Ministers.

The results of this aggregation are entered in table IX.

21. Vornesensky states that in 1941 the volume of centralized capital investments was to be 48 billion rubles, of which 30.6 billion rubles were to be in industry. (N. Vornesensky, The Growing Prosperity of the Soviet Union, p. 22.) The present table indicates that of 47 billion rubles of capital investments, 27.89 billion were to be in industry (including the Baltic Republics). This relationship between "industry" in the sector and ministry breakdowns is roughly the same as the relationships observed for other years in Table IX-A. It should be noted that the industry total in the present table includes the Ministry of Internal Affairs allocation (cf. note 1) and, therefore, shares the doubts attached to this allocation.

22. From the statement that planned 1941 investments in 1936-7 prices were 27 billion rubles of which 16 billion were centralized (Table VI, note 1) and from the description of the itemized 1941 plan investments (note 16, present table), it is concluded that the data in the present table are in 1936-7 prices.



Table IX: Capital Investments by Sectors of the National Economy for Selected Years

	Plan 1938	Realized 1938	Plan 1939	Plan 1940	Plan 1941	Plan 1944	Realized 1948	Plan 1949
I. Industry	17.46 <sup>a</sup>	17.075 <sup>b</sup>	17.59 <sup>a</sup>	19.19 <sup>a</sup>	27.48 <sup>d</sup>	15.26 <sup>e</sup>	46.39 <sup>f</sup>	72.23 <sup>f</sup>
II. Agriculture	2.47 <sup>a</sup>	3.449 <sup>b</sup>	1.59 <sup>a</sup>	1.23 <sup>a</sup>	1.06 <sup>d</sup>	1.10 <sup>e</sup>	4.32 <sup>f</sup>	9.21 <sup>f</sup>
III. Transport and Communications	6.82 <sup>a</sup>	6.999 <sup>b</sup>	4.96 <sup>a</sup>	5.44 <sup>a</sup>	9.21 <sup>d</sup>	1.09 <sup>e</sup>	9.00 <sup>f</sup>	13.54 <sup>f</sup>
IV. Trade and Procurement (State Sector)	0.66 <sup>a</sup>	.763 <sup>b</sup>	0.49 <sup>a</sup>	0.37 <sup>a</sup>	.51 <sup>d</sup>	.16 <sup>e</sup>	.84 <sup>f</sup>	.99 <sup>f</sup>
V. Housing, Municipal Services and Social-Cultural Construction	3.67 <sup>a</sup>	7.414 <sup>b</sup>	2.33 <sup>a</sup>	1.92 <sup>a</sup>	2.12 <sup>d</sup>	3.18 <sup>e</sup>	5.61 <sup>f</sup>	9.57 <sup>f</sup>
VI. Other (Administrative, Cooperative, Etc.)	4.68 <sup>a</sup>		7.77 <sup>c</sup>	7.98 <sup>c</sup>	5.89 <sup>d</sup>			
Total for National Economy	35.76 <sup>a</sup>	35.7 <sup>b</sup>	34.73 <sup>a</sup>	36.13 <sup>a</sup>	46.27 <sup>d</sup>	20.79 <sup>e</sup>	66.15 <sup>f</sup>	105.53 <sup>f</sup>

## SOURCES:

- a. A. G. Zverev, Gosudarstvennye biudzhety SSSR 1938-1942, pp. 17, 49, 77.
- b. Table V.
- c. By subtraction from annual total.
- d. Table VIII. These data are obtained from the sector classification of a ministry and department breakdown of capital investments exclusive of investments in the Baltic Republics.
- e. "On the USSR State Budget for 1944 and Fulfillment of the USSR State Budget for 1940, 1941, and 1942," a report by A. G. Zverev, Sovetskie finansy, 1944 No. 1-2, p. 5. An estimation procedure was, in part, necessary; cf. note 2 to this table for details.
- f. A. G. Zverev, "State Budget for the Fourth Year of the Post-War Stalinist Five Year Plan," Planovoe khoziaistvo, 1949 No. 2, p. 43.

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## NOTES TO TABLE IX

1. The 1939-1941 data include centralized investments only (Table VI, note 3; Table VIII, note 16). The 1938 data seem to include extra-limit investments (Table VI, note 3). The 1941 data exclude investments in the Baltic Republics (Table VIII).

The 1944 data include investments from the budget only (note 2 to this table). The 1948 data probably include centralized investments only, whereas the 1949 data probably include extra-limit investments as well (Table VI, note 2).

The planned 1938-1941 data are probably in 1936-7 prices (Table VI, notes 1 and 3). The realized 1938 data seem to be in 1938 prices (Table V, note 6; Table VI, note 3). The other data are in prices of the respective years (Table VI, note 1).

2. The data for 1944 (planned) investments from the budget are given as follows (in billions of rubles):

I. Enterprises and organizations of union jurisdiction	18.876
Including:	
1. Industry	14.645
2. Agriculture	.636
3. Transport and Communications	1.086
4. Trade and Procurement	.090
II. Enterprises and organizations of republic and local jurisdiction	1.910
Total investments from the budget	20.786

"On the USSR State Budget for 1944 and Fulfillment of the USSR State Budget for 1940, 1941, and 1942", Sovetskie finansy, 1944 No. 1-2, p.5.

In order to obtain the sector breakdown of investments in enterprises and organizations of republic and local jurisdiction, we assumed that the sector breakdown of investments was proportional to the sector breakdown of expenditures on the national economy from the republic budgets (which include the local budgets). In 1944, the sector breakdown of expenditures on the national economy from the republic budgets was:

	In billions of rubles	In percentages of total
I. Total Expenditures on National Economy	6.4184	100.0
1. Industry	2.0500	31.9
2. Agriculture	1.5597	24.3
3. Transport	--	0
4. Communications	.0185	.3
5. Trade and Procurement	.2223	3.5
6. Other		
a. Roads	.2292	3.6
b. Housing and Municipal Services	1.8578	28.9
c. Others	.4809	7.5

(X. Plotnikov, Budzhët sotsialisticheskogo gosudarstva, p.351.)

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If we apply these percentages to the 1.910 billion rubles for investments in enterprises and organizations of republic and local jurisdiction, we obtain the following breakdown:

Total	1.910
1. Industry	.609
2. Agriculture	.464
3. Transport and Communications	.006
4. Trade and Procurement	.067
5. Other	.764

If, for enterprises and organizations of union jurisdiction, we subtract "industry", "agriculture", "transport and communications", and "trade and procurement" to obtain "other" investments and if we add the sector breakdown for enterprises and organizations of republic and local jurisdiction, we have the following results which are presented in the table:

	Enterprises and organizations of union jurisdiction	Enterprises and organizations of republic and local jurisdiction	Total
1. Industry	14.645	.609	15.254
2. Agriculture	.636	.464	1.100
3. Transport and Communications	1.086	.006	1.092
4. Trade and Procurement	.090	.067	.157
5. Other	2.419	.764	3.183
Total	18.876	1.910	20.786

It should be emphasized that the sector breakdown for 1944 refers to investments from the budget only. Additional centralized investments (from amortization allowances, profits, etc.) were probably of the order of 6 billion rubles.

3. Sectors I-V are so described by Soviet sources for the 1938-1940 data. Sector VI is explicitly stated by Soviet sources for the 1938 breakdown only; for 1939 and 1940 the figures for Sector VI are obtained, and the characterization of the residuals is assumed, by analogy.

The components of Sector VI are matters for speculation. The explicit components in 1938 were cooperatives and administration, but these could not account for 4.68 billion rubles:

a. Cooperative trade (i.e. "Tsetrosoluz") accounted for 60 million rubles annually in the 1935, 1936, and 1937 plans (cf. Table X). There is no evidence of a substantial increase in the state sector of trade and procurement in 1938, and cooperative trade had been declining in relative importance.

b. It is extremely doubtful that producers' cooperatives are included; they have always been classified as "industry" and 1938 sector classification says nothing about restriction of "industry" to state industry. But even if producers' cooperatives were included, they could hardly account for much more than 100 million rubles. Investments by producers cooperatives were planned to be 64 million rubles in 1935, 115 million in 1936, 73 million in 1937, 65 million in 1941 (cf. Table X).

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c. Administrative construction for non-military central organizations has apparently been small - 245.5 million rubles in the 1935 plan (cf. Table X and note 21); about 150 million rubles in the 1941 plan (cf. Table VIII and note 6).

I suspect, therefore, that the difference between such expenditures and the Sector VI total is represented by the construction of military facilities and fortifications. This suspicion is reinforced by an examination of the time series of "administration and special construction projects" in Table X which exhibits a marked increase in 1933 and a tremendous increase in 1936 (cf. also, Table X, note 22). This explanation would, further, account for the very substantial increase in expenditures in sector VI for the 1939 plan and the continued high level of expenditures for the 1940 plan (accompanied, as they were, by a decrease in expenditures in Sector V). Finally, a remark by a recent Soviet writer suggests more or less obliquely that military construction is classified with administration and social-cultural expenditures. After mentioning the role of the investment plan in providing for the growth of productive fixed capital, this writer says: "In the second place, the plan of capital work serves as the basis for the planned increase of fixed capital of education, public health, art, and also of the spheres of administration and defense". (B. Smekhov, "Planning Capital Work", Planovoe khoziaistvo, 1957 No. 4, p.83. My italics).

At the very least, I can think of no other explanation of the behavior of Sector VI (and of its counterpart in item VI D. of Table X) and I can find no other place in which military construction might be recorded.

4. The 1941 plan figure for Sector VI is the sum of investments by central military and non-military organizations, of which only 150 million rubles are accounted for by non-military organizations (cf. Table VIII and note 6). The remainder, however, may be subject to considerable error. It depends upon: (a) a highly conjectural estimate of investments by the Ministry of Railroad Transport (Table VIII, note 2); and (b) a highly conjectural allocation of the investments by the Ministry of Internal Affairs (Table VIII, note 1). It is possible, therefore, that the 5.89 billion ruble figure is too low.

On the other hand, the 1941 plan seems clearly to have been a war mobilization plan. In view of the previously high magnitudes for Sector VI (and on the assumption that our explanation of the components of Sector VI is correct), the corresponding figure for 1941 may well have been lower than those for 1939 and 1940. The explanation would be a shift from military construction to investments for munitions and items.

5. Plotnikov states that investments in industry were 18.018 billion rubles in 1938 and "up to 26 billion rubles" in 1940. (K. N. Plotnikov, Byudzhet sotsialisticheskogo gosudarstva, p.205). Sobol states that investments in industry were 22.662 billion rubles in 1939. (V. Sobol, "On the Question of the Evaluation of Fixed Capital", Planovoe khoziaistvo, 1947 No. 4, p.55). The problem is how to explain the difference between these figures and those presented in the table. Let us discuss primarily the 1939 and 1940 figures since the 1938 discrepancy is relatively small.

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a. The differences between the two 1939 figures and the two 1940 figures are certainly too large to be accounted for by a difference between planned and realized figures (or between estimate and current prices). In addition: (1) other evidence indicates that the 1939 and 1940 investment plans were underfulfilled (note 3, Table VI); and (2) the fact that such a large divergence occurs in two consecutive years, with planned investments in industry relatively unchanged, argues against this interpretation.

b. Sobol's figure appears in a time series in which the 1933-1937 figures include capital repairs and extra-limit investments (i.e. the 1933-1937 figures are the same as those for industry in Table V). It is possible that the Plotnikov and Sobol figures for 1939 and 1940 include capital repairs and extra-limit investments whereas the figures in the table exclude these expenditures. Capital repairs plus extra-limit investments were something like 11 billion rubles in 1939 and 13 billion rubles in 1940 (Table VII). The share of industry in the total of capital repairs plus extra-limit investments appears to be something like 1/3 in the pre-war period (notes 2 and 8, Table VII). Thus, capital repairs plus extra-limit investments in industry were something like 3.6 billion rubles in 1939 and 4.2 billion rubles in 1940. The differences in industry totals to be explained are something like 5 billion rubles in 1939 and 6 billion rubles in 1940. One might conclude that differences in coverage plus differences between realized and planned figures might account for the 5 and 6 billion ruble discrepancies. The trouble is that the 1939 and 1940 investment plans (which exclude capital repairs and extra-limit investments) appear to have been underfulfilled (note 3, Table VI). To accept the explanation advanced in this paragraph one would have to assume that the non-industry sectors were significantly underfulfilled while the industry sector was significantly overfulfilled. This may have been the case. It should be noted, in favor of this explanation, that in 1938 when the discrepancy was relatively small the realized figure of 17.075 billion rubles presumably included extra-limit investments but not capital repairs (note 3, Table VI). On the explanation of this paragraph, the 1938 discrepancy becomes the puzzle because capital repairs in 1938 were clearly greater than the difference of 943 million rubles. In a few industries only (excluding, for examples, the machine building industry, the chemicals industry, the petroleum industry, and nonferrous metallurgy), 1938 capital repairs were 1.1 billion rubles (note 7, Table VII).

c. It is, I suppose, possible that the Plotnikov and Sobol figures for industry include some or all of military construction. Why they should is certainly not obvious; though it may be that construction organizations which work on contract for industrial enterprises do so for the military establishment as well. The only factor which prompts this suggestion is the flimsy observation that the magnitude of the discrepancy becomes larger precisely when the Sector VI figure becomes large. On the similarly flimsy grounds that the magnitudes seem about right, it is possible that Plotnikov's 1940 figure and Sobol's 1939 figure include transportation and communication; but what about Plotnikov's 1938 figure?

It is obvious that none of the suggested explanations is entirely satisfactory. The answer, perhaps, lies in some combination of these explanations; but in the absence of additional information the explanation for these discrepancies must remain essentially unknown.

It should be noted finally that one Soviet source states that investments in industry were 58.5% of total investments in the national economy in 1938-1940. (A. Omarovskii, Sovetskoe stankostroenie - Soviet Machine Tool Construction - 1948, p.23). Since Omarovskii also refers to the 108 billion ruble figure as the total for the national economy in 1938-1940, this percentage implies 63.2 billion rubles of investments in industry for 1938-1940, a figure which is substantially above the planned 1938-1940 figures and somewhat below the sum of the figures given by Plotnikov and Sobol for 1938, 1939, and 1940. Taken in conjunction with total for industry and transport in 1938-1940 of 75 billion rubles (Table I), the 63.2 billion ruble figure for industry implies substantial underfulfillment of the investment plans for transport in these years. We have already noted that the 1939 plan for agriculture was underfulfilled (Table VI, note 3). On this basis, I lean towards an explanation of the 1938-1940 discrepancies which assumes that the Plotnikov and Sobol figures are properly for industry and which implies overfulfillment of the investment plans in industry and underfulfillment in the other sectors (for example, the explanation in paragraph b above for the 1939 and 1940 figures).

6. The 1939 plan expenditures in the state sector of agriculture are given elsewhere as follows (in billions of rubles):

Planned capital investments	1.66
Extra-limit expenditures	.75
Operational expenditures	<u>1.01</u>
Total	3.42

(V. Kabitskii, "Financing of State Agricultural Enterprises", Sovetskie finansy, 1940 No. 1-2, p.61.)

Thus, it would seem that "agriculture" is confined to the state sector and excludes extra-limit investments.

It is also stated that the 1939 plan was fulfilled by 92.5% (Kabitskii, op. cit., p.61). Thus, realized investments in the state sector of agriculture exclusive of extra-limit investments may have been of the order of 1.5 billion rubles.

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Thus, it would seem that "agriculture" is confined to the state sector and excludes extra-limit investments.

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TABLE X: CAPITAL INVESTMENTS BY MINISTRIES AND DEPARTMENTS  
(In millions of rubles; in prices of the respective years)

	Realized 1929 <sup>a</sup>	Realized 1930 <sup>a</sup>	Realized 1931 <sup>a</sup>	Realized 1932 <sup>a</sup>	Realized 1933 <sup>b</sup>	Realized 1934 <sup>c</sup>	Realized 1935 <sup>d</sup>	Plan 1936 <sup>d</sup>
<b>I. Industry</b>								
A. Ministry of Heavy Industry	1931	3147	6113	8505	6750	7420	7530	8356
B. Ministry of Light Industry	314	318	276	389	498	513	374	744
C. Ministry of Timber Industry	96	200	382	444	372	409	410	526
D. Ministry of Food Industry	224	411	592	868	921	929	756	763
E. Ministries of Local Industry	-	-	-	-	-	-	423	553
F. Producers' Cooperatives	40 <sup>3</sup>	95 <sup>3</sup>	146 <sup>3</sup>	197 <sup>3</sup>	200 <sup>3</sup>	200 <sup>3</sup>	123	121
G. Chief Admin. of Photography & Cinema Industry	-	-	-	-	14	14	35	63
<b>TOTAL</b>	2635	4171	7509	10403	8755	9475	9637	11127
<b>II. Agriculture</b>								
A. Ministry of Agriculture	382	1622	2473	2541	1333	1364	1340	1690
B. Ministry of State Farms	-	-	-	-	817	848	650	771
C. Financing of Collective and Cooperative Sector of Agriculture	420	660	175	401	178	178	-	-
<b>TOTAL</b>	802	2282	2648	2942	2328	2390	1990	2461
<b>III. Transport</b>								
A. Ministry of Railroad Transport	873	1112	1909	2569	2107	2107	2165	3569
B. Ministry of Water Transport	163	289	368	374	480	486	394	521
C. Moscow Canal Building Administration	10	35	81	129	107	116	112	348
D. Chief Administration of Civil Air Fleet	10	35	81	129	107	116	115	179
E. Central Highways Administration	128	224	335	400	376	376	375	591
F. Chief Administration of Northern Sea Route	-	-	-	-	14	14	26	33
<b>TOTAL</b>	1179	1660	2693	3472	3081	3099	3167	5041
<b>IV. Communications</b>								
A. Ministry of Communication	70	123	184	186	184	184	206	317
<b>TOTAL</b>	70	123	184	186	184	184	206	317
<b>V. Trade and Procurement</b>								
A. Ministry of Internal Trade	-	-	-	-	-	-	-	52
B. Ministry of Foreign Trade	-	-	104	123	91	94	90	108
C. "Tehtrosolus" (Central Union of Consumers' Cooperatives)	116	255	367	432	415	415	265	256
D. Committee for Commodity Procurement Attached to Council of Ministers	-	-	-	166	194	194	175	171
<b>TOTAL</b>	116	255	471	721	700	703	530	687
<b>VI. Social Cultural and Administration</b>								
A. Housing	201 <sup>10</sup>	224 <sup>10</sup>	352 <sup>10</sup>	433 <sup>10</sup>	396 <sup>10</sup>	396 <sup>10</sup>	221 <sup>10</sup>	221 <sup>10</sup>
B. Municipal Services	300 <sup>6</sup>	315 <sup>6</sup>	336 <sup>6</sup>	455 <sup>6</sup>	562 <sup>6</sup>	562 <sup>6</sup>	722 <sup>6</sup>	722 <sup>6</sup>
C. Education, Public Health, Pensions, Relief	337 <sup>6</sup>	370 <sup>6</sup>	380 <sup>6</sup>	396 <sup>6</sup>	407 <sup>6</sup>	407 <sup>6</sup>	450 <sup>14</sup>	709 <sup>14</sup>
D. Administration and Special Construction Projects	72 <sup>11</sup>	91 <sup>11</sup>	243 <sup>11</sup>	311 <sup>11</sup>	385 <sup>11</sup>	385 <sup>11</sup>	1000 <sup>2</sup>	1000 <sup>2</sup>
<b>TOTAL</b>	1003	1005	1311	1607	1749	2214	2332	2630
<b>TOTAL NATIONAL ECONOMY</b>	5805	9496	15116	19351	16790	18055	17939	23521

CAPITAL INVESTMENTS BY MINISTRIES AND DEPARTMENTS  
 (Values in prices of the respective years except for 1938 & 1941)

	Realized 1932 <sup>a</sup>	Realized 1933 <sup>b</sup>	Realized 1933 <sup>c</sup>	Realized 1933 <sup>d</sup>	Plan 1934 <sup>d</sup>	Realized 1934 <sup>b</sup>	Realized 1934 <sup>c</sup>	Pre-liminary 1934 <sup>d</sup>	Plan 1935 <sup>e</sup>	Pre-liminary 1935 <sup>e</sup>	Realized 1935 <sup>f</sup>	Plan 1936 <sup>g</sup>	Plan 1936 <sup>h</sup>	Pre-liminary 1936 <sup>g</sup>	Plan 1937 <sup>h</sup>	Plan 1938 <sup>i</sup>	Plan 1941 <sup>j</sup>
	8505	6750	7420	7530	8356	7712	8458	7950	8739	8535	8959 <sup>13</sup>	8500 <sup>7</sup>	10269	9300 <sup>13</sup>	8667	(11600) <sup>17</sup>	25392.5
	389	498	523	374	744	591	629	630	740	700	720	1380	1370	1100	1406		757
	444	372	409	410	526	392	467	413	568	525	559	900	1042	850	1010		468.5
	868	911	919	756	786	897	934	718	797	789	852	1130 <sup>8</sup>	1165	1050	970		545
	-	-	-	404	531	468	471	447	511	475	500 <sup>1</sup>	930	1057 <sup>1</sup>	750 <sup>1</sup>	770 <sup>1</sup>		247
	197 <sup>3</sup>	200 <sup>3</sup>	200 <sup>3</sup>	128	121	262 <sup>3</sup>	262 <sup>3</sup>	110	64 <sup>4</sup>	64 <sup>4</sup>	49 <sup>5</sup>	90 <sup>4</sup>	115	250	250		65
	-	14	14	35	63	23	23	55	134	100	150	260	-	250	250		
10403	8745	9475	9637	11127	10345	11244	10323	11533	11188	11789	13190	15018	13412	13146	18800 <sup>17</sup>		27475
2541	1333	1364	1340	1690	1693	1718	1700	1731	1680			2202		2314	2500		966.5
	817	848	650	771	898	923	712	506	475			360		300			90
401	178	178			190	190											
															2614		1056.5
2942	2328	2390	1990	2461	2781	2831	2412	2237	2155			2562					
2569	2107	2107	2165	3569	2928	3057	3000	4244	4150	4142	5059		4750	5553	5000		7350
374	480	486	394	521	406	428	470	600	576	580	750		650	723 <sup>15</sup>	355		821
129	107	116	112	348	300	300	300	380	380		885 <sup>7</sup>			282 <sup>15</sup>			3
400	376	376	375	591	548	612	550	491 <sup>1</sup>	490 <sup>1</sup>			450 <sup>1</sup>		1616 <sup>1</sup>			621.7
-	14	14	26	33	39	41	33	106	106		90			200 <sup>15</sup>			101
3472	3084	3099	3187	5241	4395	4621	4528	5821	5886			7514			7604		8974.7
186	184	184	206	317	278	284	230	310	287	304	400		350	375	375		232.5
186	184	184	206	317	278	284	230	310	287	304	400		350	375	375		232.5
-	-	-	90	52	171	174	52	200	199			365			340		30
123	91	94	108	104	113	113	90	70	59			68		250			9
432	415	415	265	256	512	512	200	60	60		62			61			8
186	194	194	175	271	307	310	250	333	325		350	339	325	300	450		458
741	700	703	530	687	1094	1109	592	663	643		845			671			505
10.	433 <sup>10</sup>	395 <sup>10</sup>	395 <sup>10</sup>	226 <sup>10</sup>	301 <sup>10</sup>	442 <sup>10</sup>	265 <sup>10</sup>	270 <sup>10</sup>	260 <sup>10</sup>			415 <sup>10</sup>					306.55
8.	465 <sup>8</sup>	562 <sup>8</sup>	562 <sup>8</sup>	728 <sup>12</sup>	1216 <sup>12</sup>	1222 <sup>6</sup>	1180 <sup>12</sup>	1237 <sup>12</sup>	1220 <sup>12</sup>			1651 <sup>12</sup>					1357.1
5.	398 <sup>5</sup>	407 <sup>5</sup>	407 <sup>5</sup>	458 <sup>14</sup>	785 <sup>14</sup>	679 <sup>6</sup>	665 <sup>14</sup>	730 <sup>14</sup>	715 <sup>14</sup>			1700					455.51
11.	31 <sup>11</sup>	385 <sup>11</sup>	850 <sup>11</sup>	1030 <sup>2</sup>	1386 <sup>2</sup>	1673 <sup>11</sup>	1305 <sup>2</sup>	1991 <sup>2</sup>	1851 <sup>2</sup>			4088 <sup>2</sup>					5887.14
	1607	1749	2214	2439	2688	3016	3516	3415	4228	4056	7854						8006.3
19351	16790	18065	17989	23521	21909	23605	21500	24842 <sup>9</sup>	24015		32365			32592	38500		46250

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## SOURCES:

- a. Socialist Construction 1936, pp. 348-349.
- b. Socialist Construction 1936, pp. 348-349. Excludes expenditures for special purposes.
- c. Socialist Construction 1936, pp. 348-349. Includes expenditures for special purposes.
- d. 1935 Plan, p. 461. Preliminary results for 1934.
- e. 1936 Plan, pp. 506-7. Preliminary results for 1935.
- f. 1937 Plan, pp. 42-56, 120-1, 132-3, 140-1. Preliminary results for 1936.
- g. "Basic Indices of the National Economic Plan for 1937" Planovoe Khoziaistvo, 1937 No. 3, pp. 224-228. Includes changes introduced after the plan was confirmed.
- h. 1937 Plan, pp. 17, 26, 27, 29, 30, 31, 33, 34, 42-56, 120-1, 132-3, 140-1. If the planned reduction in construction costs is taken into account, the volume of capital work planned for 1937 is 29.2 billion.
- i. I. Bol'shakov, "Construction Program for 1938," Planovoe Khoziaistvo 1938 No. 6, pp. 31-34. These figures are probably in 1936-7 prices.

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## NOTES TO TABLE X

1. These figures are for the Chief Administration of Highways in the Ministry of Internal Affairs, evidently the successor to the Central Highways Administration. (Notes 1-10 are to indicated figures in the table).

2. These figures are for "central organizations" [cf. note 21 to this table for further explanation.]

3. These figures include hunting, fishing, and lumber cooperatives and cooperatives of disabled workers.

4. These figures are the sum of: (a) the Council of Producers' Cooperatives; (b) the Union of Lumber Cooperatives; (c) the cooperatives of disabled workers; (d) hunting and fishing cooperatives; and (e) so-called "integrated cooperatives."

5. These figures are the sum of: (a) the Council of Producers' Cooperatives; (b) the Union of Lumber Cooperatives; (c) the Council of Disabled Workers' Cooperatives.

6. Excludes investments by industrial ministries in the construction of municipal utilities and for education and health protection. Municipal services include the construction of municipal utilities (including electric power stations) and underground railway (subway) construction.

7. 30 million rubles should be subtracted from the Ministry of Heavy Industry and added to the Moscow Canal Building Administration for construction of the Moscow-Volga canal.

8. 25 million rubles should be subtracted from the Ministry of Agriculture and added to the Ministry of Food Industry for the construction of tea factories and tea state farms which have been placed under the supervision of the Ministry of Food Production.

9. Includes 50 million rubles assigned to the union republics for the increase in wages and the cost of fodder associated with the abandonment of rationing. These 50 million rubles are not distributed by ministries and departments in the table.

10. These figures are the sum of municipal dwellings and housing cooperatives.

11. These figures are the sum of special construction projects and administration and all other investments.

12. Municipal services include the construction of municipal utilities and subway construction.

13. 1957 Plan, p. 46, indicated that these figures for the Ministry of Heavy Industry include the Ministry of Defense Industry. Defense industry is probably also handled in this way for earlier years.

14. These figures include education and public health construction.

15. 1933 Plan (p. 29) states that capital investments in water transport were to be 1,210 billion rubles including .382 billion for the Moscow-Volga Canal. It is elsewhere stated that capital investments by the Ministry of Water Transport were to be .723 billion in 1933. (A. Smilga, "Finances of the Socialist State," Problemy ekonomiki, 1937 No. 2, p. 117). The figure for the Civil Administration of the Northern Sea Route is obtained by subtracting .723 billion and .382 billion from 1,210 billion.

16. Estimated by an arbitrary reduction of the 1936 Plan figure for the Ministry of foreign trade.

17. Bol'shakov (op.cit., p. 32) states that the 38.5 billion planned for 1938 total investments in the economy were slightly more than 190% of 1937 and that investments in heavy industry were planned to be 150% of 1937. If we examine the planned 1937 figures including planned reductions in construction costs, we find that total investments for the national economy were 29.165 billion. (A. Smilga, "Finances of the Socialist State," Problemy ekonomiki, 1937 No. 2, p. 117. The 29.165 figure is described as the amount of capital work financed. The 32.593 figure for 1937 plan, presented with its ministry breakdown in Table IX, is described as the volume of capital work. The difference between the two figures is clearly the economy from the planned reduction of construction costs). Since the ratio of 38.5 to 29.165 is 132% (whereas the ratios of 38.5 to the 32.593 of Table IX and to the 35.2 of Table V are 118% and 116% respectively), it is assumed that Bol'shakov was comparing plan 1938 with plan 1937 including planned reductions in construction costs.

Smilga's figure, including planned reductions in construction costs, for the Ministry of Heavy Industry was 7731 for 1937 plan (op.cit., p. 117). Bol'shakov's statement that investments in heavy industry were planned to be 150% of 1937 is, then, used to obtain the figure of 11.6 billion rubles for 1938 plan.

The industry estimate is obtained as indicated in note 8 to Table XII.

18. Obtained by subtraction from annual total.

19. It should be noted that the data on investments by ministries and departments represent investments for the capital accounts of the specified ministries and departments and not capital formation undertaken in a physical sense by the ministry or department. This is, perhaps, obvious except in the case of contract construction. There, for example, investments by the Ministry of Construction in the 1951 Plan were to be 110 million rubles, but the Ministry of Construction was to undertake construction activities for enterprises of other ministries to the amount of 6 billion rubles (1941 Plan, pp. 434, 491). The latter figure is reflected in the investments by the other ministries.

20. 1935 Plan and 1936 Plan were examined in detail to determine: (a) the magnitude of nonproductive investments in each of the ministries and departments; and (b) the extent of sector overlapping in the investments of ministries. The first point will be discussed in note 10 to Table XI. The second point is the subject of this note. We will assume, for the moment, that all investments by economic ministries are productive investments. The question is: to what extent do "industry" ministries, for example, invest in "agriculture?" The data on this point may be summarized as follows (in millions of rubles):

	1934 Plan	1935 Plan	1936 Plan
I. Ministry of Light Industry			
A. Total Investments	742.64	749.01	1292.00
B. Investments outside "industry"	61.03	24.90	82.10
1. Cotton procurement (including warehouse construction)	31.24	36.20	72.00
2. Workers' supply	29.79	18.70	10.10
II. Ministry of Timber Industry			
A. Total Investments	525.16	564.45	900.00
B. Investments outside "industry"	27.00	-	4.00
1. Agricultural measures	-	-	2.00
2. Workers' supply	27.00	-	4.00
III. Ministry of Food Industry			
A. Total Investments	847.33	789.59	1130.00
B. Investments outside "industry"	41.50	34.23	41.30
1. Livestock state farms	41.50	26.23	25.00
2. Tea state farms	-	8.00	21.00
IV. Ministries of Local Industry			
A. Total Investments			930.00
B. Investments outside "industry"			4.00
1. Agricultural flour mills			4.00
V. Ministry of Railroad Transport			
A. Total investments	3569.80	2936.75	5055.00
B. Investments outside "transport"	203.60	168.00	129.00
1. Locomotive and car building factories	27.60	41.00	43.00
2. Coal industry	77.00	65.00	45.00
3. Forestry	29.00	22.00	29.00
4. Workers' supply	70.00	40.00	13.00
VI. Ministry of Water Transport			
A. Total Investments	320.83	536.50	750.00
B. Investments outside "transport"	249.55	274.00	342.25
1. Shipbuilding	239.65	264.00	334.20
2. Workers' supply	9.90	10.00	7.95
VII. Chief Administration of Northern Sea Route			
A. Total Investments		102.00	170.00
B. Investments outside "transport"		75.5	100.7
1. Shipbuilding		58.6	74.2
2. Industrial construction		6.1	13.7
3. Deer state farms		1.2	1.7
4. Agriculture		-	2.2
5. Warehouse construction		-	2.2
6. Airplane construction		3.3	-
7. Airfield construction		3.0	-
8. Workers' supply		1.3	.5
VIII. Ministry of Internal Trade			
A. Total investments		145.0	365.0
B. Investments outside "trade and procurement"		20.6	42.5
1. Fruit and vegetable economy		13.80	19.00
2. Agriculture		-	1.00
3. Industry		6.80	13.00

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IX. Ministry of Foreign Trade			
A. Total Investments	107.54	70.00	68.00
B. Investments outside "trade & procurement"	37.76	29.54	19.84
1. Fur "production"	37.76	29.54	19.84
X. Central Union of Consumers' Cooperatives			
A. Total investments	255.6	189.0	62.0
B. Investments outside "trade and procurement"	151.2	119.0	8.7
1. Fruit and vegetable economy	21.2	15.0	1.7
2. Meat and dairy economy	8.0	4.5	2.0
3. Poultry and egg economy	-	-	1.0
4. Bread-baking	81.0	80.0	4.0
5. Industry	41.0	19.5	-
XI. Committee for Commodity Procurement Attached to Council of Ministers of USSR			
A. Total investments	262.99	245.00	350.0
B. Investments outside "trade and procurement"	126.65	100.10	162.4
1. Wheat-grinding industry	126.65	100.10	162.4

The Ministry of Heavy Industry had no planned investments outside of "industry." The Ministry of Communications had very small investments in "industry." (Cf. 1935 Plan, pp. 469, 476-480, 484, 486, 489; 1926 Plan, pp. 512, 521-529, 534, 536, 539.)

We know from Table IV that out of a total of 5881.3 million rubles invested in 1925 in agriculture, 233.1 million rubles were invested in industrial enterprises. (Cf. Table IV, note 7.)

Let us refer to investments outside the sector in which the Ministry belongs as "extra-sector investments."

It should be observed that data for extra-sector investments are recorded for identifiable components only. Some components could not be placed with accuracy either because they are referred to by abbreviations which I do not understand (for example, NIS which appears in many ministries) or because they are covered in an unallocated residual. These, however, were uniformly small.

Also, some extra-sector investments may be omitted because of the existence of vertical integrations in economic (as against administrative) organizations which cut across sector classifications. For example, investments which are stated to be in cotton manufacturing may include investments in a cotton farm owned by the manufacturing enterprise. In view of the high degree of aggregation in the sector classification, I suspect that these omissions, also are small.

Finally, many of the breakdowns within the ministries appear to be by chief administrations. It is possible that there might be extra-sector investments, in the sense of investments outside the sector in which the chief administration belongs, which are undetected by a detailed examination of ministry investments. Since the chief administrations tend to be more homogeneous than their parent ministries, I suspect again that these omissions are small.

From this data and from Soviet statements on the question (note 20 to this table) I conclude: (a) that the amount of extra-sector investments are relatively small except for the nonrailroad transport and the trade and procurement organizations; and (b) that on balance the elimination of extra-sector investments would increase the "industry" and "agriculture" figures.



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"transport" and "trade and procurement" as proportions of total investments in comparison with the sector classifications of the present table.

There is some additional indirect evidence on the magnitude of extra-sector investments. In 1937, gross output of industry was planned to be 103 billion rubles in 1936/7 prices. Of this amount, the following amounts were planned to be produced by nonindustrial ministries and departments:

Committee for Commodity Procurement	1.94 billion
Ministry of Railroad Transport	2.21 billion
Ministry of Water Transport	.31 billion
Ministry of Communications	.14 billion
Ministry of Internal Trade	.57 billion
"Tsentrtsiuz"	<u>.72 billion</u>
Total	5.89 billion

(1937 Plan, pp. 42-3, 52-3, 56-7). Thus, about 5.7% of total industrial output was planned to be produced by nonindustrial organizations. In a 1943 publication, Ioffe stated that about 10-12% of industrial output is produced by nonindustrial ministries. (I. Ioffe, Planirovanie promyshlennogo proizvodstva--Planning Industrial Production--Gospplanizdat 1943, p. 9.)

I would suspect further that industrial production in enterprises of nonindustrial ministries would tend, on the whole, to be small scale and less capital intensive. Accordingly, I would expect that the percentage of total investments in industry undertaken by enterprises of nonindustrial ministries would be less than the percentage of industrial output produced by nonindustrial ministries. On the other hand, I would expect that the percentage of total industrial labor force in industrial enterprises of nonindustrial ministries would be greater than the percentage of industrial output produced by nonindustrial ministries.

21. The question to be discussed in this note is whether extra-sector investments are appropriately placed in the Soviet sector breakdown. To put it in another way, the question is whether the sector breakdown is anything more than a sector classification of the ministry and department breakdown (i.e., the kind of classification adopted in the present table). For the moment, we are not concerned with the magnitude of nonproductive investments within the economic sectors; this will be discussed in the notes to Table XII. Accordingly, we assume for the moment that all investments by economic ministries and departments are productive investments. The problem is the relationship between the sector and administrative classifications.

There are some Soviet statements on this question. Arakelian states that beginning in 1933 investments in "industry" include investments in industrial fixed capital by nonindustrial ministries (Cf. Table V, note 4).

Arakelian was writing only about industry and would, therefore, feel no necessity to say anything about other sectors. Socialist Construction 1936 states that the 1932-1935 data on capital investments in agriculture include investments in state farms operated by Workers' Supply Departments of non-agricultural organizations (Cf. Table IV, note 5). Socialist Construction 1936 states that "trade and procurement" excludes investments in industrial enterprises (Cf. Table II, note 1). These remarks would indicate that at least some extra-sector investments are appropriately placed. On the other hand, Socialist Construction 1935 states that "transport" includes some industrial

excludes industrial enterprises of nonindustrial ministries (Table II, note 1).

Let us compare sector breakdowns with sector classifications of ministry and department breakdowns (call the latter "ministry breakdowns") from identical sources. As we have previously argued (note 20 to this table) the magnitude of extra sector investments is probably small; the comparison, therefore, will be suggestive only. The data are presented in Table X-A.

The breakdowns, except for "preliminary 1924" data, are presented in Table II note 7, Table III and Table IX. (It should be noted with respect to the Socialist Construction 1936 breakdowns that the "ministry breakdowns" (Table X) exclude collective farms' investments from their own resources whereas the sector breakdowns exclude investments by collective farms and cooperative farms from their own resources. Accordingly, in order to make the sector and ministry breakdowns comparable, investments by cooperative farms from their own resources were added to "agriculture" and to the total for the national economy in the Socialist Construction 1936 sector breakdowns. It should be noted also that the "trade and procurement" and the "social-cultural and administration" sectors are estimates for the 1937 plan ministry breakdown.)

There is little doubt in my mind as to the sector classification of ministries and departments presented in Table X (except for the 1941 plan difficulties already discussed in note 1 to Table VIII). The inclusion of the committee on Commodity Procurement in "trade and procurement" is stated by Socialist Construction 1936 (pp. 343-9).

The data in Table X-A suggest: (a) that the Soviet sector breakdowns are not achieved by a mechanical classification of ministries and departments except for "transport" in the Socialist Construction 1936 data; (b) that the pre-1933 sector breakdowns do not include all extra-sector investments, in particular do not include nontransport investments by the transport ministries and departments; (c) that extra-sector investments are probably appropriately placed in the post-1932 sector breakdowns (since the signs of the deviations between sector and ministry breakdown are not random for the economic sectors and since the signs conform to expectations with respect to the balance of extra-sector investments); and (d) that, if (a) and (c) are correct, the magnitude of extra-sector investments are, in absolute terms, small.

On the assumption that the Soviet sector breakdowns since 1932 place appropriately at least the obvious cases of extra-sector investments, there are two categories of extra-sector investments which may remain.

a. Since the chief administration appears to be the basic statistical reporting unit for so many economic magnitudes (for example, profits), it is possible that the sector breakdowns of investments are obtained by a classification of investments according to chief administrations. It is also possible, therefore, that there may still be extra-sector investments in the sense of investments outside the sector in which the chief administration belongs. Since the chief administrations tend to be more homogeneous than their parent ministries, I suspect that these inclusions are small.

b. There may be extra-sector investments in vertically integrated enterprises for which the integration cuts across sector lines. In view of the high degree of aggregation in the sector classification, I suspect these inclusions are also small.

22. Another question which arises is whether and where the construction

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of military facilities and fortifications are included. 1935 Plan (p. 461) states that capital investments by central organizations were planned to be 1109 million rubles (out of a total of 21190 million rubles for total investments in the 1935 plan exclusive of changes in the plan introduced during the year). 1935 Plan, further, presents a breakdown of capital investments by central organizations as follows (in millions of rubles):

Secretariat of the Central Executive Committee of the USSR.	102.20
<u>Upravlenie delami</u> of USSR Council of Ministers (I'm not sure what this is; perhaps, housekeeping functions for the Council of Ministers).	21.75
Academy of Sciences of the USSR.	25.00
<u>VIEM</u> of the USSR (the meaning of the abbreviation is unknown to me).	18.00
Ministry of Finances and its system.	32.60
All-Union Central Council of Trade Unions.	38.15
Gosplan and TsUNKHUI	5.00
Soviet Control Commission	1.00
Ministry of Foreign Affairs	1.00
Procurator of USSR	0.50
Supreme Court of USSR	0.10
<b>Total</b>	<b>245.50</b>

I suspect that the difference between the 1109 and the 245.50 figures represents expenditures on military facilities and fortifications. If this is correct, such construction is included in "social-cultural and administration." In this connection it should be noted that the socialist Construction 1936 data for "administration" are described as "administration and special construction projects." Cf. also: Table VIII, note 6; Table IX, notes 3 and 4.

23. An indication of the tremendous Soviet concentration on heavy industry is given by the breakdowns within industry. Using the socialist Construction 1936 data for 1929-1932 and the annual plan data for subsequent years, we find the following distributions among the Ministries of Heavy, Light, Timber, Food and Local Industries in percentages of total investments in industry:

Year	Ministry of Heavy Industry	Ministry of Light Industry	Ministry of Timber Industry	Ministry of Food Industry	Ministries of Local Industry	Total
1929	75.2	11.9	3.6	7.7	-	98.4
1930	75.4	7.6	4.8	9.9	-	97.7
1931	81.4	3.7	5.1	7.9	-	98.1
1932	81.8	3.7	4.3	8.3	-	98.1
1933	78.1	3.9	4.3	7.8	4.2	98.3
Plan 1934	775.1	6.7	4.7	7.1	4.8	98.4
Preliminary 1934	75.2	5.6	4.2	8.3	4.3	97.6
Plan 1935	75.8	6.4	4.9	6.9	4.4	98.4
1935	76.0	6.1	4.7	7.2	4.3	98.3
Plan 1936	68.4	9.1	6.9	7.8	7.0	99.2
Preliminary 1936	69.3	8.2	6.3	7.8	5.6	97.2
Plan 1937	65.9	10.7	7.7	7.4	5.9	97.6
Plan 1938	61.7	-	-	-	-	-
Plan 1941	92.4	2.8	1.7	2.0	.9	99.8

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An interesting point is the perceptible decline in the share of the Ministry of Heavy Industry, and the increase in the share of the Ministries of Light, Timber and Local Industry in the 1936-1938 period. This was the period in which tempos and totalitarianism relaxed perceptibly, if not substantially, and living standards increased.

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TABLE X-A: COMPARISON OF SECTOR BREAKDOWN AND MINISTRY BREAKDOWN OF CAPITAL INVESTMENTS (Tables II, III and IX)  
(In millions of rubles; in prices of the respective years)

	Realized 1929			Realized 1930			Realized 1931			Realized 1932		
	Sector-Ministry		Sector	Sector-Ministry		Sector	Sector-Ministry		Sector	Sector-Ministry		Sector
	Sector	Ministry		Sector	Ministry		Sector	Ministry		Sector	Ministry	
I. Industry	2316.4	2335	-0.4%	1114.3	1171	-1.4%	7407.4	7509	-1.4%	11222.2	10403	+3%
II. Agriculture	810	802	+4.5%	1660	1660	0	2694	2693	+9.6%	3505	2942	+11.0%
III. Transport	1179	1179	0	123	123	0	184	184	0	186	186	0
IV. Communications	70	70	0	174	255	-46.6%	260	471	-81.2%	351	741	-111.1%
V. Trade and Procurement	99	116	-17.2%	1004	1005	0	1311	1311	0	1606	1607	0
VI. Social-Cultural & Admin.	1002	1003	0	9495.3	9495	-0	15116.4	15116	0	19351.2	19351	-0
TOTAL	5005.9	5005	0	9495.3	9495	-0	15116.4	15116	0	19351.2	19351	-0
SOURCE:	Socialist Construction 1936, pp. 345-7			Socialist Construction 1936, pp. 345-7			Socialist Construction 1936, pp. 345-7			Socialist Construction 1936, pp. 345-7		

	Realized 1933			Realized 1934			Realized 1935			Realized 1936		
	Sector-Ministry		Sector	Sector-Ministry		Sector	Sector-Ministry		Sector	Sector-Ministry		Sector
	Sector	Ministry		Sector	Ministry		Sector	Ministry		Sector	Ministry	
I. Industry	8253	8745	+1.3%	9593	9475	+1.2%	10030	9637	+3.9%	11834	11127	+6.0%
II. Agriculture	2583	2328	+10.0%	2650	2390	+9.8%	2100	1990	+5.2%	2523	2461	+2.5%
III. Transport	3034	3034	0	3099	3099	0	3015	3187	-5.7%	4826	5211	-8.6%
IV. Communications	184	184	0	184	184	0	202	206	-2.0%	310	317	-2.3%
V. Trade and Procurement	372	700	-88.2%	375	703	-87.5%	238	530	-122.7%	428	687	-60.5%
VI. Social-Cultural & Admin.	1692	1719	-2.9%	2164	2214	-2.3%	2404	2439	-1.5%	3604	3683	-2.3%
TOTAL	15750	15750	0	18065	18065	0	17989	17989	0	23525	23521	0
SOURCE:	Socialist Construction 1936, pp. 345-9			Socialist Construction 1936, pp. 345-9			1935 Plan, p. 460			1935 Plan, pp. 460, 461		

	Realized 1934			Realized 1935			Preliminary 1936			Plan 1935		
	Sector-Ministry		Sector	Sector-Ministry		Sector	Sector-Ministry		Sector	Sector-Ministry		Sector
	Sector	Ministry		Sector	Ministry		Sector	Ministry		Sector	Ministry	
I. Industry	10524	10245	+2.6%	11525	11244	+2.4%	10959	10323	+5.8%	12205	11533	+5.8%
II. Agriculture	3138	2781	+11.4%	3188	2831	+11.2%	2458	2412	+1.9%	2269	2237	+2.3%
III. Transport	4395	4395	0	4619	4621	0	4136	4528	-9.5%	5455	5821	-6.7%
IV. Communications	278	278	0	284	284	0	224	230	-2.7%	305	310	-1.6%
V. Trade and Procurement	597	1094	-119.8%	588	1079	-118.5%	368	832	-60.9%	552	663	-20.1%
VI. Social-Cultural & Admin.	2847	2916	-1.7%	3167	3516	-1.4%	3355	3415	-1.8%	4305	4228	+1.8%
TOTAL	21039	21909	0	23605	23605	-0	21500	21500	0	24882	24882	0
SOURCE:	Socialist Construction 1936, pp. 345-9			Socialist Construction 1936, pp. 345-9			1935 Plan, pp. 460, 461			1936 Plan, pp. 504-7		

	Preliminary 1935			Plan 1936			Plan 1937		
	Sector-Ministry		Sector	Sector-Ministry		Sector	Sector-Ministry		Sector
	Sector	Ministry		Sector	Ministry		Sector	Ministry	
I. Industry	11693	11113	+5.5%	13956	13190	+5.5%	13928	13146	+5.6%
II. Agriculture	2101	2155	+1.2%	2633	2562	+2.7%	2659	2614	+1.7%
III. Transport	5507	5666	-7.1%	7173	7514	-4.8%	7370	7604	-3.2%
IV. Communications	283	287	-1.4%	393	400	-1.8%	370	375	-1.4%
V. Trade and Procurement	548	643	-17.3%	663	845	-23.7%	795	671	+15.4%
VI. Social-Cultural & Admin.	3143	3056	+2.8%	7527	7854	-4.3%	7471	8183	-9.5%
TOTAL	21015	21015	0	32355	32355	0	32593	32593	0
SOURCE:	1936 Plan, pp. 504-7			1936 Plan, pp. 504-7			1937 Plan, pp. 17, 26, 27, 29-31, 33, 34, 42-56, 120-1, 132-3, 140-3.		

TABLE XI: NONPRODUCTIVE INVESTMENTS BY MINISTRIES AND DEPARTMENTS

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	Plan 1933-1937 <sup>a</sup>					Plan 1935 <sup>b</sup>					Total Non-Productive Investments (10)=(7)-(8)-(9)
	Total Investments (1)	Housing Investments (2)	Municipal Services Investments (3)	Social-Cultural Investments (4)	Total Non-Productive Investments (5)=(2)+(3)+(4)	Total Investments (6)	Housing Investments (7)	Municipal Services Investments (8)	Social-Cultural Investments (9)		
<b>I. Industry</b>											
A.Ministry of Heavy Industry	48760	6000	650	560	7210	8739	812.6	133.5	146.8	1092.9	
B.Ministry of Light Industry	9200	1100	26	180	1306	740	119.1	9.0	19.8	147.9	
C.Ministry of Timber Industry	3450	492	54	114	660	568	63.1	7.9	16.3	87.3	
D.Ministry of Food Industry	5342	450	64	67	581	797	71.9	5.1	15.1	92.1	
E.Ministries of Local Industry	-	-	-	-	-	511	39.5	7.9	.9	48.3	
F.Producers' Cooperatives	350	30	-	32	62	64	-	-	-	-	
G.Chief Administration of Photo and Cinema Industry	675	25	1	460	486	114	5.6	.6	44.1	50.3	
<b>TOTAL</b>	<b>66275</b>	<b>8097</b>	<b>795</b>	<b>1413</b>	<b>10905</b>	<b>11533</b>	<b>1111.8</b>	<b>164.0</b>	<b>243.0</b>	<b>1518.8</b>	
<b>II. Agriculture</b>											
A.Ministry of Agriculture	10760	410	8	98	516	1731	67.4	-	-	67.4	
B.Ministry of State Farms	3790	500	6	75	581	506	89.5	-	11.3	100.8	
<b>TOTAL</b>	<b>66275</b>	<b>910</b>	<b>14</b>	<b>173</b>	<b>1097</b>	<b>2237</b>	<b>156.9</b>	<b>-</b>	<b>11.3</b>	<b>168.2</b>	
<b>III. Transport</b>											
A.Ministry of Railroad Transport	18700	1100	13	69	1182	4244	384.8	34.0	45.4	464.2	
B.Ministry of Water Transport	4245	240	5	33	278	600	55.4	3.2	12.4	71.0	
C.Moscow Canal Building Administration	-	-	-	-	-	380	-	-	-	-	
D.Chief Administration of Civil Air Fleet	1500	120	78	28	226	-	-	-	-	-	
E.Central Highways Administration	4000	95	-	4	99	491	-	-	-	-	
F.Chief Administration of Northern Sea Route	250	20	-	-	20	106	5.9	-	-	5.9	
<b>TOTAL</b>	<b>28695</b>	<b>1575</b>	<b>96</b>	<b>134</b>	<b>1805</b>	<b>5821</b>	<b>446.1</b>	<b>37.2</b>	<b>57.8</b>	<b>541.1</b>	
<b>IV. Communications</b>											
A.Ministry of Communications	1700	100	-	5	105	310	15.7	-	3.5	19.2	
<b>TOTAL</b>	<b>1700</b>	<b>100</b>	<b>-</b>	<b>5</b>	<b>105</b>	<b>310</b>	<b>15.7</b>	<b>-</b>	<b>3.5</b>	<b>19.2</b>	
<b>V. Trade and Procurement</b>											
A.Ministry of Internal Trade	-	-	-	-	-	200	4.0	-	.2	4.2	
B.Ministry of Foreign Trade	475	55	9	16	80	70	14.3	2.0	3.6	19.9	
C.Central Union of Consumers' Cooperatives	1510	100	-	28	128	60	9.0	-	2.3	11.3	
D.Committee for Commodity Procurement attached to Council of Ministers	940	40	1	8	49	333	11.2	.3	.8	12.3	
<b>TOTAL</b>	<b>2925</b>	<b>195</b>	<b>10</b>	<b>52</b>	<b>257</b>	<b>663</b>	<b>38.5</b>	<b>2.3</b>	<b>6.9</b>	<b>47.7</b>	
<b>VI. Social-Cultural &amp; Administration</b>											
A.Housing	2000	1815	-	-	1815	270	270.3	-	-	270.3	
B.Municipal Services	6900	70	6195	18	6283	1237	6.8	1221.0	1.7	1229.5	
C.Education, Public Health, Pensions, Relief	6225	-	-	5582	5582	730	-	-	557.8	557.8	
D.Administration and Special Construction Projects	-	-	-	-	-	1991	-	-	-	-	
<b>TOTAL</b>	<b>15125</b>	<b>1885</b>	<b>6195</b>	<b>5600</b>	<b>13680</b>	<b>4228</b>	<b>277.1</b>	<b>1221.0</b>	<b>559.5</b>	<b>2057.6</b>	
<b>VII. Miscellaneous</b>											
	3930	650	35	100	785	-	176.2 <sup>d</sup>	41.9 <sup>d</sup>	117.7 <sup>d</sup>	335.8	
<b>TOTAL FOR NATIONAL ECONOMY</b>	<b>133400</b>	<b>13412</b>	<b>7115</b>	<b>10000</b>	<b>24427</b>	<b>24428</b>	<b>176.2<sup>d</sup></b>	<b>41.9<sup>d</sup></b>	<b>117.7<sup>d</sup></b>	<b>335.8</b>	

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Year	Plan 1936 <sup>b</sup>							Plan 1941 <sup>c</sup>		Investments in Housing as a Percentage of Total Investment	
	Social-Cultural Investments (9)	Total Non-Productive Investments (10)=(7)-(9)	Total Investments (11)	Housing Investments (12)	Municipal Services Investments (13)	Social-Cultural Investments (14)	Total Non-Productive Investments (15)=(12)-(13)-(14)	Total Investments (16)	Housing Investments (17)	(16) - (2) / (1) * 100	(19) - (7) / (6) * 100
1950	146.8	1092.9	8500	850.0	100.0	125.0	1075.0	25399	2666.0	12.8	9.3
1949	19.8	147.9	1380	208.0	22.6	46.9	277.5	757	55.0	12.0	16.1
1948	16.3	87.3	900	98.5	14.0	21.7	134.2	669	60.4	14.3	11.1
1947	15.1	92.1	1130	120.0	8.0	15.0	143.0	545	18.6	8.4	9.0
1946	.9	48.3	930	83.8	10.2	7.4	101.4	247	11.0	3.5	7.7
1945	-	-	90	-	-	-	-	-	-	-	0
1944	44.1	50.3	260	22.7	.3	123.2	146.2	65	4.0	3.7	4.9
1943	243.0	1518.8	13190	1383.0	155.1	339.2	1377.3	27476	2815.0	12.2	9.6
1942	-	67.4	2202	55.1	-	16.0	71.1	967	.5	3.8	3.9
1941	11.3	100.8	360	20.0	-	6.3	26.3	90	-	12.5	17.7
1940	11.3	168.2	2562	75.1	-	22.3	97.4	1057	.5	6.2	7.0
1939	45.4	464.2	5059	445.0	-	15.0	460.0	7350	(600) <sup>o</sup>	5.9	9.1
1938	12.4	71.0	750	64.0	4.4	16.2	84.6	821	58.1	5.7	9.2
1937	-	-	885	-	-	-	-	3	.4	-	0
1936	-	-	-	-	-	-	-	78	13.5	8.0	-
1935	-	-	650	-	-	-	-	622	15.0	2.6	0
1934	-	5.9	170	16.5	.8	.3	17.6	101	9.1	8.0	5.6
1933	57.8	541.1	7514	525.5	5.2	31.5	562.2	8975	696.1	5.5	7.7
1932	3.5	19.2	400	17.0	-	3.6	20.4	231	6.3	5.9	5.1
1931	3.5	19.2	400	17.0	-	3.6	20.6	231	6.9	5.9	5.1
1930	.2	4.2	365	22.4	-	1.5	23.9	30	.6	-	2.0
1929	3.6	19.9	68	19.2	2.3	2.8	26.3	9	5.8	11.6	20.4
1928	2.9	11.3	62	1.2	-	.5	1.7	8	-	6.6	15.0
1927	.8	12.3	350	19.7	.3	2.3	22.3	458	18.1	4.3	3.4
1926	6.9	47.7	845	62.5	2.6	7.1	72.2	505	24.5	6.7	5.8
1925	-	270.3	415	415	-	-	415	307	306.6	-	-
1924	1.7	1229.5	1651	-	1643.6	-	1643.6	1357	75.3	-	-
1923	557.8	557.8	1700	5.3	-	1332.9	1338.2	456	24.4	-	-
1922	-	-	4088	-	-	-	-	5887	100.4	-	-
1921	559.5	2057.6	7854	420.3	1643.0	1332.9	3396.8	8007	506.6	-	-
1920	117.7 <sup>d</sup>	335.8	-	679.7 <sup>d</sup>	79.0 <sup>d</sup>	241.9 <sup>d</sup>	1000.6	-	-	16.5	-
1919	999.7	4688.4	32265	2163.1	1385.5	1978.5	7027.1	46253	4049.6	10.1	8.9

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3

Percentage of Total Investments Total Nonproductive Investments as a Percentage of Total Investments

Percentage of Total Investments		Total Nonproductive Investments as a Percentage of Total Investments		
Plan 1936	Plan 1941	Plan 1933-1937	Plan 1935	Plan 1936
$(20) = \frac{(12)}{(11)} \cdot 100$	$(21) = \frac{(17)}{(16)} \cdot 100$	$(22) = \frac{(5)}{(1)} \cdot 100$	$(23) = \frac{(10)}{(6)} \cdot 100$	$(24) = \frac{(15)}{(11)} \cdot 100$
10.0	10.5	15.4	12.5	12.6
15.1	7.3	14.2	20.0	20.1
10.9	12.9	19.1	15.4	14.9
10.6	3.4	10.9	11.6	11.0
9.0	4.5		9.5	10.9
0	-	7.3	0	0
8.7	6.2	60.1	44.1	56.2
10.5	10.2	15.5	13.2	14.2
2.5	.5	4.8	3.9	3.2
5.6	0	14.6	20.0	7.3
2.9	.5	7.4	7.5	3.8
8.8	(3.2) <sup>e</sup>	6.3	10.9	9.1
8.5	7.1	6.5	11.8	11.3
0	13.3	-	0	0
-	17.3	15.1	-	-
-	2.4	2.5	0	-
9.7	9.0	8.0	5.6	10.4
7.0	7.8	6.3	9.3	7.5
4.3	3.0	6.2	6.2	5.2
4.3	3.0	6.2	6.2	5.2
6.1	.2	-	2.1	6.5
28.2	64.4	16.3	28.4	35.7
1.9	0	8.5	18.8	2.7
5.6	4.0	5.2	3.7	6.4
7.4	4.9	8.8	7.2	3.5
-	-	20.0		
9.8	8.8	21.0	18.9	21.7



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## SOURCES:

- a. Second Five Year Plan, pp. 562, 570.
- b. 1936 Plan, pp. 510, 511.
- c. Table XI. The same aggregations are employed here as in Table XI; cf. note to Table XI. Total investments differ between the present table and Table XI because of the exclusion here of investments by the Baltic republics. Total housing construction differs between the present table and Table XI because of the inclusion here of an estimate of housing construction by the Ministry of Railroad Transport; cf. note \_\_\_ to the present table.
- d. Obtained as a residual between the indicated total and the total of the itemized components.
- e. Estimated; cf. note 2 for details.

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## NOTES TO TABLE XI

1. It is obvious, from a comparison of Sector VI and "All Social-Cultural Services" in Table I, that nonproductive investments (cf. above, p. 15) are included in the economic sectors. The purpose of the present table is to provide a basis for constructing a sector breakdown of investments in which nonproductive investments are omitted from the economic sectors and, thus, to permit international comparisons of the sector breakdown.

Nonproductive investments have been taken here to include housing construction, municipal service investments, and investments for public health, welfare, and educational purposes. The sources for Table X also present data on investments: (a) for Workers' Supply Departments; (b) for the training of cadres by economic organizations; and (c) for scientific institutions. These figures have been omitted from the present table on the following grounds:

a. Investments for Workers' Supply Departments do not seem to be, in the Soviet sense, nonproductive investments. They are rather a species of what I have called extra-sector investments (cf. Table X, notes 19 and 20) and are probably appropriately placed in the Soviet sector breakdown. In any case investments for Workers' Supply Departments declined markedly with the abolition of rationing in 1935. (Cf. Second Five Year Plan, p.570; 1936 Plan, pp.510, 511 ).

b. Investments by economic organizations for the training of cadres have their counterparts in American practice. In addition, with the growth of the State Labor Reserves system in the USSR since 1940, such investments probably declined in importance.

c. Investments by economic organizations for scientific institutions may be regarded as approximately counterbalanced by research and development services rendered economic organizations by scientific institutions.

The effect of the latter two exclusions, in any case, is small. If we add to the nonproductive investments of ministries and departments (in Table XI) their investments in scientific institutions and for the training of cadres and aggregate into sectors (as in Table XI) we obtain for 1936 Plan:

	Total investments (1)	Nonproductive investments plus training of cadres & scientific institutions (2)	(3) = $\frac{(2)}{(1)} \cdot 100$	Percentages in column (24) of Table X
Industry	13190	2032.8	15.4	14.2
Agriculture	2562	176.6	6.9	3.8
Transport	7514	610.8	8.1	7.5
Communications	400	36.1	9.0	5.2
Trade & Procurement	845	87.4	10.3	8.5

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Inclusion, in addition, of investments for Workers' Supply Departments would have made the 1936 plan percentages:

Industry	15.8
Agriculture	6.9
Transport	8.4
Communications	9.7
Trade & Procurement	10.8

For 1941 plan total investments by the Ministry of Railroad Transport are estimated at 6 billion rubles and total investments by the Chief Administration (in the Ministry of Internal Affairs) of Railroad Construction are given as 1.350 billion rubles, for a total of 7.350 billion rubles (cf. Table VIII and note 2). Total investments by the Ministry of Railroad Transport are given by 1936 plan as 5.059 and .445 billion rubles respectively. If one were to assume that the proportion of total investments in railroad transport going for housing construction was constant, 1941 plan housing construction would be estimated at about .650 billion.

It is observed, however: (a) that something like 1/6 of the total investments in railroad transport were to be undertaken in 1941 by the Ministry of Internal Affairs; and (b) that housing construction as a percentage of total investments by the Ministry of Internal Affairs as a whole was only about 2% as against 8.8% for the Ministry of Railroad Transport in 1936 plan. (Cf. Table VIII and the present table). Accordingly, the estimate for 1941 plan housing construction is arbitrarily scaled down to 600 billion rubles. Since housing construction by the Chief Administration of Railroad Construction has already been estimated to be .028 billion rubles (Table VIII, note 14), this implies that .572 billion rubles are estimated to be the housing construction by the Ministry of Railroad Transport.

3. There is some data on the source of investments in housing construction.

a. Kobalevskii presents the following data on capital investments in urban housing by category of investor:

	1924-28		1928-1932		1933		1934		1935	
	millions of rubles	% of total	millions	%	millions	%	millions	%	millions	%
Total housing construction	943	100	4049	100	1213	100	1601	100	1811	100
1. Industry	402	42.5	2553	63.0	727	59.9	895	55.6	1036	57.2
2. Transport	92	9.9	319	7.8	84	7.0	211	13.1	417	23.0
3. Executive committees of local soviets & housing cooperatives	382	40.5	853	21.1	196	16.1	283	17.7	216	12.0
4. Other (collectivized)	67	7.1	328	8.1	206	17.0	202	12.6	142	7.8

(V. L. Kobalevskii, Organizatsiia i ekonomika zhilishchnogo khoziaistva SSSR - Organization and Economics of the USSR Housing Economy - 1940, p.107. There are some minor discrepancies in Kobalevskii's figures for 1928-1932 and for 1934 whereby total housing construction is slightly less than the sum of the indicated components.)

b. Maslakov states that in the Fourth Five Year Plan 77% of housing construction is to be undertaken by ministries, 8.7% by local city soviets and 14% by individuals. (V. P. Maslakov, N. L. Filatov, and V. V. Barmin, Finansirovanie zheleshchno-kommunal'nogo khoziaistva - Financing the Housing - Municipal Economy -, 1948, p.7). Since the Fourth Five Year Plan figure for housing construction of 42.3 billion rubles is stated to exclude individual housing construction (Fourth Five Year Plan, p.54), we obtain total housing construction (including individual, by dividing 42.3 by .86). The result is 49.2 billion rubles of this, 37.9 is to be undertaken by ministries and 4.3 by local city soviets. Thus, 90% of housing construction exclusive of individual construction is to be undertaken by ministries and 10% by local city soviets.

c. If we calculate from Table XI the percentage of total housing undertaken by the various sectors and tabulate the results alongside the previous results we obtain:

	1924-28	1928-1932	Plan 1933-37	1933	1934	Plan 1935	1935	Plan 1936	Plan 1941	Plan 1946-50
Industry	42.5	63.0	60.4	59.9	55.6	50.0	57.2	43.7	69.5	} 90
Agriculture	--	--	6.8	--	--	7.1	--	2.4	.0	
Transport	9.9	7.8	11.7	7.0	13.1	20.1	23.0	16.6	17.2	
Communications	--	--	.7	--	--	.7	--	.5	.2	
Trade & Procurement	--	--	1.5	--	--	1.7	--	2.0	.6	
Other	7.1	8.1	4.8	17.0	12.6	7.9	7.8	21.5	--	
Executive committees of local soviets & housing cooperatives	40.5	21.1	14.1	16.1	17.7	12.5	12.0	13.3	12.5	

4. The problem, now, is: how shall we eliminate nonproductive investments from the economic sectors? The data on nonproductive investments are far from complete and, therefore, any method of elimination can be only approximate. I propose to use the following procedure to obtain nonproductive investments.

a. For the years 1924-1925 through 1928, I will use the nonproductive investments given in Table II. This amounts to the assumption that no nonproductive investments occurred in sectors other than industry and agriculture. We know, however, from the Kobalevskii data (note 3, this table) that other sectors did invest in housing. Since the amounts involved were very small and since housing has always constituted the overwhelming proportion of nonproductive investments by economic organizations, nonproductive investments in the economic sectors other than industry and agriculture may, with little violence, be ignored. Accordingly, nonproductive investments in the years indicated are taken to be (in millions of rubles):

	<u>1924-5</u>	<u>1925-6</u>	<u>Oct. 1, 1926- Dec. 31, 1927</u>	<u>1928</u>
Industry	65	126	207	193
Agriculture	3	6	12	20

b. For the years 1929 through 1932 I will use the nonproductive investments given in Table II for industry and the nonproductive investments given in Table IV (i.e. the difference between items 1. and 2. - cf. Table IV, note 7) for agriculture. Nonproductive investments in economic sectors other than industry and agriculture will, also, be ignored in this period. The Kobalevskii data indicate that the omission is not serious. Accordingly, nonproductive investments in the years indicated are taken to be (in millions of rubles):

	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>
Industry	307	607	1066	1637
Agriculture	32	281	292	355

c. For the period 1923/4 - 1927/8 I will use the sum of nonproductive investments for 1924-1925 through 1928. For the period 1928/9-1932 I will use the sum of nonproductive investments for 1929 through 1932. Thus, nonproductive investments for these periods are taken to be (in millions of rubles):

	<u>1923/4-1927/8</u>	<u>1928/9-1932</u>
Industry	591	3617
Agriculture	41	960

d. For industry in 1933 and 1934 I will use the nonproductive investments given in Table II. For agriculture in 1933, 1934 and 1935 I will use the nonproductive investments given in Table IV. Thus (in millions of rubles):

	<u>1933</u>	<u>1934</u>	<u>1935</u>
Industry	1683	1947	--
Agriculture	292	418	310

e. For the years 1933 and 1935 (except for industry and agriculture), I will use the Second Five Year Plan percentages (from the present table) and the sector breakdown of investments (from Table V) to obtain nonproductive investments. It should be noted, as a general caution, that the percentages are derived from a ministry breakdown of investments and, therefore, may somewhat overstate nonproductive investments for industry and agriculture and somewhat understate nonproductive investments for other economic sectors even if the percentages are representative. Thus, we obtain:

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1933

	Total investments (in millions of rubles from Table V)	Nonproductive investments Total investments (from Table XI)	Nonproductive investments (in millions of rubles) (3)=(2)·(1)
	(1)	(2)	(3)
Transport	3015	6.3	190
Communications	202	6.2	13
Trade & Procurement	238	8.8	21

1934

	Total investments (in millions of rubles from Table V)	Nonproductive investments Total investments (from Table XI)	Nonproductive investments (in millions of rubles) (6)=(4)·(5)
	(4)	(5)	(6)
Transport	4250	6.3	268
Communications	279	6.2	17
Trade & Procurement	486	8.8	43

f. For 1935 (except for agriculture) I will use the 1935 Plan percentages and for 1936 and 1937 I will use the 1936 Plan percentages (from the present table) along with the sector breakdown of investments (from Table V) to obtain nonproductive investments. Thus we obtain:

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	<u>1935</u>		
	Total investments (in millions of rubles from Table V)	<u>Nonproductive investments</u> Total investments	Nonproductive investments (in millions of rubles)
	(1)	(2)	(3)=(2)·(1)
Industry	13024	13.2	1719
Agriculture	--	--	--
Transport	5455	9.3	507
Communications	300	6.2	19
Trade & Procurement	562	7.2	40

	<u>1936</u>		
	Total investments (in millions of rubles from Table V)	<u>Nonproductive investments</u> Total investments	Nonproductive investments (in millions of rubles)
	(4)	(5)	(6)=(4)·(5)
Industry	15969	14.2	2268
Agriculture	3884	3.8	148
Transport	6917	7.5	519
Communications	310	5.2	16
Trade & Procurement	1046	8.5	89

	<u>1937</u>		
	Total investments (in millions of rubles from Table V)	<u>Nonproductive investments</u> Total investments	Nonproductive investments (in millions of rubles)
	(7)	(8)	(9)=(7)·(8)
Industry	15012	14.2	2132
Agriculture	4146	3.8	158
Transport	5774	7.5	433
Communications	346	5.2	18
Trade & Procurement	913	8.5	78



It should be noted that agriculture for 1936 and 1937 (and similarly for subsequent years) may be understated particularly because collective farms' investments from their own resources have been omitted. The omission may be justified: (1) by an extrapolation of the pre-1936 data in which nonproductive investments by collective farms were virtually zero (Table IV); and (2) by the observation that the housing for collective farm members was individually owned at least since 1935.

g. For the period 1933-1937 I will use the sum of nonproductive investments for the years 1933 through 1937 (as obtained above). Thus, in millions of rubles:

	1933	1934	1935	1936	1937	Total 1933-1937
Industry	1683	1947	1719	2268	2132	9749
Agriculture	292	418	310	148	158	1326
Transport	190	268	507	519	433	1917
Communications	13	17	19	16	18	83
Trade & Procurement	21	43	40	89	78	271
Total						13346

h. For the period 1938-1942, I will use the 1936 plan percentages along with the sector breakdown of investments (from Tables I, V and IX) in order to obtain nonproductive investments. For the years in which transport and communications investments are combined, the transport percentage will be used for both on the grounds that communications is an insignificant proportion of the total. The extrapolation of the earlier percentages to the later years may be justified on the following grounds: (1) the percentages in Table XI exhibit little variation except for the decline in agriculture; and (2) housing construction as a percentage of total investments exhibits little variation between 1936 plan and 1941 plan except, again, for the decline in agriculture. Thus we obtain:

Plan 1938-42

	Total Investments (Table I) (1)	<u>Nonproductive investments</u> . 100 Total investments (Table XI) (2)	Nonproductive Investments (3)=(2)·(1)
Industry	103,580	14.2	14,708
Agriculture	18,000	3.8	684
Transport	35,826	7.5	2687
Communications	1,748	5.2	91
Trade & Procurement	2,563	8.5	213

Plan 1938

	Total Investments (Table IX) (4)	<u>Nonproductive investments</u> . 100 Total investments (Table XI) (5)	Nonproductive Investments (6)=(4)·(5)
Industry	17460	14.2	2480
Agriculture	2470	3.8	90
Transport	6820	7.5	510
Communications		7.5	510
Trade & Procurement	660	8.5	60

1938

	Total Investments (Table V) (7)	<u>Nonproductive investments</u> . 100 Total investments (Table XI) (8)	Nonproductive Investments (9)=(7)·(8)
Industry	17075	14.2	2425
Agriculture	3449	3.8	131
Transport	6623	7.5	497
Communications	376	5.2	20
Trade & Procurement	763	8.5	65

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Plan 1939

	Total Investments (Table IX) (10)	<u>Nonproductive investments</u> . 100 Total investments (Table XI) (11)	Nonproductive Investments (12)=(10)·(11)
Industry	17590	14.2	2500
Agriculture	1590	3.8	60
Transport	} 4960	7.5	370
Communications			
Trade & Procurement	490	8.5	40

Plan 1940

	Total Investments (Table IX) (13)	<u>Nonproductive investments</u> . 100 Total investments (Table XI) (14)	Nonproductive Investments (15)=(13)·(14)
Industry	19190	14.2	2720
Agriculture	1230	3.8	50
Transport	} 5440	7.5	410
Communications			
Trade & Procurement	370	8.5	30

Plan 1941

	Total Investments (Table IX) (16)	<u>Nonproductive investments</u> . 100 Total investments (Table XI) (17)	Nonproductive Investments (18)=(16)·(17)
Industry	27480	14.2	3900
Agriculture	1060	3.8	40
Transport	} 9210	7.5	690
Communications			
Trade & Procurement	510	8.5	40

1. For the post-war period we observe: (1) that housing construction (exclusive of individual housing construction) as a percentage of total investment has doubled in comparison with the pre-war period (Table XII and note 23); and (2) that the percentage of housing construction, exclusive of individual housing construction, to be undertaken by economic organizations has increased slightly (note 3 to the present table). Housing construction for the Fourth Five Year Plan was to be 42.3 billion rubles, of which 90% or approximately 38 billion rubles were to be undertaken by economic ministries (note 3 to the present table). It is clear that the pre-war percentages (nonproductive investments + total investments, for the economic sectors) will not account for this magnitude of housing construction alone. We will attempt to estimate the post-war percentages by estimating the magnitude of nonproductive investments to be undertaken by economic organizations. In addition to housing construction, the components of nonproductive investments are municipal services and social-cultural expenditures. Municipal services investments were planned to be 6.1 billion rubles for the Fourth Five Year Plan. If we assume that the percentage of municipal services investments which were to be undertaken by economic organizations is the same as pre-war -- namely about 10% or 600 million rubles (cf. Table XI) -- and that the amount of social-cultural construction to be undertaken by economic organizations is about twice this magnitude or 1200 million rubles, then nonproductive investments by economic organizations must be in the neighborhood of 40 billion rubles. The bulk of such investments, moreover, must have been undertaken by industrial organizations. We will assume, therefore, that in the post-war period nonproductive investments as percentages of total investments were about 21% in industry, about 8% in agriculture, 9% in transport, 7% in communications, and 9% in trade and procurement. Except for industry, these percentages represent approximately the pre-war maximum among the figures we have (cf. Table XI). In industry the pre-war maximum was 15.5% as against the 21% assumed. Using these percentages and the sector breakdown of investments (from Tables I and IX) we obtain the following results:

Plan 1946-50

	Total Investments	<u>Nonproductive investments</u> . 100	Nonproductive Investments
	(Table I)	Total investments	(billions of rubles)
	(1)	(2)	(3)=(2)·(1)
Industry	157.5	21	33.1
Agriculture	19.9	8	1.6
Transport	53.5	9	4.8
Communications	....	7	...
Trade & Procurement	....	9	...

1948

	Total Investments	<u>Nonproductive investments</u> . 100	Nonproductive Investments
	(4)	Total investments	(billions of rubles)
	(4)	(5)	(6)=(4)·(5)
Industry	46.39	21	9.74
Agriculture	4.32	8	.35
Transport	9.00	9	.81
Communications		9	.81
Trade & Procurement	.84	9	.81

Plan 1949

	Total Investments	<u>Nonproductive investments</u> . 100	Nonproductive Investments
	(7)	Total investments	(billions of rubles)
	(7)	(8)	(9)=(7)·(8)
Industry	72.23	21	15.17
Agriculture	9.21	8	.74
Transport	13.54	9	1.22
Communications		9	.09
Trade & Procurement	.99	9	.09

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In summary, then, the sector breakdowns of nonproductive investments by economic organizations are as follows (in millions of rubles):

	1924-25	1925-26	Oct. 1926- Dec. 1927	1928	1923/4- 1927/8	1929	1930	1931
Industry	65	126	207	193	591	307	607	1066
Agriculture	3	6	12	20	41	32	281	292
Transport	0	0	0	0	0	0	0	0
Communications	0	0	0	0	0	0	0	0
Trade & Procurement	0	0	0	0	0	0	0	0
<b>Total</b>	<b>68</b>	<b>132</b>	<b>219</b>	<b>213</b>	<b>632</b>	<b>339</b>	<b>888</b>	<b>1358</b>

	1932	1928/9- 1932	1933	1934	1935	1936	1937	1933- 1937	Plan 1938-1942
Industry	1637	3617	1683	1947	1719	2268	2132	9749	14709
Agriculture	355	960	292	418	310	148	158	1326	646
Transport	0	0	190	268	507	519	433	1917	2687
Communications	0	0	13	17	19	16	18	83	39
Trade & Procurement	0	0	21	43	40	89	78	271	218
<b>Total</b>	<b>1992</b>	<b>4577</b>	<b>2199</b>	<b>2693</b>	<b>2595</b>	<b>3040</b>	<b>2819</b>	<b>13346</b>	<b>18336</b>

	Plan 1938	Plan 1938	Plan 1939	Plan 1940	Plan 1941	Plan 1946-1950	Plan 1948	Plan 1949
Industry	2480	2425	2500	2720	3900	33100	9740	15170
Agriculture	90	131	60	50	40	1600	350	740
Transport	510	497	370	410	690	4800	810	1220
Communications	60	20	40	30	40	...	80	90
Trade & Procurement	60	65	40	30	40	...	80	90
<b>Total</b>	<b>3140</b>	<b>3138</b>	<b>2970</b>	<b>3210</b>	<b>4670</b>	<b>39500</b>	<b>10980</b>	<b>17220</b>

Anyone who has read this note need not be reminded of the highly conjectural nature of the post-1932 estimates. It is, unfortunately, not possible to provide reliable checks for these figures. But it is possible to provide rough checks on the total of nonproductive investments by economic organizations. We know that housing construction represents the overwhelming proportion of nonproductive investments by economic organizations (Table XI and note 1). We know also that since 1928 80-90% of housing construction was undertaken by economic organizations (note 3 to the present table). Accordingly, our figures for nonproductive investments should somewhat exceed (by the amount of municipal service and social-cultural investments undertaken by economic organizations) 80-90% of the amount of housing construction. We can try this check, using the housing construction figures from Tables I and XII and 80% for 1928-1932, 85% for 1933-1941, and 90% for the post-war period in order to obtain housing construction by economic organizations. The check must be rough for at least two reasons: (1) we don't know what percentages to use for the individual years; (2) the annual housing construction figures exclude housing repairs for the years 1933-37 and perhaps for other years as well (Table XII, note 19).

In any case, housing construction and the amount of housing construction undertaken by economic organizations are (in millions of rubles):

	1929	1930	1931	1932	1928/9 - 1932	Plan 1933-37	1933	1934	Plan 1935	1930
Housing Construction Amount of Housing Construction by Economic Organizations	509	775	1116	1591	4640	13412	1343	1729	2023	1930
	407	620	893	1273	3712	11400	1142	1470	1720	1640

	Plan 1936	Prelim- inary 1936	1933-37	Plan 1938-42	Plan 1938	1940	Plan 1941	1948	1949
Housing Construction Amount of Housing Construction by Economic Organizations	3065	2400	12575	15500	2642	3200	4050	9500	12200
	2605	2040	10689	13175	2246	2720	3443	8550	10980

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The 1948 and 1949 figures, it should be remembered are in 1945 prices. If we compare our estimates of nonproductive investments by economic organizations with the amount of housing construction by economic organizations, we obtain the following results (in millions of rubles):

	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1928/9</u> <u>-1932</u>	<u>Plan</u> <u>1933-37</u>	<u>1933</u>	<u>1934</u>	<u>Plan</u> <u>1935</u>	<u>Plan</u> <u>1935</u>	<u>Plan</u> <u>1936</u>
Nonproductive Investments by Economic Organizations	339	888	1358	1992	4577	13569	2199	2693	2295	2595	2630
Housing Construction by Economic Organizations	407	620	893	1273	3712	11400	1142	1470	1720	1640	2605

	<u>1936</u>	<u>1933-37</u>	<u>Plan</u> <u>1938-42</u>	<u>Plan</u> <u>1938</u>	<u>Plan</u> <u>1940</u>	<u>Plan</u> <u>1940</u>	<u>Plan</u> <u>1941</u>	<u>Plan</u> <u>1948</u>	<u>Plan</u> <u>1949</u>	<u>Plan</u> <u>1949</u>
Nonproductive Investments by Economic Organizations	3040	13346	18336	3140	3210		4670	10980	17220	
Housing Construction by Economic Organizations	2040	10689	13175	2246		2720	3443	8550		10980

Again, it should be remembered that in the 1948 and 1949 comparisons, nonproductive investments are in current prices whereas housing construction is in 1945 prices. Although 1945-1948 price changes are not substantial, the 1945-1949 price changes are (cf. Table VI, note 1).

The roughness of the comparison must be kept in mind - particularly, the exclusion of housing repairs from the annual 1933-1937 housing construction figures and also, perhaps, from other annual figures and the roughness of the percentages used to obtain housing construction by economic organizations. With this in mind, I conclude that the order of magnitude of nonproductive investments by economic organizations which is implied by our estimates seems to be reasonable. I suspect, however, that I may have somewhat underestimated the post-war magnitudes.

The sector breakdown of such investments is not a matter of great concern since industry obviously contributes the overwhelming proportion of the total.



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Table (II): Capital Investments by Principal Branches of the Economy, 1929-1950

	Prices of Respective Years				1933 prices (In millions of rubles)	Prices of Respective Years							Preliminary <sup>a</sup> 1936
	1929 <sup>a</sup>	1930 <sup>a</sup>	1931 <sup>a</sup>	1932 <sup>a</sup>	Plan <sup>b</sup> 1933-37	1933 <sup>a</sup>	Plan <sup>c</sup> 1934	1934 <sup>a</sup>	Plan <sup>d</sup> 1935	1935 <sup>e</sup>	Plan <sup>d</sup> 1936		
						1933 <sup>a</sup>	1934 <sup>a</sup>	1935 <sup>e</sup>	1936 <sup>d</sup>				
I. Total Industry	2615	4114	7407	10431	6954.5	8863	11834	10624	12205	12542	13956	14259	
A. Electric Power Stations	250.9	394.5	549.6	719.0	5350	609.0	799.0	640	840.5		976.0		
B. Coal Industry	229.7	308.9	598.8	782.0	3500	561.0	629.5	595	624.87		500.07		
C. Petroleum Industry	248.9	350.4	414.5	452.1	4700	483.0	729.5	698.0	860.3		1000.0		
D. Ferrous Metallurgy	265.22	418.3	836.1	1421.9	3791	406.0	1627.4	1827.0	1549.3		1050.0		
E. Nonferrous Metallurgy	91.0	150.0	320.3	543.5	8060		680.0	856.8	2345.2		1100.0		
F. Machine Construction					4770		2178.7	2345.2	1960.0		1535.0		
G. Chemicals Industry							1079.7	1038.3	100.0		100.0		
H. Construction Materials Industry							179.6	155.5	415.3		415.3		
I. Paper Industry			47.2	65.2			146.9	92.0	207.4		766.2		
J. Textile Industry	193.5	195.0	122.0	143.6		60.0	209.0	353.15	349.0		404.6		
K. Leather Boots and Shoes	44.8	46.5	54.0	55.2		209.0	70.0	96.96	101.0		62.73		
L. Light Industry	314.0 <sup>3</sup>	318.0	275.9	388.7	9200 <sup>3</sup>	498.0	742.6	774.0	740.0	720 <sup>3</sup>	1380.0		
M. Food Industry	162.24	270.24	415.74	632.24		715.04	847.84	304.04	789.64	852 <sup>4</sup>	1130.04		
1. Sugar Industry		47.9	55.3	92.1		126.0	160.3	107.0	113.9		194.5		
2. Fishing Industry		69.4	104.8	121.5		87.0	156.5	118.0	157.7		197.0		
3. Meat and Dairy Industry							102.0	92.4			144.1		
N. Group A Industry <sup>5</sup>	2127	3425	6513	9080	53442	7401	9617	8692	9986	10516	10647	11510	
II. Total Transport	1179	1660	2694	3472	26342	3084	4826	4395	5455	5455	7173	6922	
A. Railroad Transport	873	1112	1910	2569	17364	2107	3249	2938	3843	3752	4762	4428	
III. Housing Construction	509 <sup>s</sup>	775 <sup>s</sup>	1116 <sup>s</sup>	1591 <sup>s</sup>	13412	1343 <sup>c</sup>	-	1729 <sup>d</sup>	2023	1930	3064	2400	
IV. Municipal Services		1962 <sup>u</sup>			7145	750 <sup>c</sup>		1283 <sup>d</sup>	1447	1400	1885	1800	
V. Total National Economy	5305	9496	15116	19351	133400	16790	23521	21909	24722	32365	31750	31750	

## SOURCES:

- a. *Sotsialisticheskoe stroitel'stvo 1936*, pp. 388-389; *Socialist Construction 1936*, pp. 350-351.  
b. *Second Five Year Plan*, pp. 558-59, 571.  
c. *1935 Plan*, pp. 460, 461, 468, 469, 476, 477, 478.  
d. *1936 Plan*, pp. 391, 504-5, 506-7, 512, 521, 522, 523.  
e. *1937 Plan*, pp. 17, 140-141, 142-143.  
f. *Second Five Year Plan Fulfillment*, p. 71.  
g. *Socialist Construction 1932-1938*, pp. 113, 115.  
h. *Third Five Year Plan*, pp. 120, 136, 137, 197, 225.  
i. I. Bol'shakov, "Construction Program for 1938"; *Planovoe khoziaistvo 1938*, No. 6, pp. 32-37.  
j. Kantor, *Osnovnye fondy promyshlennosti i ikh ispol'zovanie*, pp. 58, 69. Cf. note 21 to this table for details.  
k. Calculated from a statement that planned investments in 1941 were, as a percentage of realized investments in 1940, 122% for ferrous metallurgy, 93% for nonferrous metallurgy, 12% for petroleum, 148% for electric power stations, and 102% for machine construction. Cf. V. Buzyrev, "Fixed Capital in the USSR and the Financing of Capital Investments," *Sovetskie finansy*, 1942 No. 11-12, p. 45. Since the *1941 Plan* investments are for ministries, the 1940 investments are also.  
l. *1941 Plan*, pp. 483-485 (Cf. Table VIII). The figures here are by ministries.  
m. These figures are highly conjectural estimates; Cf. note 22 to this table for the scattered data and heroic assumptions on which these estimates are based.  
n. *Fourth Five Year Plan*, pp. 9, 13, 45, 54.  
o. *Narodnoe khoziaistvo (National Economy)*, volume 1, a collection of articles and reports, Gosplanizdat 1947, pp. 341, 414-415.  
p. Table VI.

1.  
of the Economy, 1929-1950

2

Prices of Respective Years							1936-7 prices	1936-7 prices
Plan 1935	1935 <sup>e</sup>	Plan <sup>d</sup> 1936	Preliminary <sup>e</sup> 1936	Plan 1937 <sup>e</sup>	1932-1937 <sup>f</sup>	1934-1938 <sup>g</sup>	Plan <sup>h</sup> 1938-1942	Plan <sup>i</sup> 1938
205	12542	13956	14259	13928	65763	72948	103580	(18.80) <sup>8</sup> .
840.5		976.0						1250
624.87.		500.07.						1026
860.3		1000.0						1150
549.3		1050.0						850
856.8		1100.0						
345.2		1960.0						
038.3		1535.0						
155.5		100.0						270
20		415.3						5515.
404.65.		766.25.						
62.73.		125.93.						
740.03.	720 <sup>3</sup> .	1380.0		1406 <sup>3</sup> .				990
789.64.	852 <sup>4</sup> .	1130.04.		970 <sup>4</sup> .				128
113.9		194.5						
157.7		197.0						
92.4		144.1						
1986	10516	10647	11510	10919	54565	60777	87162	
5455	5455	7173	6922	7370	25411	29019	35826	
3843	3752	4762	4428	5323	17077	19627	24245	5000
202	1930	3064	2400	2425	12575		15500 <sup>n,17</sup> .	(2642) <sup>9</sup> .
							6950 <sup>16</sup>	(1858) <sup>9</sup> .
447	1400	1885	1200	1813	6488 <sup>11</sup> .			
722	32365	31750	31750	32593	137491	155148	188300	38500

r. M. Arkad'ev, O zhilishchnom stroitel'stve v SSSR (On Housing Const  
 s. D. Buzin, "The Housing and Municipal Services Economy Over 20 Year  
 t. Table X.  
 u. Socialist Construction 1933-38, p. 135. The 1962 figure is for th  
 v. V. P. Maslakov, N. L. Filatov, and V. V. Barmin, Finansirovanie zh  
Gosfinizdat 1948, p. 7.

for ferrous metallurgy,  
 Cf. Buzyrev, "Fixed  
 Plan Investments are for

on which these estimates

-415.

ar Plan) 1947. p. 63.

3

respective years for total industry and national economy which 1936-7 prices		1945 prices								
1939 <sup>j</sup>	1940 <sup>k</sup>	Plan <sup>l</sup> 1941	1945 <sup>m</sup>	Plan <sup>n</sup> 1946-1950	1946 <sup>m</sup>	Plan <sup>o</sup> 1947	1947 <sup>m</sup>	1948 <sup>m</sup>	1949 <sup>m</sup>	1950 <sup>m</sup>
174.00 <sup>10.</sup>	(17900) <sup>11.</sup>	27475		157500				(40400) <sup>14.</sup>	(47300) <sup>14.</sup>	
1245	1011	1497	(2600)		(2900)	3000	(3000)	(3600)	(5000)	(6600)
1529		1680	(4300)		(5800)	6300	(6300)	(8100)	(9900)	(10700)
1440	2402	2955	-		-	2800	(2800)	(3600)	(4400)	(5700)
1326	2238	2730	(5600)	12000	(4500)	4900	(6500)	(8500)	(10000)	(11600)
	1731	1610			(2000)					
	2214	2258								
		1176								
474		369								
10		140.5								
		587 <sup>12.</sup>								
451		170 <sup>12.</sup>	(1500)	5600	(2500)	3300	(3300)	(4400)	(5000)	(5500)
1292		276 <sup>13.</sup>								
340		100 <sup>13.</sup>								
470		149 <sup>13.</sup>								
		8975		(53500)						
		7350	(4900)	40100	(5600)	6500	(6000)	(6700)	(8800)	(10700)
	3200 <sup>r</sup>	(4050) <sup>t</sup>	(3900)	42300 <sup>17.</sup>	6000 <sup>r</sup>		7000 <sup>r</sup>	(9500)	(12200)	(14400)
				6100 <sup>v,16.</sup>						
34300 <sup>p</sup>	38000 <sup>p</sup>	47000	36300 <sup>p</sup>	250300	(42500)	(50000)	(46800)	(57600)	(69100)	(85000)

in the USSR) 1949, pp. 15, 38.  
 lemy ekonomiki, 1937 No. 5-6, p. 190. Cf. note 13 to this table for details.

Five Year Plan period. The 6438 figure excludes extra-limit investments.  
 no-kommunal'nogo khoziaistvo (Financing the Housing-Communal Economy),

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## NOTES TO TABLE XII

(Notes 1-17 are to indicated parts of the table)

1. The branches of the economy covered are "principal" in the sense that a number of minor branches for which data exist have been estimated. (For these branches, cf. Sotsialisticheskoe stroitel'stvo 1936, p. 388-389; 1935 Plan, pp. 468, 469, 476-478; 1936 Plan, pp. 512, 521-523). On the other hand, there are major branches which could not be included for lack of data.

The table, further, contains many ambiguities in the branch of industry break-down. In particular:

a. Whether the data refer to ministries or to genuine branches is frequently unknown;

b. Whether the branch includes or excludes nonproductive investments is frequently unknown (though nonproductive investments are included in the 1935 Plan & 1936 Plan data);

c. What the coverage of the branch is and whether branch coverage over time is constant are unknown.

d. Highly conjectural estimates have been employed, particularly for the post-war years.

Accordingly, the present table should not be used for anything but an indication of the most gross orders of magnitude. It is hoped that an analysis of the data on capital stock, and particularly of annual differences in the capital stock figures, will illuminate the question of the prewar distribution of investments within industry. This will be discussed in a later paper.

2. Includes the mining of iron ore.

3. These figures are for the Ministry of Light Industry and include investments in the textile industry and the leather, boot, and shoe industry. The Socialist Construction 1936 figures (but not the 1935 Plan, 1936 Plan or Second Five Year Plan figures) include the corresponding branches of the ministries of local industry. It should be noted that only in the case of light industry does the inclusion or exclusion of investments by the ministries of local industry matter much. In 1935 and 1936, planned investments in the indicated branches by the ministries of local industry were (in millions of rubles):

	<u>Plan</u> <u>1935</u>	<u>Plan</u> <u>1936</u>
Heavy Industry	201	393
Timber Industry	15	37
Light Industry	189	341
Food Industry	47	68

(1936 Plan, pp. 524-528).

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4. These figures are for the Ministry of Food Industry.
5. Includes the cotton, woollen, linen and jersey industries.
6. Includes leather shoe, finished leather, leather substitute and tanning industries.
7. Includes shale.
8. The industry estimate is obtained in the following way. Investments in the national economy were planned, according to Bol'shakov (op. cit. p. 32) to be 38.5 billion rubles. According to table VIII, investments in the national economy were planned to be 35.76 and investments in industry 17.46. It is assumed that: (a) Bol'shakov's figures are either an earlier version of the plan or exclude planned reductions in construction costs; and (b) that industry in Bol'shakov's version represents the same proportion of the total as does industry in table VIII.
9. Bol'shakov (op. cit., p. 37) states that investments in housing and municipal service construction were planned to be 4.5 billion rubles. The allocation between housing and municipal services is produced by assuming the same relative distribution as that planned for 1937.
10. The industry figures are obtained by assuming that industry represents the same proportion of total investments in each of these years as in the plans for these years. The percentages are 50.6% for 1939 plan and 53.1% for 1940 plan (cf. table VIII).
11. Voznesensky states that the 30.6 billion rubles planned for 1941 industry is 71% above the 1940 figure. The 1940 industry figure (Voznesensky, Growing Prosperity of the Soviet Union, p. 33) is obtained, accordingly, by dividing 30.6 by 1.71.
12. The Ministry of Light Industry for 1941 excludes the textile industry which by 1941 was administered by a separate ministry.
13. The Ministry of Food Industry for 1941 excludes the fishing industry and the meat and dairy industry which by 1941 were administered by separate ministries.
14. The industry figures are obtained by assuming: (1) that industry represents the same proportion of total investments in 1945 prices as in prices of the respective years; and (2) that the proportion is the same for actual 1949 as for 1949 plan. The percentages are 70.1% for 1948 and 68.4% for 1949 plan.
15. Group A industry embraces those branches of industry which primarily produce producers' goods. The Soviet classification of branches of industry into groups A and B is as follows:

<u>BRANCH</u>	<u>GROUP</u>
I. Electric power stations (including transmission lines & substations)	A
II. Fuel extraction industry (coal, petroleum, peat, shale)	A
III. Iron ore	A
IV. Manganese ore	A

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<u>BRANCH</u>	<u>GROUP</u>
V. Ores for the chemical industry	A
VI. Nonmetallic minerals (other than V & fuels)	A
VII. Lumbering and logging	A
VIII. Fuel refining	
1. Coal-tar chemical industry	A
2. Petroleum refining	A
3. Production of illuminating gas	B
4. Other refining	A
IX. Chemicals	
1. Chemical-pharmaceutical and photo-chemical industry	B
2. Wood pulp chemistry	A
3. Other branches of the chemical industry	A
X. Production of construction materials (cement, refractory materials, brick, roofing)	A
XI. Glass	
1. Production of window, mirror and technical glass	A
2. Other glassware	B
XII. China and Pottery	
1. Technical china and sanitation pottery	A
2. Chinaware and earthenware (except earthenware pipe)	B
XIII. Ferrous metallurgy	A
XIV. Nonferrous metallurgy	A
XV. Metalworking industry	
1. Machine building	A and B
2. Production of metal products	A and B
3. Metal repair shops	A and B
XVI. Production of abrasive, micaceous, and graphitic articles	A
XVII. Rubber and asbestos	A
XVIII. Woodworking	
1. Saw mills	A
2. Plywood	A
3. Furniture & wooden household implements	B
4. Production of wooden parts of transport construction	A
5. Skis and other sporting equipment	B
6. Other branches	A
XIX. Matches	B
XX. Paper and cellulose	A
XXI. Textile (including jersey and felt)	
1. Cotton cleaning	A
2. Preliminary working of flax and other bast fibers	A
3. Wool washing	A
4. Silk winding	A
5. Cotton fabric (except packing & technical cloth)	B
6. Linen (except packing & technical cloth)	B
7. Woollen fabric (except technical cloth)	B
8. Silk	B
9. Hemp & jute	A
10. Jersey	B
11. Felt	B

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<u>BRANCH</u>	<u>GROUP</u>
XXII. Sewing	B
XXIII. Leather, fur and shoes	A
1. Production of leather and artificial leather	A
2. Saddle and harness making	B
3. Luggage and haberdashery articles	B
4. Fur	B
5. Shoes	B
XXIV. Fats, soaps, and perfumes	A
1. Fats	B
2. Soaps, perfumes and cosmetics	B
XXV. Food	A
1. Alcoholic distillation	B
2. Other branches	B
XXVI. Salt	B
XXVII. Printing	B
XXVIII. Movies	B
XXIX. Water supply	B
XXX. Refrigerators	A
XXXI. Preparation of animal feed	A

16. Third Five Year Plan states that investments in the municipal economy will be 5.650 billion rubles as against 4.806 billion in the Second Five Year Plan (p. 136). The figure for the Second Five Year Plan however, excludes subway construction (cf. note 20 to the present table). Consequently, it is concluded that the Third Five Year Plan figure for subway construction of 1.3 billion rubles (Third Five Year Plan, p. 137) is in addition to the 5.650 billion. The total of 6.950 is presented in the table.

It is not known whether the 6.1 billion rubles for Fourth Five Year Plan includes or excludes subway construction.

17. The figures for housing construction in the Third and Fourth Five Year Plans exclude individual housing construction (Fourth Five Year Plan, p. 54), part of which is aided by loans from the banks for municipal services and the Agricultural Bank.

Third Five Year Plan states (p. 137) that the volume of housing construction is planned to be 22.1 billion rubles, including investments from the director's fund. Certainly not all of the difference between the 22.1 and the 15.5 figure can be accounted for by investments from the director's fund. Extra-limit investments as a whole (i.e. for all purposes and from all sources) were planned to be only 30.5 billion rubles (table VII) in 1938-1942. Part, and possibly a large part of the difference may be accounted for by capital repairs to housing.

Whether the annual figures for housing construction include or exclude individual housing construction is not stated. Since investment figures are generally for the socialist sector only, I suspect that individual housing construction is excluded. In any case, the inclusion or exclusion of individual housing construction does not seem to matter much until the post war period. The value of individually owned housing remained virtually unchanged from 1927 to 1936 and declined steadily from 1931 to 1936. Thus,

Kobalevskii presents the following data on the value of fixed capital in housing (in billions of 1936 rubles):

	<u>Collectivized Housing</u>	<u>Individually owned housing</u>
1927	24.6	8.4
1929	25.8	9.3
1931	29.4	9.4
1933	35.5	9.0
1934	38.3	8.9
1935	40.4	8.8
1936	43.0	8.6

(V. L. Kobalevskii, Organizatsiia i ekonomika zhilishchnogo khoziaistva SSSR - Organization and Economics of the USSR Housing Economy - 1940, p. 107).

If I can judge from the magnitude of loans to individual for housing construction (note 13, table VIII), individual housing construction continued to be insignificant in the immediately pre-war period and became significant only in the postwar period. In the Fourth Five Year Plan, 14% of total housing construction was to be undertaken by individuals. (Maslakov et al, op. cit., p. 7); this may be due in part to the activities of collective farm members in reconstructing war damaged housing.

18. Buzin (op. cit., p. 190) presents the following index of capital investments in housing construction (1928 = 100)

<u>1928</u>	<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>	<u>1933</u>	<u>1934</u>	<u>1935</u>	<u>1936</u>
100	160	244	351	501	422	547	607	755

It is observed that the following ratios obtain in Buzin's series and in the housing construction figures in the table:

	<u>From Buzin's series</u>	<u>From the table</u>
$\frac{1936}{1935}$	124.4	124.4
$\frac{1935}{1934}$	111.0	111.6
$\frac{1934}{1933}$	129.6	128.7

From the correspondence between each of these ratios it is concluded that Buzin's index numbers may be used to obtain housing construction figures for 1929-1932. These are (in million of rubles):

<u>1929</u>	<u>1930</u>	<u>1931</u>	<u>1932</u>
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19. The annual housing construction data for 1933-1937 refer explicitly to urban housing only. By inference, the annual 1929-1932 data may also be so interpreted.

If we total the annual 1933-1937 housing figures (using 1937 plan and realized 1933-1936 figures) we obtain 9827 million rubles. If we total the annual 1929-1932 figures, we obtain 3991 million rubles. From table I we know that housing construction was 4640 million rubles in 1928/9-1932 and 12575 million rubles in 1933-1937 including capital repairs. Two exclusions from the annual figures may account for these differences: (a) rural housing; (b) housing repairs.

The annual 1933-1937 figures explicitly exclude housing repairs (table III, note 1). Again by inference, the annual 1929-1932 data may be so interpreted. The magnitude of capital repairs to housing is stated by Kobalevskii to be (in millions of rubles):

								Plan	
	<u>1924-7</u>	<u>1928-1932</u>	<u>1933</u>	<u>1934</u>	<u>1935</u>	<u>1936</u>	<u>1937</u>	<u>1938</u>	<u>1939</u>
	216	440	185	268	335	418	561	686	747

(Kobalevskii, *op. cit.*, p. 124). If we add these capital repairs to the housing construction figures, we obtain the following results:

	<u>1929-1932</u>	<u>1933</u>	<u>1934</u>	<u>1935</u>	<u>1936</u>	Plan	<u>1937</u>	<u>1933-1937</u>
Housing Construction	3991	1343	1729	1930	2400	2425		9827
Capital Repairs to Housing	440	185	268	335	418		561	1767
Total	4431	1528	1997	2265	2818	2986		11594

Thus, it would seem that most of the difference between the annual housing construction figures, on the one hand, and the 1929-1932 and 1933-1937 totals, on the other, is accounted for by the exclusion of capital repairs from the former and the inclusion of capital repairs in the latter.

The rest of the difference may be accounted for by the exclusion of rural housing from the annual data. If so, this implies that rural housing construction was very small. From the scattered data we have, this seems to be the case. In the Second Five Year Plan, the Ministries of Agriculture and of State Farms were to invest 910 million rubles (in 1933 prices) in housing. In 1935 Plan and 1936 Plan these figures were 157 million rubles and 75 million rubles respectively. (Cf. table XI). In the entire period 1928-1935, collective farms invested only insignificant sums (no more than 45 million rubles annually) in nonproductive fixed capital as a whole. (Cf. table IV). At least since 1935, the homes of collective farm members were individually owned and, therefore, investments in such housing would probably not be reflected in the investment figures for the socialist sector. It is possible that the postwar increase in individual housing construction reflects in large part the activities of collective farm members in the restitution of war damaged housing. (Cf. note 17, this table).

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I conclude: (1) that the annual housing construction figures for 1929-1937 exclude capital repairs; (2) that, since capital repairs are reported separately since 1938, the post-1937 annual housing construction figures probably exclude capital repairs; (3) that the 1928/9-1932, 1933-1937 and 1934-1938 figures include capital repairs; (4) that the planned 1938-1942 housing construction figure may include capital repairs (cf. note 17 to the present table); (5) that the planned 1946-1950 housing construction figure probably excludes capital repairs since centralized investments only are covered; (6) that the annual housing construction figures for 1929-1937 exclude and the 1928/9-1932 and 1933-1937 totals include collectively owned rural housing; (7) that all the data in the present table exclude individually owned housing construction. Whether the post-1937 figures include or exclude collectively owned rural housing construction is not known. By historical analogy, the Third and Fourth Five Year Plan figures probably do include such investments.

Much of this is, again, conjectural.

20. Capital investments in branches of the municipal economy (kommunal'noe khoziaistvo) were, in millions of rubles:

	Realized 1928/9-1932 (Socialist Construc- tion 1933- 38, p.135)	Plan 1935 (1935 Plan p.494)	Plan 1936 (1936 Plan pp.540- 543)	Realized 1933-1937 (Socialist Construc- tion 1933- 38, p.135)	Plan 1946-1950 (Maslakov et al, op.cit, pp. 7-8)
Subway construction	42	-	-	1681	845
Trolley system	321	102	162	641	-
Land transport	100	42	-	253	-
Water supply	300	205	291	856	1777
Sewage system	152	86	148	347	-
City sanitation	19	17	-	105	-
Bath houses & laundries	119	54	58	251	-
Electric power sta- tions & trans- mission	183	74	122	426	945
Gas works	36	11	-	48	912
Roads & bridges	314	194	328	1313	-
Other branches	374	90	193	566	-
Total	1960	875	1302	6487	6100

The 1933-1937 total is stated to be exclusive of extra-limit investments. The 1928/9-1932 and 1933-1937 totals are stated to be in "the system of the Ministries of the Communal Economy". The planned 1935 and 1936 totals are stated to be investments "by the Republics". It is presumed that the 1935 and 1936 figures exclude investments by economic enterprises and/or ministries in the municipal economy. It is presumed, also, that the planned 1935 and 1936 totals exclude subway construction because subway construction appears to be under separate (i.e. non-Republic) jurisdiction.

It is of interest to note that in 1935 Moscow alone was to account for 185 million rubles, in 1936 Moscow was to account for 350 million rubles, and in 1935 Moscow, Leningrad, Kiev, Vladivostok and Khabarovsk were to account for 380 million rubles. (1935 Plan, p. 494; 1936 Plan, pp. 540-43).

The point of mentioning these investments is to indicate the kinds of expenditures embraced by investments in "municipal services".

21. Kantor presents the following investment data by branch of industry (in millions of rubles):

	1938	1939
Electric power stations	1081	1245
Ferrous metallurgy	1210	1326
Timber industry	701	688
Construction materials industry	255	474
Textile industry	1005	1040
Light industry	436	451
Food industry	1054	1292
Meat and dairy industry	409	470
Fishing industry	242	340

(Osnovnye fondy promyshlennosti i ikh ispol'zovanie, p. 69).

In addition, Kantor presents expenditures on capital repairs in millions of rubles and as percentages of total investments in various branches of industry as follows:

	Expenditures on Capital Repairs		Capital Investment	
	1938	1939	1938	1939
	Millions of rubles	Percentage of total investments	Millions of rubles	Percentage of total investments
Coal industry	224.5	9.6	166.7	10.9
Petroleum industry	-	-	154.1	10.7
Ferrous metallurgy	226.8	18.7	273.7	20.0
Construction				
materials ind.	35.9	14.1	97.5	20.6
Timber industry	92.2	13.2	121.1	17.6
Textile industry	188.2	18.7	233.3	22.4
Light industry	58.3	13.4	73.0	16.2
Fishing industry	22.0	9.1	54.9	16.2
Meat & dairy ind.	49.7	12.1	74.1	15.8
Food industry	138.3	13.1	184.1	14.3
			2339	1529
			-	1440
			1213	1369
			255	473
			699	688
			1006	1042
			435	451
			242	339
			411	469
			1056	1287

Since the investment figures obtained from the capital repair data checks roughly with the first investment series, we use the former for branches of industry not covered by the investment series -- namely the coal and petroleum industries.

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22. For the postwar years we have the following data on capital investments in the national economy, the figure for each year expressed as a percentage of the figure for the preceding year:

	<u>1946</u>	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>
Volume of capital work in the national economy	117	110	123	120	123
Coal industry	120	109	129	-	-
Coal and petroleum industries	-	-	-	122	115
Electric power stations	110	104	120	139	132
Metallurgical industry	116	-	131	118	116
Machine construction	112	-	115	110	109
Light and food industry	167	130	132	-	110
Food industry	-	-	-	121	-
Transport	114	108	111	132	122
Housing construction	155	-	136	126	118

(I. Kuz'minov, "Continuous Growth of the National Economy of the USSR - A Law of Socialism", Voprosy ekonomiki 1951 No. 6, p. 33).

In view of the paucity of postwar information about the Soviet economy I find irresistible the temptation to use these percentages along with rash estimates and heroic assumptions in order to arrive at rough orders of magnitude for investments in the indicated branches. Accordingly, let us use the following assumptions, estimates and bits of evidence:

a. Since the percentages for total investments are described as the "volume of capital work" and since 1945 prices were estimate prices for the Fourth Five Year Plan period (until 1949), it is reasonable to suppose that the percentages are comparisons in 1945 prices. (On the meaning of the "volume of capital work" cf. above, pp. 3-5, and table VI, note 1. On estimate prices, cf. above, pp. 4-5). There are four observations which tend to confirm this assumption:

- 1) Some of the percentages are explicitly stated to be comparisons in comparable prices. (Cf., for example, A. Korobov, "Capital Construction in the Third Decisive Year of the Post-War Five Year Plan", Planovoe Khoziaistvo, 1948 No. 3, p. 14.)
- 2) There is no correspondence between these percentages and the percentages computed for investments in current prices. (Cf. table VI, note 1).
- 3) On the assumption that these percentages are comparisons in 1945 prices, I calculated an index of annual price changes for 1946-1950 (table VI, note 1) which is in accord with what we know on independent grounds about the direction of price changes.
- 4) A comparison of total investments for 1946-1950, obtained from these percentages and 1945 realized investments, with planned Fourth Five Year Plan investments (which are in 1945 prices) results in a ratio virtually identical with the ratio stated for the fulfillment of the Fourth Five Year Plan investments (cf. below this note, paragraph j).

Since the percentages for the indicated branches are explicitly stated as components of the percentages for total investments, it is reasonable to assume that all percentages are comparisons in 1945 prices.

b. We know the planned 1947 investments in certain branches (in 1945 prices). I assume that the actual 1947 investments, except for metallurgical industry, equalled planned 1947 investments.

c. Investments in nonferrous metallurgy for 1946-1950 were planned to be 12 billion rubles. (Narodnoe khoziaistvo, volume 1, p. 341). I assume that realized investments in 1946 were roughly 1/6 of the five year plan total or 2 billion rubles. The 1/6 figure arises from a comparison of the 44 billion rubles of realized investments in 1946 with the total planned investments for 1946-50 of 250 billion (table I). On the basis of the planned 1947 figure for investments in ferrous metallurgy, (4.9 billion rubles) I assume that the realized investments in 1946 were about 4.5 billion rubles. This yields a total of 6.5 billion rubles for ferrous and nonferrous metallurgy in 1946. I assume, further, that realized investments in 1947 in ferrous and nonferrous metallurgy were about the same as in 1946 -- namely about 6.5 billion rubles. This is based on the belief that the reason for excluding even a percentage figure for the metallurgical industry in 1947 was poor performance in that year.

d. The percentages for the coal industry extend only through 1948; in 1949 and 1950 the percentages are stated to refer to the coal and petroleum industries together. It is observed, however, that the report on plan fulfillment for the first 9 months of 1949 gave a percentage of 122% (of the first 9 months of 1948) for investments in the coal industry. It is observed, further, that the percentages reported for the first 3 months and the first 6 months of 1949 were 123 and 125% respectively, (Narodnoe khoziaistvo, volume 3, pp. 419, 427, 434). I assume, therefore, that the 122% figure for the 1949 coal and petroleum industries combined applies also to each separately.

e. It is stated that for the first 9 months of 1950 in comparison with the first 9 months of 1949, the volume of capital investments for the national economy as a whole was 125%, including 114% in metallurgical industry, 108% in coal industry, 130% in petroleum industry, 134% in electric power stations, 111% in machine construction, 113% in light and food industry, 125% in transport, and 120% in housing construction. (B. Sokolov, "Certain Questions in the Economics of Capital Construction", Voprosy ekonomiki, 1950 No. 10, p. 17).

I assume that the percentage figures for the coal and petroleum industries hold for the entire year. It should be observed that if we use these percentages and compare the combined coal and petroleum industries figure for 1950 with that for 1949 we obtain 114.7% as against the 115% figure stated for 1950 (cf. tables below, this note).

In the absence of other information I must assume, also, that the 129% figure for the 1948 coal industry holds also for the 1948 petroleum industry if even rough orders of magnitude for investments in the petroleum industry are to be obtained. There are some indications that this assumption may not be far off. In addition to the general consistency of the results (mentioned in the paragraph above), we know that the annual percentage changes in coal and petroleum output were as follows (in percentages of the previous year):

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	<u>1948</u>	<u>1949</u>	<u>1950</u>
Coal output	114	113	111
Petroleum output	113	114	113

(Kuzminov, op. cit., p. 30). The 1950 disparity in coal and petroleum investment percentages would presumably not be clearly seen in output percentages until 1951.

f. We have no percentage for investments in the light and food industries for 1949. It is observed, however, that: (1) the percentage for the food industry alone was 121% in 1949; (2) the percentages for the light and food industries in the plan fulfillment reports of the first 3 months, the first 6 months and the first 9 months of 1949 were, respectively, 127%, 116%, 113% (each as a percentage of the corresponding period in 1948). (Narodnoe khoziaistvo, volume 3, pp. 419, 427, 434). I assume, therefore, that the separation of the food industry was due to a lower percentage (and, perhaps, poor performance) for the light industry and that the 1939 figure for the food and light industries combined was the same as the figure for the first nine months of 1949 -- namely, 113%.

g. I assume that the percentage changes in railroad transport investments are the same as those given for transport (which is, presumably, all transport). Since investments in railroad transport have been at least 2/3 of investments in total transport during the entire period since 1928 (note 23 to this table; and table I, note 6) and were probably greater in the Fourth Five Year Plan (table I, note 6), this assumption could not be far off.

h. We have a 1946 and 1947 realized figure for housing construction from Arkad'ev (op. cit., p. 38). These are 6 billion rubles for 1946 and 7 billion rubles for 1947. It is not stated whether these are in 1945 prices or in current prices. I will assume that they are in 1945 prices; if they are in current prices one should reduce the 1946 figure by, perhaps 5% and the 1947 figure by, perhaps, 10-15%. (These are roughly the price changes for all investment goods implied by the calculations in note 1 to table VI.)

i. There has been no hint of the magnitude of investments in machine construction for any postwar year. The percentages for investments in machine construction, therefore, cannot be used with any confidence. One might assume that the 1941 plan relationship between investments in machine construction and in ferrous metallurgy holds also for the 1947 plan. It looks as if this would be a conservative assumption since in all years prior to 1941 for which we have data the ratio is greater than the 1941 ratio of 83% and since 1941 was undoubtedly a year in which much iron and steel output went into munitions. In any case, on this assumption, investments in machine construction would be 4100 million rubles for 1947 plan. If we also assume that realized investments in machine construction for 1947 were 4000 million rubles and that this also was the magnitude of 1946 investments (because no percentage is given for 1947 except for the first quarter figure of 112% -- Narodnoe khoziaistvo Volume 1, p. 428) we obtain the following results for investments in machine construction (in millions of rubles):

<u>1945</u>	<u>1946</u>	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>
3600	4000	4000	4600	5100	5600

These estimates, however, are so tenuous -- even in comparison with others in the table -- that they have been omitted from the table.

j. We obtain investments in the national economy (in 1945 prices) directly by beginning with the realized 1945 figure and applying the annual percentages. It should be noted that the results of this calculation, totalled for 1946-1950, are 301 billion rubles (cf. table below). This is 120% of the Fourth Five Year Plan figure of 250.3 billion rubles. The interesting point is that Pravda (April 17, 1951, p. 2) stated that the Fourth Five Year Plan with respect to capital investments was overfulfilled by 22%. I take this to be a confirmation of the reliability of my calculation and of my interpretation that the percentages given by Soviet sources are comparisons in 1945 prices.

Let us tabulate the figures obtained by these assumptions and estimates and the percentages given by Soviet sources:

	1945	1946	1946	1947	1947	1948	1949	1950
	mil-	% of	mil-	% of	mil-	% of	%	%
	lions	of	lions	of	lions	of		
	of	year	of	year	of	year		
	rubles		rubles		rubles			
Total National Economy	36,300	117		110		123	120	123
Coal Industry		120		109	6300	129	122	108
Petroleum Industry		-		-	2800	129	122	130
Electric Power Stations		110		104	3000	120	139	132
Metallurgical Industry		116	6500	-	6500	131	118	116
Machine Construction		112	4000		4000	115	110	109
Light and Food Industry		167		130	3300	132	113	110
Railroad Transport		114		108	6000	111	132	122
Housing Construction		155	6000	-	7000	136	128	118

Thus, I estimate the amounts invested in the indicated branches to be (in millions of rubles):

	1945	1946	1947	1948	1949	1950
Total National Economy	36300	42500	46800	57600	69100	85000
Coal Industry	4800	5800	6300	8100	9900	10700
Petroleum Industry	-	-	2800	3600	4400	5700
Electric Power Stations	2600	2900	3000	3600	5000	6600
Metallurgical Industry	5600	6500	6500	8500	10000	11600
Machine Construction	3600	4000	4000	4600	5100	5600
Light and Food Industry	1500	2500	3300	4400	5000	5500
Railroad Transport	4900	5600	6000	6700	8800	10700
Housing Construction	3900	6000	7000	9500	12200	14400

The highly conjectural nature of these estimates must be re-emphasized. In particular it should be noted that: (a) whether the data refer to ministries or to genuine branches is unknown; (b) whether the branch includes or excludes nonproductive investments is unknown; (c) what is covered by light and food industry is unknown; (d) whether the branch coverage over time is constant is unknown. In addition, and most importantly, the dependence of the estimates on doubtful ruble figures for a single year makes the estimates tenuous indeed.

23. Time trends in the relative importance of various branches may be of interest. Accordingly, this note will present time series of: (a) housing as a percentage of total investment; (b) railroad transport as percentages of total transport, of total investment, and of industry; (c) group A industry as a percentage of industry; and (d) the various branches of industry as a percentage of total industry. These percentages are computed from the present table only. Thus, wherever possible, the numerator comes from the same source as the denominator even where the numerator is known to be incomplete. For example, the industry figure for a particular year will come from the same source as the coal industry figure, wherever possible. This is on the grounds that if an increment must be added to the industry figure to make it complete, it is likely that some portion of the increment must be added also to the coal industry. Since the latter portion is unknown it seemed preferable to stick to sources which contained even incomplete figures for both the numerator and denominator. The percentages are as follows:

(a) Housing as a percentage of total investment

	<u>Housing</u> <u>Total Investments</u>
1929	8.8
1930	8.2
1931	7.4
1932	8.2
Plan 1933-37	10.1
1933	8.0
1934	7.9
Plan 1935	8.1
1935	7.8
Plan 1936	9.5
Preliminary 1936	7.6
Plan 1937	7.4
1933-37	9.1
1934-38	-
Plan 1938-42	8.2
Plan 1938	6.9
1938	-
1939	-
1940	8.4
Plan 1941	8.6
1945	10.7
Plan 1946-50	16.9
1946	14.1
1947	15.0
1948	16.5
1949	17.7
1950	16.9



(b) Railroad transport as percentages of total transport, of total investment, and of industry.

	<u>Railroad</u> Total Investments	<u>Railroad</u> Transport	<u>Railroad</u> Industry
1929	15.0	74.0	33.4
1930	11.7	67.0	27.0
1931	12.6	70.9	25.8
1932	13.3	74.0	24.6
Plan 1933-37	13.0	65.9	25.0
1933	12.5	68.3	23.8
1934	13.4	66.6	27.6
Plan 1935	15.5	70.4	31.5
1935	15.2	68.8	29.9
Plan 1936	14.7	67.4	34.1
Preliminary 1936	13.9	64.0	31.1
Plan 1937	16.3	72.2	38.2
1933-37	12.4	67.2	26.0
1934-38	12.7	67.6	26.9
Plan 1938-42	12.9	67.7	26.6
Plan 1938	13.0	-	26.6
1938	-	-	-
1939	-	-	-
1940	-	-	-
Plan 1941	12.8	81.9	26.8
1945	13.5	-	-
Plan 1946-50	16.0	75.0	25.5
1946	13.2	-	-
1947	12.8	-	-
1948	11.6	-	16.6
1949	12.7	-	18.6
1950	12.6	-	-

(c) Group A industry as a percentage of industry.

	<u>Group A</u> Industry
1929	81.3
1930	83.3
1931	87.9
1932	87.0
Plan 1933-37	76.8
1933	83.5
1934	81.8
Plan 1935	81.8
1935	83.8
Plan 1936	76.3
Preliminary 1936	80.7
Plan 1937	78.4
1933-37	83.0
1934-38	83.3
Plan 1938-42	84.1

(d) The various branches of industry as a percentage of total industry.

	<u>Electric Power Industry</u>	<u>Coal Industry</u>	<u>Petroleum Industry</u>	<u>Ferrous Metallurgy Industry</u>	<u>Nonferrous Metallurgy Industry</u>	<u>Machine Building Industry</u>	<u>Chemicals Industry</u>	<u>Light &amp; Food Industry</u>	(Electric power + coal + petroleum + ferrous metal + non-ferrous metal) + industry
1929	9.6	8.8	9.5	10.1	3.5	-	-	18.2	41.5
1930	9.6	7.5	8.5	10.2	3.6	-	-	14.3	39.4
1931	7.4	8.1	5.6	11.3	4.3	-	-	9.3	36.7
1932	6.9	7.5	4.3	13.6	5.2	-	-	9.8	37.5
Plan 1933-37	7.7	5.0	6.8	13.4	5.5	11.6	6.9	-	38.4
1933	6.9	6.3	5.4	19.5	4.6	-	-	13.7	42.7
1934	6.0	5.6	6.6	17.2	4.4	-	-	14.9	39.8
Plan 1935	6.9	5.1	7.0	12.7	7.0	19.2	8.5	12.5	38.7
1935	-	-	-	-	-	-	-	12.5	-
Plan 1936	7.0	3.6	7.2	7.5	7.9	14.0	11.0	18.0	33.2
Preliminary 1936	-	-	-	-	-	-	-	-	-
Plan 1937	-	-	-	-	-	-	-	17.1	-
1933-37	-	-	-	-	-	-	-	-	-
1934-38	-	-	-	-	-	-	-	-	-
Plan 1938-42	-	-	-	-	-	-	-	-	-
1938	6.6	5.5	6.1	4.5	-	-	-	-	-
1938	6.3	13.7	-	7.1	-	-	-	8.7	-
1939	7.2	8.8	8.3	7.6	-	-	-	-	-
1940	5.6	-	13.4	12.5	9.7	12.4	-	-	-
Plan 1941	5.4	6.1	10.8	9.9	5.9	8.2	4.3	1.7	38.1
1945	-	-	-	-	-	-	-	-	-
Plan 1946-50	-	-	-	-	7.6	-	-	-	-
1946	-	-	-	-	-	-	-	-	-
1947	-	-	-	-	-	-	-	-	-
1948	8.9	20.0	8.9	<u>21.0</u>	-	-	-	10.9	58.8
1949	10.6	20.9	9.3	<u>21.1</u>	-	-	-	10.6	61.9
1950	-	-	-	-	-	-	-	-	-

**TABLE XIII: Total Investment in Socialist Sector, 1923-1951**  
(in billions of rubles; in prices of respective years except where otherwise indicated)

Periods	Prices	Centralized Investments (1)	Extra-limit Investments (2)	Total Centralized and Non-centralized Investments (3)=(1)+(2)	Capital Repairs (4)	Total Investments Exclusive of Collective Farm Investments from Own Resources (5)=(3)+(4)	Collective Farm Investments from Own Resources (6)	Total Investments (7)=(6)+(5)
1923/4-1927/8		n.a.	n.a.	n.a.	-	n.a.	n.a.	11.1 <sup>a</sup>
1928/9-1932		n.a.	n.a.	n.a.	-	50.502 <sup>a</sup>	1.126 <sup>e</sup>	51.628 <sup>a</sup>
1929-1933		n.a.	n.a.	n.a.	-	67.821 <sup>a</sup>	2.690 <sup>e</sup>	70.511 <sup>a</sup>
1933-1937		114.675 <sup>a</sup>	9.4 <sup>e</sup>	124.075 <sup>g</sup>	13.4 <sup>e</sup>	137.491 <sup>a</sup>	13.400 <sup>e</sup>	150.891 <sup>a</sup>
1934-1938		126.808 <sup>a</sup>	-	-	-	155.148 <sup>a</sup>	15.452 <sup>e</sup>	170.600 <sup>a</sup>
Plan 1938-1942	1936-7 prices	181.0 <sup>a</sup>	30.5 <sup>e</sup>	211.5 <sup>g</sup>	32.8 <sup>e</sup>	244.3 <sup>g</sup>	24 <sup>e</sup>	268.3 <sup>g</sup>
1938-1940	1936-7 prices	90.5 <sup>g</sup>	17.5 <sup>e</sup>	108 <sup>a</sup>	17.4 <sup>g</sup>	125.4 <sup>g</sup>	(14.1) <sup>g</sup>	139.5 <sup>g</sup>
July, 1941-June, 1945		94.6 <sup>a</sup>	(0) <sup>e</sup>	94.6 <sup>a</sup>	(14.0) <sup>f</sup>	108.6 <sup>g</sup>	(11.8) <sup>f</sup>	120.4 <sup>g</sup>
Plan 1946-1950	1945 prices	250.3 <sup>a</sup>	(45) <sup>e</sup>	295.3 <sup>g</sup>	(50) <sup>e</sup>	345.3 <sup>g</sup>	38 <sup>a</sup>	383.3 <sup>g</sup>
<b>Years</b>								
1923-1924		n.a.	n.a.	n.a.	-	n.a.	n.a.	.861 <sup>b</sup>
1924-1925		n.a.	n.a.	n.a.	-	n.a.	n.a.	1.210 <sup>b</sup>
1925-1926		n.a.	n.a.	n.a.	-	n.a.	n.a.	2.138 <sup>b</sup>
Oct. 1, 1926-Dec. 31, 1927		n.a.	n.a.	n.a.	-	n.a.	n.a.	3.664 <sup>b</sup>
1928		n.a.	n.a.	n.a.	-	n.a.	n.a.	4.088 <sup>b</sup>
1929		n.a.	n.a.	n.a.	-	n.a.	n.a.	5.805 <sup>b</sup>
1930		n.a.	n.a.	n.a.	-	9.495 <sup>b</sup>	.170 <sup>b</sup>	9.665 <sup>b</sup>
1931		n.a.	n.a.	n.a.	-	15.116 <sup>b</sup>	.385 <sup>b</sup>	15.501 <sup>b</sup>
1932		n.a.	n.a.	n.a.	-	19.351 <sup>b</sup>	.515 <sup>b</sup>	19.866 <sup>b</sup>
1933		n.a.	n.a.	n.a.	-	18.1 <sup>c</sup>	(1.3) <sup>e</sup>	19.4 <sup>g</sup>
1934		n.a.	n.a.	n.a.	-	23.5 <sup>c</sup>	(1.7) <sup>e</sup>	25.2 <sup>g</sup>
1935		n.a.	n.a.	n.a.	-	27.2 <sup>c</sup>	2.1 <sup>e</sup>	29.3 <sup>g</sup>
1936		-	1.9 <sup>e</sup>	-	-	35.5 <sup>c</sup>	(2.6) <sup>e</sup>	38.1 <sup>g</sup>
1937		26.5 <sup>g</sup>	3.0 <sup>e</sup>	29.5 <sup>g</sup>	3.7 <sup>e</sup>	33.2 <sup>c</sup>	3.1 <sup>e</sup>	36.3 <sup>g</sup>
Plan 1938	1936-7 prices	29.3 <sup>g</sup>	6.5 <sup>h</sup>	35.8 <sup>d</sup>	(5.0) <sup>h</sup>	40.8 <sup>g</sup>	(3.9) <sup>h</sup>	44.7 <sup>g</sup>
1938	1936-7 prices	29.2 <sup>g</sup>	6.5 <sup>e</sup>	35.7 <sup>d</sup>	(5.0) <sup>e</sup>	40.7 <sup>g</sup>	(3.9) <sup>e</sup>	44.6 <sup>g</sup>
Plan 1939	1936-7 prices	34.7 <sup>d</sup>	7.5 <sup>e</sup>	42.2 <sup>g</sup>	5.8 <sup>e</sup>	48.0 <sup>g</sup>	(4.7) <sup>h</sup>	52.7 <sup>g</sup>
1939	1936-7 prices	29.3 <sup>g</sup>	(5) <sup>e</sup>	(34.3) <sup>d</sup>	(5.8) <sup>e</sup>	40.1 <sup>g</sup>	(4.7) <sup>e</sup>	44.8 <sup>g</sup>
Plan 1940	1936-7 prices	36.1 <sup>d</sup>	(4.8) <sup>e</sup>	40.9 <sup>g</sup>	6.6 <sup>e</sup>	47.5 <sup>g</sup>	(5.5) <sup>h</sup>	53.0 <sup>g</sup>
1940	1936-7 prices	32 <sup>g</sup>	6 <sup>e</sup>	38 <sup>d</sup>	(6.6) <sup>e</sup>	44.6 <sup>g</sup>	5.5 <sup>e</sup>	50.1 <sup>g</sup>
Plan 1941	1936-7 prices	47 <sup>d</sup>	8.9 <sup>e</sup>	55.9 <sup>g</sup>	7.3 <sup>e</sup>	63.2 <sup>g</sup>	(6.3) <sup>e</sup>	69.5 <sup>g</sup>
1941	1936-7 prices	25.4 <sup>g</sup>	(5) <sup>e</sup>	(30.4) <sup>d</sup>	(4) <sup>e</sup>	34.4 <sup>g</sup>	(3) <sup>g</sup>	37.4 <sup>g</sup>
1942		18.6 <sup>d</sup>	(0) <sup>e</sup>	18.6 <sup>g</sup>	(1.5) <sup>e</sup>	20.1 <sup>g</sup>	(2) <sup>e</sup>	22.1 <sup>g</sup>
1943		19.5 <sup>d</sup>	(0) <sup>e</sup>	19.5 <sup>g</sup>	(2) <sup>e</sup>	21.5 <sup>g</sup>	(2) <sup>e</sup>	23.5 <sup>g</sup>
Plan 1944		(26.2) <sup>d</sup>	(0) <sup>e</sup>	(26.2) <sup>d</sup>	(5) <sup>h</sup>	31.2 <sup>g</sup>	(6.6) <sup>h</sup>	37.8 <sup>g</sup>
1944		29.0 <sup>d</sup>	(0) <sup>e</sup>	29.0 <sup>g</sup>	(5) <sup>e</sup>	34.0 <sup>g</sup>	6.6 <sup>e</sup>	40.6 <sup>g</sup>
1945		36.3 <sup>d</sup>	(0) <sup>e</sup>	36.3 <sup>g</sup>	(7) <sup>e</sup>	43.3 <sup>g</sup>	(6.6) <sup>e</sup>	49.9 <sup>g</sup>
1946		44.2 <sup>d</sup>	(6.5) <sup>e</sup>	60.7 <sup>g</sup>	(9.3) <sup>e</sup>	70.0 <sup>g</sup>	7 <sup>e</sup>	77.0 <sup>g</sup>
1947		(53.1) <sup>d</sup>	(8) <sup>e</sup>	61.1 <sup>g</sup>	(11.6) <sup>e</sup>	72.7 <sup>g</sup>	7 <sup>e</sup>	79.7 <sup>g</sup>
1948		66.2 <sup>d</sup>	(12) <sup>e</sup>	78.2 <sup>g</sup>	(14) <sup>e</sup>	92.2 <sup>g</sup>	(8) <sup>e</sup>	100.2 <sup>g</sup>
Plan 1949		n.a.	n.a.	105.5 <sup>d</sup>	(21) <sup>h</sup>	126.5 <sup>g</sup>	(10) <sup>h</sup>	136.5 <sup>g</sup>
1949		n.a.	n.a.	(112.0) <sup>d</sup>	(21) <sup>e</sup>	133.0 <sup>g</sup>	(10) <sup>e</sup>	143.0 <sup>g</sup>
1950		n.a.	n.a.	(129.7) <sup>d</sup>	26.0 <sup>e</sup>	155.7 <sup>g</sup>	(11) <sup>e</sup>	166.7 <sup>g</sup>
Plan 1951		n.a.	n.a.	135.7 <sup>d</sup>	29.4 <sup>e</sup>	165.1 <sup>g</sup>	(12) <sup>e</sup>	177.1 <sup>g</sup>

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**Sources:**

- a. Table I.
- b. Table II and note 7. Cooperative farm investments from own resources are included in column (5).
- c. Table V.
- d. Table VI and note 3.
- e. Table VII and note 9.
- f. The sum of annual figures for 1942-1944 plus the arithmetic mean of the 1941 and 1945 figures.
- g. By addition or subtraction of indicated components.
- h. Assumed to be the same as the realized figure from Table VII for the given year.
- i. Table VIII.

The notation, "n.a.," denotes "not applicable"; a dash denotes "not available."

1 2 3 4 5 6 7 8 9 10 11 12

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## NOTES TO TABLE XIII

1. "Total investments" (column (7) ) exclude the following categories of investments:

a. Labor participation in roadbuilding, which averaged about .9 billion rubles annually in the period 1933-1938 (Table I). No more recent data is available.

b. Labor contributions in kind to collective farms' investments from their own resources, which seem to be about 30% of money investments in the 1933-1940 period. No data is available for the postwar period except indications that labor contributions in kind are important for the agricultural aspects of the new power projects. ( Cf. Table VIII, note 11.) Labor contributions in kind are excluded from the annual figures since 1932 (Cf. Table VIII, note 9).

c. Investments in the private sector of the economy. In the 1923/4-1927/8 period, investments in the private sector were about 40% greater than in the socialist sector. In the 1928/9-1932 period, investments in the private sector were about 14% of investments in the socialist sector. After the First Five Year Plan, investments in the private sector apparently were, in the aggregate, relatively insignificant. Thus, we have the following data on the percentage distribution of productive fixed capital by property ownership:

	1928			1936		
	Industry	Agri-culture	Total National Economy	Industry	Agri-culture	Total National Economy
1. Socialist property (including collective farms and co-operatives)	97.9	63.6	77.8	99.95	96.3	98.7
2. Individual property of collective farm members	-	0.1	-	-	3.1	1.1
3. Private property of individual peasants and artisans	2.0	31.9	19.6	0.05	0.6	0.2
4. Capitalistic (i.e. labor-employing) private property	0.1	4.4	2.6	-	-	-
Total	100	100	100	100	100	100

The main components of private investment since 1932 were:

1) Investments in the collective farm homesteads. Agricultural production in the individual homesteads seems to be extremely labor-intensive. From this and from the data on bank loans to collective farmers (Table VII, note 12), I judge that private money investments in individual homesteads

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Table XIV: Capital Investments by Sectors of the Socialist Economy, 1923-1949

(in billions of rubles; in prices of the respective years except where otherwise noted)											
Periods	Prices	Industry	Agriculture			Transport	Communica- tions	Trade and Procurement	Social- cultural services & admin.	Total	Industry
			Exclusive of coll- ective farms	Collective farms	Total						
		(1)	(2)	(3)	(4) = (3)+(2)	(5)	(6)	(7)	(8)	(9) = (1) + (4) + (5) + (6) + (7) + (8)	(10)
1923/4-1927/8		4.9 <sup>a</sup>	n.a.	n.a.	0.7 <sup>a</sup>	2.7 <sup>a</sup>	0.1 <sup>a</sup>	2.7 <sup>a</sup>		11.1 <sup>a</sup>	44.1
1928/9-1932		24.789 <sup>a</sup>	9.687 <sup>a</sup>	1.126 <sup>e</sup>	10.813 <sup>f</sup>	8.933 <sup>a</sup>	.565 <sup>a</sup>	.943 <sup>a</sup>	5.585 <sup>a</sup>	51.625 <sup>f</sup>	48.0
1929-1933		34.458 <sup>a</sup>	12.396 <sup>a</sup>	2.696 <sup>e</sup>	15.083 <sup>f</sup>	11.886 <sup>a</sup>	.759 <sup>a</sup>	1.258 <sup>a</sup>	7.064 <sup>a</sup>	70.511 <sup>f</sup>	49.9
1933-1937		65.763 <sup>a</sup>	16.760 <sup>a</sup>	13.400 <sup>e</sup>	30.160 <sup>f</sup>	25.411 <sup>a</sup>	1.336 <sup>a</sup>	3.245 <sup>a</sup>	24.976 <sup>a</sup>	150.892 <sup>f</sup>	43.6
1934-1938		72.948 <sup>a</sup>	17.714 <sup>a</sup>	15.452 <sup>e</sup>	33.166 <sup>f</sup>	29.019 <sup>a</sup>	1.510 <sup>a</sup>	3.769 <sup>a</sup>	30.188 <sup>a</sup>	170.600 <sup>f</sup>	42.8
Plan 1938-1942	in 1936-7 prices	103.580 <sup>a</sup>	18.000 <sup>a</sup>	24 <sup>e</sup>	42 <sup>f</sup>	35.826 <sup>a</sup>	1.748 <sup>a</sup>	2.563 <sup>a</sup>	26.583 <sup>a</sup>	212.300 <sup>f</sup>	48.8
Plan 1946-1950	in 1945 prices	157.5 <sup>a</sup>	19.9 <sup>a</sup>	38 <sup>e</sup>	57.9 <sup>f</sup>	(53.5) <sup>a</sup>		25.2 <sup>a</sup>		294.1 <sup>f</sup>	53.6
<b>Years</b>											
1923-1924		.355 <sup>b</sup>	n.a.	n.a.	.556 <sup>b</sup>	.214 <sup>b</sup>		.236 <sup>b</sup>		.861 <sup>b</sup>	41.2
1924-1925		.481 <sup>b</sup>	n.a.	n.a.	.071 <sup>b</sup>	.272 <sup>b</sup>	.019 <sup>b</sup>	.040 <sup>b</sup>		1.210 <sup>b</sup>	39.8
1925-1926		.972 <sup>b</sup>	n.a.	n.a.	.126 <sup>b</sup>	.523 <sup>b</sup>	.021 <sup>b</sup>	.051 <sup>b</sup>		2.138 <sup>b</sup>	45.9
Oct. 1, 1926- Dec. 31, 1927		1.760 <sup>b</sup>	n.a.	n.a.	.213 <sup>b</sup>	.860 <sup>b</sup>	.043 <sup>b</sup>	.078 <sup>b</sup>		3.663 <sup>b</sup>	48.0
1928		1.880 <sup>b</sup>	n.a.	n.a.	.384 <sup>b</sup>	.905 <sup>b</sup>	.054 <sup>b</sup>	.065 <sup>b</sup>		4.089 <sup>b</sup>	46.0
1929		2.165 <sup>b</sup>	n.a.	n.a.	.804 <sup>b</sup>	1.179 <sup>b</sup>	.070 <sup>b</sup>	.099 <sup>b</sup>		5.805 <sup>b</sup>	45.0
1930		4.114 <sup>b</sup>	2.420 <sup>b</sup>	.170 <sup>b</sup>	2.590 <sup>b</sup>	1.660 <sup>b</sup>	.123 <sup>b</sup>	.174 <sup>b</sup>		9.665 <sup>b</sup>	42.6
1931		7.407 <sup>b</sup>	3.260 <sup>b</sup>	.385 <sup>e</sup>	3.645 <sup>b</sup>	2.694 <sup>b</sup>	.184 <sup>b</sup>	.260 <sup>b</sup>		15.501 <sup>b</sup>	47.8
1932		10.431 <sup>b</sup>	3.306 <sup>b</sup>	.515 <sup>e</sup>	3.821 <sup>f</sup>	3.472 <sup>b</sup>	.186 <sup>b</sup>	.351 <sup>b</sup>		19.867 <sup>b</sup>	52.5
1933		9.890 <sup>c</sup>	2.495 <sup>c</sup>	(1.3) <sup>e</sup>	3.795 <sup>f</sup>	3.015 <sup>c</sup>	.202 <sup>c</sup>	.238 <sup>c</sup>		19.544 <sup>f</sup>	50.6
1934		11.868 <sup>c</sup>	2.972 <sup>c</sup>	(1.7) <sup>e</sup>	4.672 <sup>f</sup>	4.250 <sup>c</sup>	.278 <sup>c</sup>	.486 <sup>c</sup>		24.997 <sup>f</sup>	47.5
1935		13.024 <sup>c</sup>	2.993 <sup>c</sup>	2.1 <sup>e</sup>	5.093 <sup>f</sup>	5.455 <sup>c</sup>	.300 <sup>c</sup>	.562 <sup>c</sup>		29.300 <sup>f</sup>	44.5
1936		15.969 <sup>c</sup>	3.884 <sup>c</sup>	(2.6) <sup>e</sup>	6.484 <sup>f</sup>	6.917 <sup>c</sup>	.310 <sup>c</sup>	1.046 <sup>c</sup>		38.100 <sup>f</sup>	41.9
1937		15.012 <sup>c</sup>	4.146 <sup>c</sup>	3.1 <sup>e</sup>	7.246 <sup>f</sup>	5.774 <sup>c</sup>	.246 <sup>f</sup>	.913 <sup>c</sup>		36.300 <sup>f</sup>	41.4
Plan 1938	1936-37 prices	17.46 <sup>d</sup>	2.47 <sup>d</sup>	(3.9) <sup>e</sup>	6.37 <sup>f</sup>	6.82 <sup>d</sup>		.66 <sup>d</sup>		39.66 <sup>f</sup>	44.0
1938	1936-37 prices	17.075 <sup>d</sup>	3.449 <sup>d</sup>	(3.9) <sup>e</sup>	7.349 <sup>f</sup>	6.623 <sup>c</sup>	.376 <sup>e</sup>	.763 <sup>d</sup>		39.60 <sup>f</sup>	43.1
Plan 1939	1936-37 prices	17.59 <sup>d</sup>	1.59 <sup>d</sup>	(4.7) <sup>e</sup>	6.29 <sup>f</sup>	4.96 <sup>d</sup>		.49 <sup>d</sup>		10.10 <sup>d</sup>	39.43 <sup>f</sup>
Plan 1940	1936-37 prices	19.19 <sup>d</sup>	1.23 <sup>d</sup>	(5.5) <sup>e</sup>	6.73 <sup>f</sup>	5.44 <sup>d</sup>		.37 <sup>d</sup>		9.90 <sup>d</sup>	41.63 <sup>f</sup>
Plan 1941	1936-37 prices	27.48 <sup>d</sup>	1.06 <sup>d</sup>	(6.3) <sup>d</sup>	7.36 <sup>f</sup>	9.21 <sup>d</sup>		.51 <sup>d</sup>		8.01 <sup>d</sup>	52.57 <sup>f</sup>
Plan 1944		15.26 <sup>d</sup>	1.10 <sup>d</sup>	n.a. <sup>h</sup>	1.10 <sup>d</sup>	1.09 <sup>d</sup>		.16 <sup>d</sup>		3.18 <sup>d</sup>	20.79 <sup>f</sup>
1948		46.39 <sup>d</sup>	4.32 <sup>d</sup>	(8) <sup>e</sup>	12.32 <sup>f</sup>	9.00 <sup>d</sup>		.84 <sup>d</sup>		5.61 <sup>d</sup>	74.16 <sup>f</sup>
Plan 1949		72.23 <sup>d</sup>	9.21 <sup>d</sup>	(10) <sup>e</sup>	19.21 <sup>f</sup>	13.54 <sup>d</sup>		.39 <sup>d</sup>		9.57 <sup>d</sup>	115.54 <sup>f</sup>

## SOURCES:

- Table I.
- Table II and note 8. Cooperative farm investments from own resources are included in column (2).
- Table V.
- Table IX.
- Table VII and note 9.
- The sum of indicated components.
- Assumed to be the same as the realized figures from Table VII for the given year.
- Not applicable because the total refers only to budget-financed centralized investments.

The notation, "n.a.", denotes "not applicable"; a dash denotes "not available."

1923/4-1950

2

in % of total

Agriculture	Transport	Communi- cations	Trade and procurement	Social- cultural services & Admin.	Total
(11)	(12)	(13)	(14)	(15)	(16)=(10)+ (11)+(12)+ (13)+(14)+ (15)
6.3	24.3	0.9		24.3	100
20.9	17.3	1.1	1.8	10.8	100
21.4	16.9	1.1	1.8	10.0	100
20.0	16.8	.9	2.2	16.6	100
19.4	17.0	.9	2.2	17.7	100
19.8	16.9	.8	1.2	12.5	100
19.7	18.2		8.6		100
6.5	24.9		27.4		100
5.9	22.5	1.6	3.3	27.0	100
5.9	24.5	1.0	2.4	20.8	100
5.8	23.5	1.2	2.1	19.4	100
9.4	22.1	1.3	1.6	19.6	100
14.5	20.3	1.2	1.7	17.3	100
26.8	17.2	1.3	1.8	10.4	100
23.5	17.4	1.2	1.7	8.5	100
19.2	17.5	1.0	1.8	8.1	100
19.4	15.4	1.0	1.2	12.3	100
18.7	17.0	1.1	1.9	13.8	100
17.4	18.6	1.0	1.9	16.6	100
17.0	18.2	.8	2.7	19.4	100
20.0	15.9	.7	2.5	19.6	100
16.1		17.2	1.7	21.1	100
18.6	16.7	.9	1.9	18.7	100
16.0		12.6	1.2	25.6	100
16.2		13.1	.9	23.8	100
14.0		17.5	1.0	15.2	100
5.3		5.2	.8	15.3	100
16.6		12.1	1.1	7.6	100
16.6		11.7	.9	3.3	100

## NOTES TO TABLE XIV

1. It is assumed that the major portion of what I have called "extra-sector investments" is placed in the appropriate sector by the Soviet sector breakdown (Table XI, notes 20 and 21). Nonproductive investments by economic organizations, however, remain within the economic sector in which the organization falls (Table XII, note 1). The coverage of the sectors may be summarized as follows:

a. "Industry" includes mining, manufacturing, and most electric power stations. Municipal electric power stations are included in "Social-Cultural Services and Administration"; rural electric power stations are included in "Agriculture."

b. "Agriculture" includes state farms, collective farms, machine-tractor stations, and such generalized agricultural investments as irrigation and land improvement measures.

c. "Transport" includes railroad, water, land and air transportation. Urban trolley systems and subways are included in "social-cultural services and administration." The construction of nationally important roads is included in "transport"; the construction of local roads is included in "social-cultural services and administration."

d. "Communications" includes mail, telephone, telegraph, and radio.

e. "Trade and Procurement" includes retail trade and "wholesale" procurement organizations.

f. "Social-Cultural and Administration" includes:

1. Housing;

2. Education and public health;

3. Municipal services, which in turn includes subways and trolley systems, municipal land transport, water supply, sewage systems, city sanitation, bath houses and laundries, municipal electric power stations, gas works, and local roads and bridges;

4. Administration and the military establishment.

(Cf: Table I, note 1; Table II, note 1; Table III, note 3; Table IV, notes 2 and 7; Table VIII, note 6; Table IX, notes 3 and 4; Table X, note 22; Table XII, note 20.)

2. The magnitudes and kinds of investments excluded from the sector breakdowns are as follows (from Tables XIII and XIV):

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Period	Amount (in billions of rubles)	Exclusions as percent of total (from Table XIV)	Kind
1920/24-1927/28	0	0	-
1923/29-1932	0	0	-
1929-1933	0	0	-
1933-1937	0	0	-
1934-1938	0	0	-
Plan 1938-1942	56	20.9	Extra-limit invest- ments & capital repairs.
Plan 1946-1950	39.2	13.3	Extra-limit invest- ments & capital repairs.
1923-1924	0	0	-
1924-1925	0	0	-
1925-1926	0	0	-
October 1, 1926 - December 31, 1927	0	0	-
1928	0	0	-
1929	0	0	-
1930	0	0	-
1931	0	0	-
1932	0	0	-
1933	0	0	-
1934	0	0	-
1935	0	0	-
1936	0	0	-
1937	0	0	-
Plan 1938	5.0	11.2	Capital repairs
1938	5.0	11.2	Capital repairs
Plan 1939	13.3	25.2	Extra-limit invest- ments & capital repairs.
Plan 1940	11.4	21.5	Extra-limit invest- ments & capital repairs.
Plan 1941	16.9	24.3	Extra-limit invest- ments, capital repairs, and investments in Baltic Republics.
1948	26.0	25.9	Extra-limit invest- ments & capital repairs.
Plan 1949	21.0	15.4	Capital repairs.

3. Despite the exclusions mentioned in note 2, the sector breakdowns in the present table, as percentages, are taken to be representative of the sector breakdowns of total investments. The assumption is that the inclusion or exclusion of extra-limit investments and capital repairs has virtually no effect on the percentage breakdown by sectors. (Cf. Table VII, notes 2 and 3, for the evidence on which this assumption is based.)



Table XV: Capital Investments by Sectors of the Socialist Economy, 1923/4-1950  
(Nonproductive investments eliminated from economic sectors)

Periods	Prices	Billions of Rubles; in prices of respective years except where otherwise noted						% of total							
		Industry	Agriculture	Transport	Communications	Trade and procurement	Social-cultural & admin.	Total	Industry	Agriculture	Transport	Communications	Trade and procurement	Social-cultural & admin.	Total
		(1)	(2)	(3)	(4)	(5)	(6)	(7)=(1)+(2)+(3)+(4)+(5)+(6)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1923/4-1927/8		4.31	.66	2.7	.1	3.33		11.1	38.8	5.9	24.3	0.9	30.0		100
1928/9-1932		21.172	9.853	8.933	.565	.943	10.162	51.628	41.0	19.1	17.3	1.1	1.8	19.7	100
1933-1937		56.014	28.834	23.494	1.253	2.974	38.322	150.891	37.1	19.1	15.6	.8	2.0	25.4	100
Plan 1938-1942	1936-7 prices	88.872	41.316	33.139	1.709	2.345	44.919	212.300	41.9	19.5	15.6	.8	1.1	21.2	100
Plan 1946-1950	1945 prices	124.4	56.3	48.7		64.7		294.1	42.3	19.1	16.6		22.0		100
Years															
1924-1925		.416	.068	.272	.019	.040	.395	1.210	34.4	5.6	22.5	1.6	3.3	32.6	100
1925-1926		.846	.120	.523	.021	.051	.577	2.138	39.6	5.6	24.5	1.0	2.4	27.0	100
Oct. 1, 1926- Dec. 31, 1927		1.553	.201	.860	.043	.078	.928	3.663	42.4	5.5	23.5	1.2	2.1	25.3	100
1928		1.687	.364	.905	.054	.085	1.014	4.089	41.3	8.9	22.1	1.3	1.6	24.8	100
1929		2.308	.808	1.179	.070	.099	1.341	5.805	39.8	13.9	20.3	1.2	1.7	23.1	100
1930		3.507	2.309	1.660	.123	.174	1.892	9.665	36.3	23.9	17.2	1.3	1.8	19.6	100
1931		6.341	3.353	2.694	.184	.260	2.669	15.501	40.9	21.6	17.4	1.2	1.7	17.2	100
1932		8.794	3.466	3.472	.186	.351	3.598	19.867	44.3	17.4	17.5	0.9	1.8	18.1	100
1933		8.207	3.503	2.825	.189	.217	4.603	19.544	42.0	17.9	14.5	1.0	1.1	23.6	100
1934		9.921	4.254	3.982	.261	.443	6.136	24.997	39.7	17.0	15.9	1.0	1.8	24.5	100
1935		11.305	4.783	4.948	.281	.522	7.461	29.300	38.6	16.3	16.9	1.0	1.8	25.5	100
1936		13.701	6.336	6.398	.294	.957	10.414	38.100	36.0	16.6	16.8	0.8	2.5	27.3	100
1937		12.880	7.088	5.341	.228	.835	9.928	36.300	35.5	19.5	14.7	0.6	2.3	27.3	100
Plan 1938	1936-7 prices	14.98	6.28		6.31	.60	11.49	39.66	37.8	15.8	15.9		1.5	29.0	100
1938	1936-7 prices	14.650	7.218		6.126	.356	.698	10.552	37.0	18.2	15.5	0.9	1.8	26.6	100
Plan 1939	1936-7 prices	15.09	6.23		4.59	.45	13.07	39.43	38.3	15.8			1.1	33.1	100
Plan 1940	1936-7 prices	16.47	6.68		5.03	.34	13.11	41.63	39.6	16.0			0.8	31.5	100
Plan 1940	1936-7 prices	23.58	7.32		8.52	.47	12.68	52.57	44.9	13.9			0.9	24.1	100
1948		26.65	11.97		8.19	.76	16.59	74.16	49.4	16.1			1.0	22.4	100
Plan 1949		57.06	18.47		12.32	.90	26.79	115.54	49.4	16.0			0.8	23.2	100

SOURCES:

Table XIV and Table XI, note 4. Nonproductive investments in the economic sectors (as estimated in note 4 to Table XI) are subtracted from the economic sectors (as given in Table XIV) and added to social-cultural services and administration.

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## NOTES TO TABLE XI

1. It should be recalled that total investments in agriculture (Table XIV) include collective farm investments but the estimate of nonproductive investments by agricultural organizations (Table XI, note 4) exclude such investments by collective farms. Justification for this procedure lay in the facts that: (a) the housing of collective farm members is individually owned; and (b) the census data indicate virtually no nonproductive investments by collective farms. It is possible that in the postwar situation collective farms did make substantial nonproductive investments. In this case I have understated "industry" and overstated "agriculture" as percentages of total investments in the present table.

2. The roughness of the estimates of nonproductive investments by economic organizations should be recalled. It will be possible, in a later paper, to check these estimates by an examination of the capital stock data.

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