

SOVIET INVESTMENTS: A STUDY IN DIRECT
APPORTIONING OF FINANCIAL AND MATERIAL
RESOURCES

by

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ABSTRACT

The topic for this study was suggested to the writer by Dr. Hans Ernest Ronimois, who felt that the problems of centralized formation and allocation of capital in the U.S.S.R. offered a particularly fruitful field for inquiry.

In the United States, or any other free market economy, such problems are solved mainly through the agency of a market system which allocates monetary and material resources on the basis of the price mechanism. In the Soviet Union, on the other hand, the criteria of the market have had to be ignored in the face of central plans calling for intensive development of heavy industry. The automatic mechanism of the market has been replaced by the arbitrary process of apportionment or allocation effected through the medium of centralized distributive organizations.

This study deals at some length first with the origins of investment funds in the American and the Soviet economy. Following upon this issue, a survey is made of the shares of investment funds received by the several prime industries, i.e., iron and steel, electric power, machine building, petroleum, coal, railway transport and construction, in the United States and the Soviet Union. Finally, this study examines various economically disruptive

effects of the Soviet apportioning technique, by which is meant the misallocation of financial and material resources in the U.S.S.R.. These deficiencies are concluded to represent a problem the gravity of which is sufficient to make its solution a major concern for Soviet planning authorities.

Fall, 1958.

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CHAPTER I

INTRODUCTION

This paper deals with the techniques employed in a free and a collectivist economy for the allocation of capital. It considers the origin of investment funds and the shares of such funds allotted to specific industries in a major free and a major collectivist economy i.e., the U.S.A., and the U.S.S.R.; and attempts to assess the difficulties of allocation encountered in an economy not utilizing the economic technique of the market system.

Any society is required to save, in some manner, a portion of its current income should it desire to form or fabricate capital. In an exchange economy (which all industrialized societies must of necessity be), savings for investment purposes must assume monetary form. It is a feature of an individualistically planned or free enterprise system, that the requisite monetary savings to be used for a given investment scheme commonly originate in a market. In the United States, for example, funds for investment purposes may be accumulated either in the form of undistributed profits or through the sale of a stock or bond issue, in a securities market. In such a

market numerous bond and stock issues compete for the use of money capital which it is the aim of each to acquire. As a return for money borrowed in this way, a price in the form of interest is paid the lender.

In the Soviet Union, competition for savings and money is absent (as industry is not allowed to resort to long range credits), and accumulated savings are in fact directly apportioned¹ between individual construction jobs. That is to say, they are distributed without remuneration among different state projects of capital work. Thus industrial firms pay no price for the investments allotted to them. All major centralized capital construction in the Soviet Union is organized on the basis of a State Investment Plan called the Plan of Capital Construction which includes the list of a variety of individual projects or construction jobs. The projects, in turn, are made up either of extensions of the capacities of existing firms, or the erection and equipping of new firms. The construction trusts working on approved projects are supplied with the quantity of building materials and equip-

¹This applies to those savings provided for by the State Plan of Capital Work. Such savings are termed "centralized" investments as distinct from "noncentralized" investments, which are outside the State Plan of Capital Work. Cf. Norman Kaplan, Capital Investments in the Soviet Union, 1924-1951, (Santa Monica, Rand Corporation, 1952), p. 29.

ment required by them, for which the firms supplying this equipment and these building materials for the various projects are remunerated, at fixed prices, from the Investment Plan. Therefore, whereas the expanding or the newly established firms receive their fixed capital without paying for it, the firms supplying individual pieces of this capital are paid a price from a centrally controlled pool of investments.

The apportioning of centralized investments, as set out in detail by the State Plan, is accomplished through special Investment Banks. These organizations act as middlemen in the negotiations conducted between firms selling equipment and building materials, and individual construction projects requiring such goods and executed by the specialized construction firms of the Ministry of Construction.² The Banks are authorized by the central government to employ funds apportioned from a state controlled money-pool for the purpose of purchasing equipment and building materials from manufacturers. The building materials and equipment, assembled for any given project, are then incorporated in the form of buildings and structures by a particular construction trust and finally allotted to a specific industrial organization. Thus

²Recently reorganized at the level of the territorial-economic units.

equipment and building materials are bought at money prices, but not by the industrial firms themselves.³

This description of the method employed in the apportioning of funds and equipment may be clarified, perhaps, by the citing of a hypothetical example of a typical proceeding. Let it be assumed that the State Investment Plan includes a project involving the establishment of a new mine within the Ministry of Coal, and that the project is to be financed completely with funds obtained from the State Investment Plan. According to general practice, the Gosbank will notify a branch of the Prombank that the Coal Combine, for whom the new works are being built, is to be granted access, for capital work needs, to some predetermined sum of money in the form of an account with the investment bank.⁴ The construction trust of the given coal combine (or of the Ministry of Construction) will then be notified that this particular account has been opened

³This is a simplification of the actual procedures. Equipment purchases are not in fact always made by a construction trust: in the case of the machine building industry, equipment is sometimes purchased by the construction trust but more often by the offices of the machine building industry in a given area. In any event, the "project" has no financial responsibility regarding the acquisition of its fixed capital.

⁴The Gosudarstvennii Bank is the central banking authority in the U.S.S.R., while the Promishlennii Bank is what amounts to a specialized department of the central bank and caters to the investment needs of industry.

and that it must now proceed with its tasks. Thus the building trust now becomes responsible for purchasing, via the investment banks, the materials and equipment required for the project. It is further responsible for preparing the work site, assembling the planned buildings and structures as well as installing requisite equipment. This having been done, the construction trust then simply withdraws from the site and the completed project, unfettered by financial obligations, passes under the control and direction of the managerial staff of the given combine. Hence the Soviet plant is built and equipped without cost to itself.

The practice of allocating funds and material resources on the scale required by Soviet investment planning gives rise to a number of special and interesting problems which may properly be called the "issues" of apportionment. The first group of such issues pertain to problems concerning the apportionment of funds between individual projects. As it is undoubtedly inconceivable that the Soviet economy could simultaneously finance all the plans advanced for consideration to the state planning authorities in any one accounting period, it follows that the difficulties of choice must be encountered. Planning bodies must decide which projects are to be given priority in a particular programme of capital work. The problem

involves determining which projects are of greatest economic value for a specific period. The second problem, which follows on the latter, is the difficulty of deciding how to allocate finances so as to ensure a proper balance within a given project between grants for pure construction and equipping purposes respectively. Should the allocation of investment funds not be effected astutely, then excesses and shortages of one sort or another are bound to occur in the economy. The second group of issues concerns problems related to the apportionment of individual pieces of equipment. With the manufacturing capacity, and therefore the stock of equipment given at any point in the apportionment process, planners are confronted with the task of properly apportioning the existing stock in an economic fashion. In the event that the distribution of equipment is not conducted on a proper economic basis, one can anticipate both unemployment of equipment resulting from overapportionment and shortages of manufactures resulting from underapportionment. This problem of improper distribution of equipment manifests itself at the level of the individual production line in the form of noncomplementarity in the mechanization of production. The final issue of importance within this latter group is one concerning the difficulty of ensuring that the total available stocks of equipment are actually not only allocated by central authorities, but also fully

utilized by individual firms.

The issues arising from Soviet procedures in dispensing both funds and material resources are of supreme importance to an appraisal of Soviet investments. An examination of these issues will be undertaken with reference to the acquisition and disposition of funds and material resources. For purposes of comparison, data pertaining to the United States as well as the Soviet Union are presented.

CHAPTER II

SOURCES OF FUNDS

Investment is carried on for the purpose of producing fixed capital. Fixed capital consists of a heterogeneous conglomeration of buildings, structures and equipment. Commonly, the ownership of this stock of fixed capital is divided, within an economy, between a public and a private sector. The exact proportion of the total located in each sector varies within different localities and countries. A precise cleavage between these two sectors of capital is in practice difficult to establish, but as this study is concerned with the general division of investment expenditures into these two parts, it is not considered necessary to deal with the more practical problem here.¹

¹In general, the distinguishing features of the types of savings usually formed by a public sector in an individualistically planned economy are at least twofold: they are most frequently of such a character that their formation would not be undertaken by the private sector for lack of adequate profit; the benefits which accrue to a society from such savings are customarily indiscriminate.

A. In the U.S.A.

Extensive investing is carried on within both the public and the private sectors, in the United States, although investment in the latter sector has measurably exceeded that carried on in the former, for both prewar and postwar periods.

The federal government, the states and the municipalities all spend large sums annually for the maintenance and expansion of public buildings and services. As nothing approaching a complete list of the objects of public investing can be undertaken, only a few items may be mentioned, e.g., buildings accommodating postal, customs, immigration, police and armed forces services and courts of law, highways, bridges, tunnels and land reclamation work, etc.. Funds to facilitate investment within the public sector are derived directly from government budgets at the various governmental levels; that is, federal, state and city. Government budgets in turn derive their receipts from numerous sources including direct and indirect taxation, customs duties, sale of government bonds, etc.. With the exception of the war years, the bulk of resources for all government expenditures, including funds used in the process of investing, has come from current revenue sources. Higher tax rates, enlarged tax bases,

and new forms of taxation have raised tax revenue from 8.3 billion dollars in 1932 to 50.7 billion dollars in 1950. Of principal interest in the American tax group is the income tax, which has played an increasingly important role as a source of revenue for the government sector. In 1932, income taxes supplied 11.2 percent of total government revenue; by 1950, the income tax was supplying 40.5 percent of total revenue.² Direct taxation in the Soviet Union, as will be shown, with the exception of the war years, has not been as prominent a device as has direct taxation in the United States.

In the U.S.A., investing in the private sector is of a far greater importance than in the public. The significance of the private sector may be appreciated by considering that throughout the periods 1929-1939 and 1945-1950, outlays for private productive facilities have constituted not less than 47.8 percent and as much as 76.1 percent of all outlays for capital goods.³ Maintenance and expansion of private capital stock involves investing for even more diverse purposes than are encountered in the public sector. Such private activity results in the

²J. Frederic Dewhurst, America's Needs and Resources, (New York, American Book-Stratford Press, Inc., 1955), p. 583.

³Dewhurst, America's Needs and Resources, p. 471.

appearance of new and reconditioned textile and food processing plants, appliance and automotive plants as well as the more basic installations such as steel stamping and rolling mills, oil and gas refineries and, as a final example, blast and open hearth furnaces. This list of capital is by no means exhaustive, but it does provide some idea of the significant contribution made to total investments in the United States by the private sector. The funds to facilitate the creation and maintenance of this miscellany of projects come from two sources. The first source is the firm itself through its savings in the form of undistributed profits. The second source is the capital market through which investment funds are accumulated by the sale of stock and bond issues. A short discussion of both sources will indicate their relative share in total private investments.

As would be expected, the volume of undistributed profits of American corporations varied greatly during the period 1929 through 1939. For example, the undistributed profits of non-financial corporations with net income totalled \$3,823 million in 1929, fell to \$144 million in 1932, rose to \$910 million by 1935 and by 1939 stood at \$1,780 million. During the period 1941-1945, corporations retained more than half of their earnings after taxes so that by 1945 their liquid assets amounted to \$40 billion.

The volume of funds collected externally fluctuated during the period 1929-1939, as did those collected internally. The amount of non-current funds from outside absorbed by non-financial corporations totalled \$2,805 million in 1929. With the onset of the depression, the accumulations of non-current funds dropped off annually until 1932 at which time they involved some \$338 million. In succeeding years, non-financial corporations increased their borrowings so that by 1937 they absorbed \$2,795 million. Both 1938 and 1939 were years of reduced absorptions of non-current funds, but in the last prewar year, 1940, there were increased external borrowings, the total taken amounting to \$3,783 million. Over a seven year postwar period, funds borrowed by corporations amounted to \$182 billion, so that by the end of 1952, corporate debts outstanding consisted of \$167 billion.⁴

Throughout the period 1929-1950, the financing of net asset expansion by non-financial corporations from internal and external sources respectively, fluctuated considerably. It is interesting in this context to note that for the entire period covering the first half of this century, sixty percent of this expansion required external

⁴National Association of Manufacturers, The American Individual Enterprise System, (New York, McGraw Hill Co., 1946), vol. 1, pp. 395-6; Dewhurst, America's Needs and Resources, p. 921.

financing.⁵ For the periods with which this study is primarily concerned, the proportions of total financing of net asset expansion, undertaken by non-financial corporations from internal sources, varied from 78 percent in the period 1930-1933, to 49 percent in the period 1946-1949 - external sources accounting for the respective balances.⁶

B. In the U.S.S.R.

As has been pointed out above, in the United States extensive spending for investment purposes is carried out within both the private and public sector. This is not the case in the Soviet Union. In the U.S.S.R., the investing process within the private sector is insignificant. Since the beginning of the planning era (1928), the bulk of all investing has been carried on within the public sector. This does not mean that there is any major difference in the general context of investment within the U.S.S.R., as contrasted to the U.S.A., and does not alter the fact that a very different developmental emphasis has characterized Soviet investment in basic industry. Blast furnaces, oil

⁵A Conference of the Universities-National Bureau Committee for Economic Research, Capital Formation and Economic Growth, (Princeton, Princeton University Press, 1955), p. 146.

⁶Ibid., pp. 147-48.

refineries, textile works and automotive plants, as well as postal and customs services, highways and tunnels, etc., are a feature of capital work in the U.S.S.R. as they are in the U.S.A.. It does mean, however, that investment on behalf of the major part of industry is a function of the public sector in the Soviet Union. Private manufacturers have been permitted to exist during the period of the plans but their activities have been restricted to the supply of minor items.⁷ The amount of money spent by the private sector for investment purposes has hence been negligible.

In the discussion of the public sector in the United States it was indicated that the funds used for investment purposes are derived directly from government budgets. In the Soviet Union, a state budget is also the single most important source of funds for investment purposes in the public sector.⁸ With the exception of the war years, between 1933 and 1950 the Soviet budget provided from 67.5 to 86.4 percent of all funds used for furthering the production of capital within the U.S.S.R..⁹ If it is kept in

⁷Iron beds, pots, wooden spoons and such articles.

⁸For details concerning the various governmental budgets employed in the U.S.S.R., see Alexander Baykov, The Development of the Soviet Economic System, (Cambridge, Cambridge University Press, 1947), p. 385.

⁹Cf. Table A1 in the Appendices.

mind that the State budget of the Soviet Union has larger responsibilities than its American counterpart, insofar as the Soviet budget is the prime source of all funds utilized for capital work in industry, then it is anticipated that as a share of national product, the Soviet budget will constitute a larger part than will the American budget. This is illustrated by the fact that in 1937, Soviet budgetary receipts were 36 percent of gross national product, as compared to 17 percent for the United States in the same year.¹⁰ The State budget of the U.S.S.R. depends for its income on a number of revenue sources, some of which have been enumerated with respect to government budgets in the U.S.A.. Although the primary sources of budgetary revenue are similar in both countries, the proportions of total revenue contributed by prime sources are quite dissimilar.

The most important source of budgetary revenue in the Soviet Union is the so-called turnover tax. The name of this tax is derived from the operation that characterizes its accumulation. Quite simply, the tax is applied on all goods "turned over" or sold by state controlled enterprises. It is properly referred to as a sales or commodity tax, and as such its role is unique, considering that a major portion of all state revenue is derived from it. Whereas in the

¹⁰Franklyn D. Holzman, Soviet Taxation, (Cambridge, Harvard University Press, 1955), p. 29.

United States an income (or direct) tax constitutes the major source of revenue, in the U.S.S.R. this role is assumed by an indirect or commodity tax. For instance, in the period 1928 through 1940, the turnover tax provided not less than 35.2 percent and as much as 69.7 percent of total budgetary revenue in the U.S.S.R.. During the postwar period, 1946 through 1954, this tax has contributed from 41 percent to 62.1 percent of all Union budget receipts.¹¹ It is obvious, therefore, that the turnover tax is of major importance in the formation of the budget. Further, as centralized investments in the Soviet economy are mainly in the form of non-repayable grants or allocations from the state budget, the turnover tax is evidently of paramount importance insofar as the State Plan of capital work is concerned.

The employment of an indirect tax as a means of siphoning off monies for budgetary purposes was not accidental. With the advent of the first plan in 1928, it became most imperative that the Soviet Government guarantee its planning authorities sufficient money capital for the projected investment programmes. In view of the exceedingly high rate of investment that was going to be attempted, it was obvious that relatively large quantities of money would have to be available in the form of a steady money-flow passing into the central investment fund via the state

¹¹Cf. Table B1 in the Appendices.

budget. The fundamental problem confronting the government was how to provide consistently a money stream of the required dimensions. Keeping in mind the international status of the Soviet Union in the years immediately following World War I, one can readily appreciate that there could be no possibility of the Soviet Government being able to borrow foreign savings in either constant or appreciable quantities. Thus the U.S.S.R. was denied access to one source of money capital very frequently resorted to by developing economies. If it is finally considered that the existing stocks of domestic savings were quite unequal to the tasks envisioned then it becomes apparent that the government of the Soviet Union had but one recourse; namely, involuntary exactions from the personal incomes of the population. Compulsory saving was obviously the answer, but in the face of the enormous sums required, very strong opposition was to be anticipated from the wage earners should direct taxation alone be employed. As a means of concealing the extremely heavy exactions that had to be made, a commodity tax was resorted to. As a further expedient for securing more or less exactly planned sums, the commodity tax was brought to bear most heavily on those items of consumption which the bulk of citizens utilized; that is, on articles of inelastic demand.

"Bread is truly the staff of life in the Soviet Union,

and the largest single item of expenditure of the poorer families." ¹² It is on such basic items as bread and sugar, and for those who drink spirits, on alcohol, that the turnover tax weighs heaviest. The tax rates applicable to such items were in 1935, for example, generally in excess of 70 percent; that is to say, as a percentage of the price, the turnover taxes constituted more than 70 percent (contrast these with rates of less than 40 percent on such items as cream, chickens, geese, turkeys and canned fruit). ¹³ Demand for these several commodities is relatively inelastic; in spite of price, they will be purchased in considerable quantities and will therefore ensure the budget of a steady flow of revenue. As an illustration of the part played by bread products, sugar and alcohol in collections for turnover taxes, one may consider that in 1936, of 62.7 billion rubles received into the budget from these taxes, the three stated commodities supplied 33.1 billion rubles, or somewhat

¹² Holzman, Soviet Taxation, p. 150; the author refers to a study, Lohn, Preis und Lebenshaltung in der Union der Sozialistischen Sowjetrepubliken, (Vierteljahreshefte zur Statistik des Deutschen Reichs, vol. 47, no. 4, Berlin, 1939), in which it is estimated that in Soviet families whose incomes were typically 2,600 rubles (annually), expenditures on bread and flour amounted to more than 25 percent of total income.

¹³ Holzman, Soviet Taxation, p. 151.

more than 50 percent.¹⁴

Like all sales taxes, the turnover tax is a markup; that is, it is an addition to actual production and marketing costs. However, it does not affect price in the way that sales taxes ordinarily do in North America, for instance. All prices in state controlled enterprises are planned, and therefore more or less fixed. As a general rule, the average cost of each commodity unit is calculated in terms of rubles and kopeks, but all other constituents of final price are expressed as a percentage.¹⁵ Within this framework, the turnover tax has a unique position; it is largely impervious to cost fluctuations. In the event that a firm's costs do rise, the turnover tax is not affected, whereas the profits portion of price is. In this way, the budget is always

¹⁴ Holzman, Soviet Taxation, p. 72; Baykov, Soviet Economic Development, p. 370. It is interesting to note that bread products alone contributed 21.2 billion rubles out of total turnover tax receipts of 62.7 billion rubles in 1936. That this one consumer item could supply such a large share of total turnover tax receipts results from the practices of the central government respecting procurement of grain supplies and retail sale of manufactured grain products. By compelling the collective farms to accept relatively low grain procurement prices, and then subsequently charging relatively high prices for manufactured products, the state realizes large revenues for the budget by levying a heavy indirect tax on the retailed products. For example, one kilogram of rye bread sole in 1934 for 50 kopeks, while procurement prices were significantly lower; those for wheat being about 6 kopeks per kilogram.

¹⁵ Class notes, lectures given by Dr. H. E. Ronimois, at the University of British Columbia, 1955-56.

assured a portion of the final selling price.

The turnover tax has really only one important drawback. Because it is principally a tax levied on commodities bought for immediate consumption by the population, if significant volumes of consumer goods are not forthcoming, receipts from the turnover tax will naturally drop off. This of course is the exact situation that developed after the German invasion of the Soviet Union in 1941. The production and sale of consumers' goods was drastically reduced and hence revenue from turnover taxes on such commodities fell off sharply. As a means of replacing the revenues lost through the inevitable failure of the turnover tax on consumers' goods, the government was compelled to increase the prevailing rates of direct taxation. The ending of hostilities was followed by a return to prewar patterns of rates.¹⁶

Also included within the planned price of each commodity is a share devoted to profits. Depending upon an enterprise's internal requirements, a fixed percentage of planned profits is calculated as a profits tax and is diverted into the budget. The particular rate charged depends upon the firm's plan of current operation and plans

¹⁶With regard to turnover tax rates in general, it should be noted that the rates applicable to producers' goods are, typically, lower than those applied to consumers' goods.

for expansion of productive capacity. A maximum rate of 81 percent of planned profits is levied as a profits tax on firms whose income exceeds internal requirements in terms of expenditures for maintenance and/or expansion of fixed and working capital. Rates varying from 10 to 81 percent of planned profits are levied on firms whose income more or less meets needs for current operation and planned expansion. A minimum rate of 10 percent is levied on the profits of firms which in general require budget assistance in order to carry out their plans for current and future operations. The real purpose of this latter nominal rate is to permit the regular auditing by central authorities of a firm's programme and progress.¹⁷

With the exception of the war years and their aftermath, the profits tax has contributed, in the period 1937 through 1954, from 8.2 to 16.2 percent of total budget receipts.¹⁸ While direct or income taxes have in general played a minor role in Soviet taxation policy, they have not been entirely discarded. Firstly, income taxes are a means of exacting further savings from the population. Secondly, direct taxes may be used as instruments of discrimination. In North America, income taxes are paid

¹⁷ Baykov, Soviet Economic Development, pp. 374-75.

¹⁸ Holzman, Soviet Taxation, pp. 217, 222.

strictly on the basis of annual income; the individual's social position and occupation are not directly concerned with the rate of taxation imposed. In the Soviet Union, however, the rate of tax is dependent not only on annual income but also on class of occupation. In 1934, for example, petty business men earning an annual income of 5,000 rubles paid income taxes at a rate seven times higher than that levied on common workers employed in urban areas.¹⁹

During the periods 1930 through 1940, and 1946 through 1954, direct taxes have been constructed to yield approximately 4 to 10 percent of total budget receipts.²⁰

In addition to direct income tax, Soviet workers were for many years obliged to purchase government bonds; this practice has now been abolished.

"... it is no exaggeration to say that almost the entire stable savings of the U.S.S.R. population are in fact invested in State bonds."²¹ From the inception of the first Five Year Plan (1928), receipts from the sale of government bonds have been a permanent feature of annual State budgets. Throughout the period 1928-1954, monies from the sale of State bonds have contributed approximately

¹⁹Holzman, Soviet Taxation, p. 79.

²⁰Ibid., pp. 217, 222.

²¹Baykov, Soviet Economic Development, p. 379.

5 to 14 percent of total budgetary receipts. The promotion of loan drives in the Soviet Union has been consistently carried out in an atmosphere reminiscent of wartime Victory Bond campaigns in Canada and the United States. Under the influence of such pressure, Soviet workers apparently have commonly contributed from two to four weeks' wages to the State loans. Lacking the mechanism of a free enterprise market for stocks and bonds, the annual government loans are utilized for the purpose of absorbing much of the population's residue of income. Final residue of income in the form of savings, if deposited in the State Bank (Gosbank), is also utilized on behalf of the government by having the banks (district branches of the Gosbank) hold stable savings balances in the form of State bonds.²²

Over the course of years, government bonds in the hands of the people have been manipulated in terms of interest and principal by the State, to the detriment of the bondholder. As one writer has observed, "To date ... the Soviet citizen has had little reason to prefer being a bondholder over being a taxpayer."²³

²² Baykov, Soviet Economic Development, p. 379.

²³ Holzman, Soviet Taxation, p. 201. Sales of State bonds are currently responsible for subscribing relatively small quantities of money to the Union budget. Cf. Appendices, Table C1, for an outline of the relative contributions made to the budget by principal contributing sources over the period 1931-1958.

In addition to the sources of budgetary revenue already discussed, the budget is also the confluence of a miscellany of other exactions. Principal among the latter is a fee which is used to maintain the State Social Insurance Fund, and is levied in the form of a markup over commodity cost. This Social Insurance Fund constitutes a reservoir from which old age and sickness insurance payments are made. Among the assortment of other taxes fed into the budget are: (a) income taxes payable by individual Soviet peasants (a counterpart of the income tax payable by the urban population);²⁴ (b) income taxes payable by collective farms, co-operative and public organizations; (c) receipts from customs; (d) income from state forests; and (e) taxes levied on theatre and cinema box-office receipts.

There are also other sources contributing to the aggregate plan of capital construction; these latter are located at the level of the individual state firm and consist of the following: (a) the enterprise profits fund; (b) the director's fund; and (c) the amortization fund.

Profits are, of course, not always inevitably forthcoming from enterprise, and as might be expected, Soviet

²⁴ Like the income tax levied on urban populations, the income taxes applied to rural populations are used as a means of discriminating between the "socialized" and "non-socialized" sectors. Currently, collective farmers pay at lower rates than privately employed farmers. Cf. Holzman, Soviet Taxation, p. 187.

firms are subject to the vagaries attendant upon enterprise wherever conducted. This discussion, however, will ignore the problem of costs, and will consider all industrial firms as if profit making were their common fortune.

It has been pointed out that planned prices in the U.S.S.R. contain among their several elements a share devoted to profits. As was also noted, the state levies a tax on all planned profits, the receipts from same entering the budget as part of general revenue. The portion of profits remaining after the profits tax has been accounted for is credited to the enterprise's own resources. By law, the director's fund has a prior claim on all such monies credited to a firm's account. The fund acquires, according to decree, from 1 to 5 percent of planned profits and anywhere from 15 to 45 percent of unplanned profits (additional profits resulting from operations being conducted at lower than planned cost and producing more than planned profit).

Sinking funds for capital are maintained by law in most areas of the economy, with two important exceptions: (a) collective farms, and, since 1938, (b) machine tractor stations. Amortization rates are set by the State, and are calculated as percentages of original cost.²⁵

²⁵ Kaplan, Capital Investments, p. 18.

In general, the monies collected in the last three funds discussed are used for purposes which by law are more or less the preserve of individual firms. That is, firms may construct dwellings, clubs and nurseries for their employees; pay bonuses to directors and other employees for fulfilment and over-fulfilment of planned norms or quotas; and finally, maintain buildings and equipment, and even add to their capital stock, provided this is specified by plans.

One last important source of money for investment financing should be mentioned. The "indivisible funds" of the collective farms are unique insofar as they are the only savings funds found in Soviet agriculture. Each year, every collective farm is required to deposit 20 percent of total monetary revenue (from the sale of various "deliveries"²⁶ as well as produce at local markets) in an indivisible fund. Expenditures for buildings, livestock,

²⁶ All collective farms are compelled by law to turn over to a state procurement agency (zagotovitel'naya organizatsia) certain annual quotas of grain. A basic quota in the form of a "compulsory delivery" is required of every collective farm. Additional deliveries in the form of "centralized purchases" are required of collective farms which have had better than average harvests. For both forms of deliveries, the collective farms are paid a price set by the state; the price for centralized purchases usually being in excess of the price paid for compulsory deliveries.

tools and other "light"²⁷ equipment are made from this fund.

Centralized investments, as previously mentioned,²⁸ refer to savings provided for by the State Plan of Capital Work. The state budget plus enterprises' own resources (mainly retained profits and the part of amortization allowances not designated for capital repairs)²⁹ are the sources from which these latter savings are drawn. Non-centralized investments³⁰ are financed by money taken from the savings funds of the collective farms, and from the directors' funds. In Chapter III, the investments referred to are specifically those provided for by the State Plan of Capital Work, i.e., centralized investments.

²⁷ Until very recently (February, 1958), collective farms were not permitted to acquire and operate privately heavy agricultural equipment in the form of power operated cultivating implements, combines, etc.. All heavy equipment was assigned to implement depots (Machine Tractor Stations) operated by the Ministry of State Farms. Collective farms were required to contract with these depots in order to utilize the implements held by them. In return for the services of the M.T.S., the collective farms paid in kind; that is, they delivered quotas of grain in accordance with their contractual arrangements. Cf. note 18, p. 69.

²⁸ Cf. p. 2.

²⁹ Kaplan, Capital Investments, p. 32.

³⁰ "Non-centralized investments are identified with investments provided for by the decrees on extra-limit investments". Cf. Ibid., pp. 11, 13, 29.

CHAPTER III

DESTINATION OF FUNDS AND MATERIAL RESOURCES

The Plan of Capital Construction, in the U.S.S.R., includes developmental schemes aimed at increasing the administrative, military, industrial and agricultural facilities of the Soviet economy; the funds to finance this developmental work coming chiefly from the state budget. The Plan of Capital Construction is hence an aggregate plan inasmuch as it envelopes capital work of quite different categories, for example, development of industrial as opposed to military facilities. In addition to outlining the total volume of capital work of all categories to be undertaken in a given period, the Plan of Capital Construction contains an itemized list of projects within each category. It will be appreciated that the number of projects included within a given Plan of Capital Construction is enormous. As a discussion encompassing total investment activities even in one category, not to mention the Plan of Capital Construction as a whole, is manifestly outside the limits of this study, the dissertation will at this point, be confined to an analysis of the

movements of funds and material resources with respect to a limited selection of basic industries.

Tables G1 through N1, (See Appendices) present data on the Machine Building, Electric Power, Iron and Steel, Petroleum, Coal, Railroad Transport and Construction Industries, in both the United States and the Soviet Union. In general, the period for which relevant figures are provided is 1929-1950 (excluding the years 1941 through 1945). The individual figures in each table express sums expended annually by given industries for goods and services used to create new capital, and to maintain or expand existing capital in the form of buildings and equipment. Hence, the industries expending the largest portions of funds are also the industries utilizing the most valuable portion, in money terms, of existing savings or material resources. The term "investment" is used throughout this section as well as in the tables to signify the amount of money entering the investing process. The tables are compilations of gross estimates for investment expenditures in both economies. Any conclusions based on their use are, therefore, tentative.¹

"Soviet investments were centralized ... and con-

¹Cf. Appendix D for discussion pertaining to the character of the data presented.

centrated on heavy industry to an extent not duplicated by capitalist economies."² The major feature of planning in the U.S.S.R. has been the emphasis on the producers' goods, i.e., heavy industry. By concentrating the bulk of available resources within this field, planners sought to develop at an extraordinary pace those industries fundamental to economic growth. During the prewar period, not less than 66 percent, and as much as 88 percent of total investment funds were channelled into heavy industry.³ Included within heavy industry are the industries enumerated above, which will be dealt with in turn with reference to the percentage of total funds devoted to their development in each country; that is, the Soviet Union and the United States.

THE IRON AND STEEL INDUSTRY

Throughout the period 1929-1940, the quantity of money utilized for capital formation in the American iron and steel industry, as a proportion of total investment in the national economy as a whole, varied from 0.6 percent (1934) to 2.4 percent (1937).⁴ For the same period, the Soviet Union

²Norman Kaplan, "Capital Formation and Allocation", Soviet Economic Growth, (New York, Row Peterson, 1953), p.83.

³Cf. Appendices, Tables E1, F1, F2.

⁴Cf. Appendices, Table G1.

invested in its iron and steel industry from 2.7 percent (1938) to 8.8 percent (1933) of its total investments. It is interesting to note that the maximum share of savings devoted to the iron and steel industry in the United States (2.4% - 1937) was, in fact, not even equivalent to the minimum share devoted to the iron and steel industry in the Soviet Union (2.7% - 1938). A comparison of the maximum shares received in each area reveals that the American figure is less than one third the Soviet figure (8.8% - 1933).

In the period 1946-1950, the share of total investments received by the iron and steel industry in the U.S.A. constituted from 2.0 percent (1950) to 3.8 percent (1946). The relevant Soviet data shows a slight spread between 9.0 percent (1950) and 10.2 percent (1946). During this post-war period then, the share of savings devoted to the iron and steel industry in the U.S.S.R. was about three times as large as the share devoted to the industry in the U.S.A..

Of further interest for purposes of comparison, is the proportion of total industrial investments that investment in the iron and steel industry constituted in both the U.S.A. and the U.S.S.R.. During the period 1929-1940, the share of total industrial investment received by the iron and steel industry in the U.S.S.R. fluctuated between a low of 7.1 percent (1938) and a high of 17.2 percent (1934). The American figures show the proportions as varying between

2.3 percent (1934) and 8.3 percent (1930 and 1937).

The year 1935, which may be regarded as representative of a general trend for the prewar period with respect to investments in the iron and steel industries of the U.S.A. and the U.S.S.R., has been chosen arbitrarily for specific reasons. Two observations have conditioned the choice. Firstly, it was in 1935 that American investment expenditures in the iron and steel industry regained strength after the relatively lean period 1932-1934. Secondly, the year 1935, in the Soviet case, was free from extremes as indicated for example by the proportions for the years 1934 (17.2%) and 1938 (7.1%) - these being extremes in the sense that the dimensions of the data make their acceptance questionable, insofar as they depart measurably from the rest of the data. Table G1 shows that the share of expenditures devoted to the iron and steel industry in the United States in 1935 constituted 5.8 percent of total industrial investments in that country. The relevant Soviet proportion was 12.6 percent. In this year then, and as an average indication for the period 1929-1940, the Soviet iron and steel industry absorbed a share of industrial investments twice as large as that absorbed by the American industry.

The postwar data on investment in the iron and steel industry, as a share of total industrial investment, reveals that the Soviet shares were generally twice as large as the

American. For example, the year 1948 shows the American share to be 10.2 percent and the Soviet share 21.0 percent.

The competitive system of enterprise in the United States, in the absence of an upheaval similar to the "Russian Revolution" and notwithstanding the 1929-1933 depression, has wrought in American industry as a whole, and particularly in the iron and steel industry, constant but relatively gradual changes in capacity and technique. Hence, American data for investments in iron and steel making are not expected to reflect the sort of changes which are inherent in the capital expenditures made on behalf of iron and steel making in the U.S.S.R.. In the example provided by the Soviet Union, one is able to see the development of a major iron and steel industry compressed into a relatively few short years.

Beginning with the first Five Year Plan, great attention was given to the development of basic iron and steel making in the U.S.S.R.. By basic iron and steel making is meant the processes involved in the smelting of iron ore and the preparation of common steels. During the first Five Year Plan, for example, "twenty-five big, new modern blast furnaces"⁵ were blown in. As development of

⁵Gardner M. Clark, The Economics of Soviet Steel, (Cambridge, Harvard University Press, 1956), p. 253.

the fundamental processes progressed, it became desirable to expand not only pig iron and then steel production, but also the production of a great assortment of iron and steel products.⁶ Investments in the iron and steel industry of the U.S.S.R., as a share of total industrial investments, illustrate the general expansion of the more complex process, as ancillary manufactures appear, particularly between 1931 and 1934. From 1935 until 1940, the data are very irregular.

The early phases of expansion of the iron and steel industry in the U.S.S.R. were extremely "capital" expensive. Technicians and other workers took time to master the intricacies of the large and complex plants that had taken shape in the course of the first Five Year Plan. From 1933 until 1940, the developmental work was much less "capital" expensive, as a great deal of attention was given to the more effective operation of the new facilities. As one writer points out:

This productivity drive, which reached its climax in 1936, was organized under the banner of the well-known Stakhanov movement ... Perhaps the most satisfactory result from the point of view of the Soviet leadership was that the sharp rise in productivity permitted fulfilment of the production goals of the Second Five Year Plan with the expenditure of much less precious capital than had been anticipated. The goals were met with 19 new blast furnaces instead of 45, with 86 new open hearths instead of 164, and with 49 new rolling mills instead of the 107 called

⁶Gardner M. Clark, The Economics of Soviet Steel, p. 91.

for in the Second Five Year Plan.⁷

The high rate of investment in the Soviet iron and steel industry in the postwar years to a great extent undoubtedly represents expenditures for reconstruction.

The German attack was a crushing blow to the Soviet iron and steel industry. In one fell swoop the enemy overran and destroyed sixty-one blast furnaces, totalling 42,875 cubic meters' capacity. One blow wiped out a capacity equivalent to that which the Soviets had managed to build at immense cost in twenty-three years following the revolution.⁸

Among the other major factors contributing to the heavy capital expenditures in the postwar period has been the emphasis on conversion to automatic leading systems on blast and open hearth furnaces.⁹ Furthermore and finally, the compulsory utilization of low grade ores, particularly since 1945, has compelled the Soviet iron and steel industry to invest heavily in beneficiation or enriching equipment.¹⁰

THE ELECTRIC POWER INDUSTRY

As a proportion of total investments in the economy as a whole, investments in the American electric power

⁷Clark, Soviet Steel, pp. 253-55.

⁸Ibid., p. 50.

⁹Ibid., p. 261.

¹⁰Ibid., pp. 148-49.

industry, over the period 1929-1940, varied between 2.4 percent (1934) and 5.8 percent (1930).¹¹ With the exception of the period 1934-1936, the share of total investments devoted to the electric power industry in the United States was a minimum 3 percent. The share of total investments in the U.S.S.R. devoted to the electric power industry throughout 1929-1940 varied between 2.0 percent (1940) and 4.3 percent (1929). The entire period 1934-1940, with respect to the Soviet data, indicates a series of shares similar to those available for what was apparently a trough period in the American experience; that is, 1934-1936, during which time the American electric power industry received from 2.4 to 2.9 percent of total investments.

For the years of the postwar period included in Table H1, the shares of total investment constituted by investment in the electric power industry are similar for both the U.S.A. and the U.S.S.R.. The American shares range from 2.6 percent (1947) to 5.2 percent (1949), while those of the Soviet Union vary between 4.1 percent (1948) and 5.2 percent (1950).

The data for both countries pertaining to investment in the electric power industry as a proportion of total investment reveals a trend quite different to that displayed

¹¹Cf. Appendices, Table H1.

when investment in the electric power industry is taken as a proportion of total industrial investments. For instance, during the prewar period, American investment in the electric power industry as a share of total industrial investment constituted as a minimum, 9.1 percent (1934) and as maximum, 23.2 percent (1931)! whereas, the maximum share in the Soviet case was 9.6 percent (1929 and 1930). The period 1929-1940 indicates, in terms of total industrial investments, that American investing for development of electrical power facilities was conducted on a significantly greater scale than were similar activities in the U.S.S.R.. In fact, the American electric power industry has received relatively huge shares of total industrial investments over the period studied. Note for example, that in five separate cases the electric power industry in the U.S.A. has received approximately one-fifth of total industrial investments (1930, 1931, 1932, 1949 and 1950). At no time over the period studied did the Soviet electric power industry receive such large shares of total industrial investments.

The data for the postwar period may, in general, be considered as continuing the trend established in the prewar period. Throughout 1946-1950, the share of total industrial investments devoted to the electric power industry in the U.S.A. rose from a low of 6.9 percent (1946)

to a high of 20.0 percent (1949). During the period 1947-1950, the share of total industrial investments received by the Soviet electric power industry varied from a low of 8.9 percent (1948) to a high of 11.5 percent (1950).

THE MACHINE BUILDING INDUSTRY

Investment data is sparse for the machine building industries of the United States and the Soviet Union in the prewar period. The only prewar year for which American data is available is 1939. The figures available for the U.S.S.R. are for the years 1934-1936 and 1939.¹²

The proportion of total investments devoted to capital work in the American machine building industry in 1939 was 2.4 percent. In the Soviet Union, the industry received between 4.4 percent (1940) and 8.6 percent (1934) of total investments. Through the postwar period, investment expenditures by the machine building industry in the U.S.A. constituted from 2.4 percent (1949-1950) to 5.9 percent (1946) of total investment expenditures in the national economy. Soviet expenditures in the machine building industry as a share of total investments varied between 4.4 percent (1950) and 6.2 percent (1946).

¹²Cf. Appendices, Table II.

American investment in the machine building industry, as a share of total industrial investments, was 11.2 percent in 1939. The relevant Soviet figures for the prewar period fluctuate between 12.4 percent (1940) and 19.2 percent (1935). In the postwar period, the machine building industry in the United States was the recipient of from 9 percent (1949) to 18.2 percent (1946) of total investments in industry. Soviet data, for the period 1946-1950, shows that the machine building industry received from 9.8 percent (1950) to 12.8 percent (1947) of total investments in industry.

THE PETROLEUM INDUSTRY

The proportion of total investments in the national economy directed to capital work in the American petroleum industry for the years of the prewar period considered (1936-1940), ranged from a minimum of 4.6 percent (1940) to a maximum of 6.8 percent (1937).¹³ The Soviet figures for the prewar period (1929-1940) show the minimum share to be 2.2 percent (1932) and the maximum share 4.8 percent (1940). The postwar years in the American case present little deviation from the prewar experience. A minimal share of 3.6 percent (1950) is indicated while the peak

¹³Cf. Appendices, Table J1: Cf. Appendix K, Table K1.

recorded was 6.4 percent (1948). Data in the postwar period for the U.S.S.R. exhibits a tendency on the part of the Soviet Union to sustain prewar emphases on investments in the petroleum industry.

Considered as a share of total industrial investments, investment expenditures in the prewar and postwar periods in the U.S.S.R. and the U.S.A. reveal an American inclination to concentrate extraordinary quantities of investment spending in the petroleum industry. With the exception of one year (1940), the Soviet Union did not spend in excess of 10 percent of total industrial investments in its petroleum industry. By contrast, the United States consistently spent in excess of 15 percent. In fact, the data for six separate years indicates that the United States spent more than 20 percent of total industrial investments on capital work in the petroleum industry. As a further indication of the remarkable investing activity in the American petroleum industry, it may be noted that the shares of total industrial investment directed in the United States to the petroleum industry over the periods 1936-1940, and 1946-1950 were approximately two to three times larger than the relevant Soviet shares.

Although the Soviet Union is the third largest

petroleum producer in the world,¹⁴ oil has played a far less important role in the U.S.S.R. as a source of energy for industry than it has in the U.S.A..¹⁵ The reasons for lesser emphasis on the development of the petroleum industry in the U.S.S.R. are several. Petroleum exploratory work is extremely expensive, and when a substitute fuel is available, planners are apt to be guided by what is most expedient rather than by what is perhaps most prudent. Moreover, the oil industry in the Soviet Union has certain frailties, among which are "inadequate technology, as regards exploration, drilling operations, refining and transport."¹⁶

THE COAL INDUSTRY

The amount of capital formation taking place in the Coal industry of the United States, for the period studied, has been small in comparison to the scale of such activity in the Soviet Union.¹⁷

Expenditures for capital purposes in the American coal industry represented about 1 percent of total investment

¹⁴United States, Legislative Reference Service of the Library of Congress, Trends in Economic Growth, (Washington, United States Government Printing Office, 1955), p. 152.

¹⁵Ibid., p. 151.

¹⁶Ibid., p. 124.

¹⁷Cf. Appendices, Table Ll: Cf. Appendix K, Table Kl.

expenditures in the national economy throughout the period 1936-1940. Soviet expenditures for capital work in the coal industry for the period 1929-1939 fluctuated between a low and high of 1.3 percent (1936) and 5.2 percent (1938) of total investments in the national economy. The postwar trend in the U.S.A. differed little from prewar experience. Peak expenditure amounted to 1.2 percent (1947) of total investments while the low recorded was 0.4 percent (1950). Soviet expenditures in the postwar years exhibit a magnified allocation of investment resources to the coal industry. As a share of total investment expenses, investment in the Soviet coal industry rose and fell slightly, around a middle figure of 9 percent.

Regarded as a fraction of total industrial investments, expenditures for capital purposes in the coal industry of the U.S.A., for the period 1936-1940, were minimal at 2.4 percent (1940) and maximal at 5.1 percent (1939). In the course of the period 1929-1939, the U.S.S.R. directed from 3.6 percent (1936) to 13.7 percent (1938) of total industrial investments into capital formation on behalf of the coal industry.

The postwar period as opposed to the prewar period, in the U.S.A., was not marked by any greater emphasis on capital work in the coal industry. Investment spending in the American coal industry varied between 2.2 percent

(1950) and 3.8 percent (1947) of spending for all industrial capital purposes. Soviet data for the period 1947-1950 reflects vividly an increased volume of capital formation in the coal industry of the U.S.S.R. compared to the pre-war period. For the years of the postwar period, investment expenditures in the Soviet coal industry absorbed in each year roughly one-fifth of total industrial investment expenditures.

Comparison of the above data reveals the fact that the shares of total industrial investments devoted to the coal industry in the U.S.A. were roughly one-fifth to one-ninth the size of the relevant Soviet shares.

Development of the Soviet coal industry, as is obvious from the data, has been a prime consideration for investment planning and spending. The large expenditures for the iron and steel industry in the U.S.S.R. have been one of the major contributing factors necessitating heavy investment expenditures in the Soviet coal industry.

Postwar capital expenditures by the coal industry in the U.S.S.R. have been especially heavy. Reconstruction of the European coal areas of the Soviet Union has been costly, of course, but this is not the only reason. Coal mining in areas which have been mined continually over long periods of time frequently tends to become extremely expensive. This is apparently the Soviet experience in the

Dnieper region.

Before the Second World War Donets coal was mined at depths varying from 200 to 800 meters, with an average depth of 450 meters. This increases the costs of bringing the coal to the surface and of maintaining surface installations and ventilation systems. ... The presence of high concentrations of coal gas increases the hazards of mining and the expenses of ventilation, and it is a continuing struggle to remove the large quantities of underground water.¹⁸

Another major factor contributing to high postwar outlays in the coal industry has been the effect of wartime mining practices.

Under the pressure of war, the better coking coals at Kuznetsk were ruthlessly exploited ... The necessity of turning out steel behind the Urals was a question of life or death for the Soviet Union. To maximize output, the blast furnaces needed the best possible coke, and the long run effect on the quality of the coal reserves had to be ignored. The best coking coal was mined selectively, and the rest was simply left in the mines.¹⁹

In the face of an increasing shortage of high grade coking coal, resulting largely from the imperative but nevertheless extravagant demands of the war years, the coal industry has been compelled to utilize lower grades of coal to an increasing extent. Forced to use large quantities of coal with high ash, sulphur and phosphorous content,

¹⁸Clark, Soviet Steel, p. 124.

¹⁹Ibid., p. 131.

and yet obliged to supply blast and open hearth furnaces with coals of low ash, sulphur and phosphorous content, the Soviet coal industry has been compelled to invest large sums of money in coal enriching plants.

The fourth Five Year Plan in 1946 laid down an extremely ambitious program of coal beneficiation, which called for the construction of twenty-seven new coal concentrating plants, development of enrichment by heavy suspension and the enriching of all coking coal containing over 7 per cent ash. This meant that the Soviets were to enrich 53,000,000 out of the 57,700,000 tons of coking coals scheduled for production in 1950. This program required tremendous capital investment and was justified on the grounds that investment in beneficiation plants would raise the productivity of the blast furnaces and reduce the capital investment in them by more than the investment in beneficiation equipment.²⁰

RAILROAD TRANSPORT

The rail transport industry in the United States absorbed from 2.0 percent (1938, 1933) to 6.1 percent (1930) of total investments in the national economy for the prewar period.²¹ During the same period, the industry in the Soviet Union received a minimum share of 10.8 percent (1933) and a maximum share of 15.0 percent (1929). The proportions of total investments employed for capital work in the American rail transport industry for the post-

²⁰ Clark, Soviet Steel, pp. 115-16.

²¹ Cf. Appendices, Table M1.

war period are similar to those evident for the period 1931-1940. The minimum and maximum share for the period 1946-1950 were 2.1 percent (1950) and 3.1 percent (1949). Postwar data for the U.S.S.R. reveals a Soviet tendency to relax spending in the railroad investment sector. The shares for the years 1946-1950 can be described as uniform in that they range over the short interval between 7.7 percent (1948) and 8.8 percent (1946).

Investment in railroad transport as a proportion of total industrial investments in the United States shows considerable variation for the years of the prewar period. The percentages fluctuated through an interval fixed by a minim proportion of 8.0 percent (1935) and a maximal of 24.0 percent (1930). Data for the U.S.S.R. indicates that the limits for the years 1929-1938 were 23.8 percent (1933) and 34.1 percent (1936). It is interesting to note that in two separate years of the prewar period, (1929 and 1936) the Soviet Union spent sums, for capital work in its rail transport industry, equivalent to one third of total industrial investments for these years.

Postwar investment in railroad transport as a share of total industrial investment shows a decline in both countries although this accent is most pronounced in the Soviet case. The minimum and maximum share recorded for the U.S.A. are 7.1 percent (1946) and 11.8 percent (1949).

For the Soviet Union, the figures are 16.6 percent (1948) and 19.2 percent (1947). Most interesting perhaps in the light of this latter data has been the Soviet disposition through the period 1947-1950 to spend sums which as shares of total industrial investments are less than 20 percent, whereas in the prewar period, these shares were rarely less than 25 percent.

"Economically, the diversity of means of transport in the West is in marked contrast to the dependence of the Soviet bloc upon its railroads."²² Among the features that are indicative of the more multiform character of the American in contrast to the Soviet economy, possibly the most notable is the employment of large fleets of aircraft and motor vehicles for general transport purposes. Soviet railways in recent years have hauled about 85 percent of total ton-mileage of freight; American rail lines, by contrast, have hauled about 50 percent of total freight ton-mileage.²³ This is not to say that the rail system of the United States is in any sense a less well developed system than that of the Soviet Union; on the contrary, in 1937 there were 18.6 miles of track per 10,000 inhabitants in the U.S.A., as compared to 3.1 miles per 10,000 inhabi-

²²United States, Trends in Economic Growth, pp.48-49.

²³Ibid., p. 46.

tants in the U.S.S.R..²⁴ The flatness of the terrain of the Soviet Union has resulted in a certain preference for railroads as a means of transport; but other factors have obviously been present, to make Soviet expenditures for such transport so very large.

The choice of locations for industry has had an extremely significant influence on the performance of Soviet railroads. The apparently inadvertent choice of developmental sites, which has from time to time characterized Soviet planning (one of the best and most recent examples of this being the Cherepovets iron and steel complex), has seriously taxed the Soviet rail system, and in spite of a desire to conserve investment funds for other purposes, large expenditures have become necessary in order to keep the rail lines operating. Even so, Soviet measures to conserve investment monies have resulted in serious deficiencies affecting the railroads. Because of limited facilities, in terms of both track and equipment, Soviet railroads have become crowded with light, slow trains.²⁵

²⁴United States, Trends in Economic Growth, p. 167.

²⁵Ibid., p. 47. Cf. N. S. Krushchev, Concerning the Further Improvement of the Organization of Administration over Industry and Construction, (A report to the Seventh Session of the Supreme Soviet, U.S.S.R.) Gospolitizdat, 1957, p. 15. This is an account of the problems and costs of "cross-hauling" on Soviet railways.

THE CONSTRUCTION INDUSTRY

Investment in all types of construction work in the United States, for the years of the prewar period constituted from 55.0 percent (1935) to 66.0 percent (1931) of total investments in the national economy.²⁶ For the same period, the Soviet construction industry disposed of sums which as shares of total investments varied between a low and high of 55.5 percent (1933) and 65.5 percent (1932). During the postwar period in the U.S.A., from 48.9 percent (1946) to 55.5 percent (1950) of total investments were channeled into the construction industry. No relevant figures are available for the U.S.S.R. for this period.

Investment expenditures for construction in an industrialized society involve financial disbursements for the purpose of erecting a quite indescribable variety of structures. The character of the construction work that is undertaken in an economy is of interest. That is to say, it is worthy of note, for instance, to what extent an economy is devoting its resources to the construction of industrial, commercial and administrative buildings as opposed to public and private residential structures. In any general appraisal of a society's investment activities, this latter and specific proposition has essential importance. For this reason, the data in Table N1 includes

²⁶Cf. Appendices, Table N1: Cf. Appendix O.

statistics pertaining particularly to monies spent for construction work on urban residential structures in both the U.S.A. and the U.S.S.R.. The following paragraph summarizes these figures.

Expenditures for urban residential construction as proportions of total investments in the United States for the prewar period constituted a minimum of 9.8 percent (1934) and a maximum of 21.2 percent (1939 and 1940). In the Soviet Union, these shares varied between 6.2 percent (1936) and 8.8 percent (1929). Throughout the postwar period, investing in urban residential construction as a share of total investments in the U.S.A. consumed between 17.8 percent (1946) and 25.2 percent (1950) of that total. Such construction in the U.S.S.R. for the same period absorbed from 9.3 percent (1946) to 11.7 percent (1949) of total investments.

Of final interest is the quantity of money utilized for urban residential construction as a share of total construction expenditures. Such an analysis reveals the fact that a very significant part of total construction expenditures has been allocated in the United States to urban residential construction, throughout the prewar and postwar periods.

In the United States during the interval 1929 through 1940, from 16.3 percent (1933) to 36.6 percent (1940) of

total construction expenditures were devoted to urban residential construction. Soviet data for this period is not complete, unfortunately; no figures being available for the years 1936-1940. There is little likelihood, however, that Soviet spending for urban residential purposes in the period immediately before the outbreak of Russo-German hostilities surpassed that of the first six to eight years of planning. In the period 1929-1936, the U.S.S.R. spent roughly 10-14 percent of all monies expended for construction purposes on the erection of urban residences.

An account of Soviet spending for urban residential construction in the postwar period is not available. American investing in the sphere of urban residential construction for the years 1946-1950 reflects tremendous activity in this direction. At no time in the course of the five postwar years examined did such spending constitute less than one-third of all sums spent for construction purposes. Of special interest is the year 1950, during which urban residential construction accounted for 45 percent of total expenditures for construction purposes in the U.S.A..

In conclusion, it is interesting to compare the total percentage of investments in basic industries for a prewar and a postwar year in the U.S.A., and the U.S.S.R.. To this end, data for the five primary industries (machine

building, electric power, iron and steel, petroleum and coal) have been selected for 1939 (where figures for 1939 were not available, figures for 1940 were used) and 1948.

Considered in aggregate, the five prime industries, in 1939, accounted for 13.8 percent of total investments in the American economy, whereas, in the Soviet economy they accounted for 17.8 percent. In 1948, the same group of industries absorbed 17.9 percent of total American investment and 32.5 percent of total Soviet investments. Taken as proportions of total industrial investments, the group, in 1939, received 64.3 percent of the total in the U.S.A., and 44.2 percent of the total in the U.S.S.R.; in 1948, these industries took 59.8 percent of the total in the U.S.A., and 70.2 percent in the U.S.S.R..

In the light of the material presented in this chapter, it is of significance to note some figures pertaining to current output of basic industrial commodities in the United States and the Soviet Union. The data are, perhaps, of particular import since they were obtained from Kommunist (No. 7, 1956). The figures indicate that in terms of output per head of population, the U.S.S.R., in 1955, produced: 358 kgs. of oil (U.S.A. = 2,015); 229 kgs. of steel (U.S.A. = 642); 169 kgs. of pig iron (U.S.A. = 427); 696 kgs. of coal (U.S.A. = 2,707); and finally, 816 kwh. of electricity (U.S.A. = 3,782).

CHAPTER IV

SUMMARY AND CONCLUSIONS

The distinguishing feature of a free market economy is the process of exchange. Capital goods may be exchanged only when a sum of money equal to a seller's price is proffered by some second party. Money capital can be procured only by meeting a seller's price in the form of a market rate of interest. In both cases, exchange transactions require a money payment on the part of a prospective buyer, before the objects of the negotiations change hands. In other words, the user of either money capital or material resources must pay a price for the privilege of employing these relatively scarce resources. The particular price which is paid will depend on a host of factors, but stated simply, the price depends on what value a prospective user attaches to the employment of either or both sorts of capital. The value which a given quantity of money or capital has for different potential employers will necessarily be different. This latter condition arises in that the value of a stock of capital will depend on a series of conjectured returns contingent on its employment in any one of a given selection

of production processes.

The tendency of the market is to allocate scarce resources to the field or process wherein the employment of the money or goods will fetch the highest returns. Profits are therefore the decisive factor in determining the direction of flow for both money capital and social capital. The logic of this process derives from its inclination to divert resources into those fields which value a given stock of capital most highly. The pricing mechanism of a free exchange system is enabled, automatically, to allocate materials to those processes promising the highest rates of return. This mechanism can only function if free exchange prevails throughout all markets. In other words, both consumers' and producers' goods must commonly be subject to free exchange. If this latter condition prevails, then the price network that results may be described as a homogeneous one.

The network of prices existing at any moment of time in the United States or any other free market economy, can be described as a homogeneous one. A homogeneous pricing system is one in which each individual price exerts a mediating pressure on every other price and is in turn similarly acted upon. Even given the influence of a large public sector, such as there is in the U.S.A., and the presence of private monopolies, as well, the pricing

system nevertheless retains the tautness of a homogeneous network. The durable coherence of the price system is the result of the physical magnitude of an enormous individualist or private sector, whose influence strongly mitigates the intrusion of deleterious and arbitrary pricing. The end result is that each price maintains within the network a unique and relatively harmonious relationship with every other price. The phrase, "existing at any moment of time", used in the first sentence of this paragraph, implies that price networks are never given except for some specific moment of time (such, in fact, being indeterminate). The really indispensable thing to be borne in mind is, that in order a homogeneous price network remain homogeneous, it must be permitted to readjust itself continually to prices which are constantly fluctuating. That prices will and must fluctuate follows from the condition that values are rarely constants. Values, in turn, fluctuate as demands expand and shrink for specific goods and services.

In an economy employing the market mechanism, the disturbing issues of apportionment are absent, simply because they cannot arise within the sphere of a free pricing apparatus. The questions which apportionment raises are here answered via the criterion of profit.

It is the absence of any such criterion that, in fact, occasions various issues of apportionment. Within the

scheme of a central plan, the use of the profit criterion is impossible because the pre-conditions of such an index are (necessarily) absent.¹

Under conditions of central planning, the free exchange of producers' goods is impossible. Never passing through the process of free exchange, capital goods are never the objects of evaluation by potential users. Money prices are simply affixed to these goods by planning

¹"Moreover, just because no production goods will ever become the object of exchange, it will be impossible to determine its monetary value". Ludwig von Mises, "Economic Calculation in the Socialist Commonwealth", Collectivist Economic Planning, (London, Routledge, 1935), p. 92.

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"Nationalization of the means of production involves the central control of economic activity. The inevitable presence of this centralistic element ... must necessarily disturb the pricing process ... For the pricing process, ... is an endless network of exchange relations from which individual pieces cannot be arbitrarily torn without injuring the rest." George Halm, "Further Considerations on the Possibility of Adequate Calculation in a Socialist Community", Collectivist Economic Planning, pp. 168-169.

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"The pricing processes in the consumption goods markets are not enough. There must also be a real pricing process in the markets for means of production. No meaning can be assigned to any proposal to replace this pricing process by a process of 'imputation', which, being a purely individual construction of a scale of values, has no relevance to the objectivized sphere of the social economy. Ibid., p. 182.

authorities. The contradictions and frustrations that this procedure leads to, can readily be ascertained by reference to Soviet sources on the subject.² Having arbitrarily 'torn' from the network of exchange relations a significant portion of that complex, planners have confronted themselves with a situation wherein it is virtually impossible to readily assess the economic desirability of using capital in any given scheme or process. Soviet attempts to find an alternative to the price apparatus have not apparently met with any success.³ In this situation, one of the most obvious pitfalls will be the tendency to confuse what is economically desirable with that which is technically desirable: that is to say, scarce resources will tend to be used for purposes which do not offer adequate economic returns considering the economic value of the employed resource:

It follows therefore that the excellence, from a technological point of view, of some parts of the Russian industrial equipment ... has little significance in so far as the answer to the central question is concerned ... The best tractor factory may not be an asset, and the capital invested in it is a sheer loss if the labour which

²Malishev, "Some Questions of Price Fixing in a Socialist Economy", Voprosi Ekonomiki, No. 3, 1957, pp. 93-105.

³A. Zauberma, "Economic Thought in the Soviet Union", The Review of Economic Studies, Vol. XVI, 1948-49, pp. 1-12.

the tractor replaces is cheaper than the cost of the material and labour, which goes to make a tractor, plus interest.⁴

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In the socialist economy, as in the communistic, the probable tendency will be to introduce wherever possible those methods that are the best technically, possibly without it ever being realized that the best from the technical point of view need not be the best from the economic point of view.⁵

The abandonment of the allocative technique of the market, with its simple and relatively dependable pricing system as a basic criterion, has forced Soviet authorities to adopt the apportioning technique of central planning with its various structural pitfalls which lead inevitably to misallocation of substantial quantities of scarce resources.

The first issue of apportionment, as outlined in the introduction, concerns the problem of distributing the monetary funds set aside for investment purposes between individual projects. The number of projects competing for the use of this money capital must, in the knowledge that Soviet industry is a highly complex technical organization, be considerable. This question is not easily settled, considering that any plan must always have not only

⁴F. A. von Hayek, "The Present State of the Debate", Collectivist Economic Planning, pp. 204-205.

⁵George Halm, "Further Considerations on the Possibility of Adequate Calculation in a Socialist Community", Collectivist Economic Planning, p. 173.

certain basic objectives whose realization is usually of crucial importance to the schematics of a plan as a whole, but also, a great number of secondary objectives. Moreover, the more particular the problem becomes, the more difficult becomes the task of finding its solution.

Assuming that a choice of projects has been made, another question regarding the apportionment of money between pure construction and equipment in each project remains to be resolved. The task of allotting funds between demands for fixed capital in the form of buildings and fixed capital in the form of equipment is an enormous one. It is an impossible labour to attempt the imagination of the dimensions of this problem, encompassing as it does thousands of individual projects. Decisions regarding allocations, aside from the problem of their economic value, are made on the basis of prepared estimates, and in the conviction that such estimates can never be anything but rough guides, it therefore follows that serious errors are bound to occur. Some conception of the magnitude of these problems, and their attendant difficulties may be gleaned by referring to excerpts from Soviet publications. The first quotation was taken from a discussion concerning the shortcomings of the construction industry in the U.S.S.R., revealed by Party investigations conducted in 1936; the extract undertakes to describe, in particular,

some of the economically debilitating effects of crude organizational procedures:

The Government and Central Committee of the Party have summed up the progress of construction work in our country ... and have revealed a range of very large scale deficiencies arising from the organizational weaknesses of construction, and from the presence of inefficient methods of execution of construction jobs, in the course of which each new project is provided afresh with equipment, ancillary establishments and newly trained cadres, all of which are dispersed at the completion of a project, instead of remaining to contribute to the technical bases of the construction industry. This weakness in the organization of the construction industry, has through its influences, produced other effects, among which are insufficient utilization of equipment and low labour output ... Disbursements for labour in our buildings, in comparison with expenditures for buildings in the United States, are much higher. If in one of our medium scale constructions the expenditures average 100, then in the American case such expenditures would constitute not more than 27.⁶

By reflecting that these deficiencies existed at a relatively early stage of the planning period, one might well be led to conclude that the defects were transitory. That this latter conclusion is invalid can be established by reference to the following quotations, which illustrate the continuing difficulties faced by planning authorities in this latter respect.

⁶ M. V. Kolganoff and other, ed., National Income of the U.S.S.R., (Moscow, Publishers for State Planning Commission, 1939), pp. 149-53: Cf. Krushchev, Concerning the Further Improvement of the Organization of Administration over Industry and Construction, p. 16.

The range of deficiencies which were indicated (as above) ... continued to exist in the following years, and particularly in such important sections as the projection estimate work⁷ and the financing of construction.

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Over the course of years there has even taken place some increase in the cost of pure construction. The high share of pure construction in the general volume of capital investments appears above all as the result of the great excesses in projects and estimates, the unreasonable dimensions of works, grounds, production area, volume of buildings and structures ("suaruzhenia"), and finally, excesses in the construction of ancillary buildings and their facades.⁸

The second major issue of apportionment specifically concerns the allocation of pieces of equipment. Given that distribution of funds between pure construction and equipment has been decided upon, planning authorities are immediately confronted with the task of maximizing the productive possibilities of their limited stocks of machinery. Thus again there must be answered, in one fashion or another, the demands for economic evaluation. Lacking realistic criteria upon which to make judgments of value, planners inevitably err. The succeeding passages attest to the presence of this grave question.

⁷Kolganoff, National Income of the U.S.S.R., p. 150. Cf. Appendix P.

⁸A. A. Arakilyan, Economic Accounting and Utilization of Fixed Capital in Industry in the U.S.S.R., (State Publisher of Political Literature, 1954), pp. 68-69.

The relatively great share of pur construction is explained also by the improper allocation of equipment for production areas of many enterprises.⁹

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It is precisely the use of equipment and machinery by a Ministry of Construction Organization that is poorly systematized. Much idle equipment and machinery have accumulated in warehouses and at construction sites. This is especially true of the Voroshilovgrad Mining Construction Combine of the Ministry of Coal Industry. The Krasny Luch Mining Construction Trust, for example, has much powerful machinery, but makes abnormally poor use of it. The primary reason for such an abnormal situation is that the Ministry of Coal Industry provides construction organizations with equipment regardless of their actual requirements or opportunities for using it. In turn, the engineers and technicians of the Voroshilovgrad Mining Construction Combine, are careless with equipment, because they ... suffer no shortage.¹⁰

Within the general problem of allocation of equipment there resides the specific problem to ensure a rational correlation of individual mechanical resources of a firm. The increasing automation of all sectors of industry gives especial impetus to this particular problem of securing complementarity among the multiform types of machinery and equipment used in modern industrial processes. That costly errors have been made in this context can be confirmed by authoritative evidence. Some of

⁹A. A. Arakilyan, Economic Accounting and Utilization of Fixed Capital in Industry in the U.S.S.R., (State Publisher of Political Literature, 1954), p. 69.

¹⁰B. Volenko, Manager of the Voroshilovgrad Mining Construction Combine, Izvestia, April 10, 1953.

the facts have been officially summarized as follows:

Ineffectual mechanization of ancillary processes results in a situation where a great deal of manual labour continues to be applied in the presence of an enormous quantity of mechanical equipment, in both enterprises and constructions. The proportion of workers labouring manually, constitutes: 68 per-cent of the labour force employed in the forest procurement industry; in the case of the coal industry - 44 percent; ferrous metallurgy - 35 percent; the construction industry - 69 percent. The labour of these workers is poorly organized, of diminished productivity, and as a consequence, the effects attributable to the growth of labour productivity (through the use of new equipment) of basic production workers, is in significant measure dissipated by expenditures for hand labour engaged in auxilliary works.

We cannot and must not further tolerate similar waste of social labour. If in the immediate future we do not rectify this situation, then not only will we not obtain a real increase of labour productivity, but in view of the huge growth of the national economy we shall be confronted with hardships in the provision of it with labour power.¹¹

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... the high degree of mechanization of the main production processes, which had been introduced so far was often wasteful. In the Donets coal-basin, there was three and a half times as much machinery per metre of coal face as in 1940, but labour productivity was little higher. Successful automation requires the automation of the whole production cycle, not of particular jobs and processes, and a change in the whole technology of production.¹²

¹¹N. A. Bulganin, Pravda, July 17, 1955, p. 3.

¹²Summaries from Pravda, February 22-26 on XX Party Congress, Cf. Soviet Studies, Vol. VIII, 1956-57, pp. 185-203.

The third major issue to be considered deals with the problem of ascertaining that all available stocks of equipment are actually utilized. Insistent as demands for mechanical items may be, these do not consistently secure the utilization of supplies of equipment which already exist but are hoarded, stored or forgotten about in numerous warehouses of state organizations. The gravity of this particular problem is amply illustrated by the following section of a speech made by a prominent party and governmental official:

Our economy is still confronted with situations in which much domestic and imported machinery is not utilized for years, but lies in warehouses and becomes obsolete. At the beginning of 1955, according to (the reports of) all ministries and departments, 13 billion rubles worth of unemployed equipment existed, among which were 5 and a half billion rubles worth of reserve equipment which was excess stock. All this results from lack of organization, improper methods of distribution, and mismanagement in a succession of industrial organizations.¹³

These issues of allocation are of outstanding importance as they influence the development of the purely mechanical aspect of production. As Arakilyan has observed:

¹³N. A. Bulganin, Pravda, July 17, 1955, p. 3: Cf. N. S. Krushchev, Concerning the Further Improvement of the Organization of Administration over Industry and Construction, p. 14.

Machines represent in themselves the most efficacious part of fixed capital. Their quantity and quality directly dictate what level of productivity will exist.¹⁴

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A low share of equipment in the sum of all fixed capital of enterprises is a negative exponent, inasmuch as machines are the more industrious functional portion of fixed capital.¹⁵

Considering the economic significance of the relative quantity of "equipment" vis-a-vis "buildings" in a society's stock of productive fixed capital, it is worthwhile to ascertain what shares of investment expenditures have been diverted to purchases of equipment in both the U.S.S.R., and the U.S.A., over the period 1929-1950. Reference to Table Q1 will disclose that, as a share of total investments throughout the prewar and postwar periods, estimated American expenditures for equipment formed from 47.5 percent (1932) to 66.6 percent (1947) of the sum of total expenditures. The estimates for related expenditures in the Soviet Union, for the same period (excepting the years 1935-1940), constituted from 35.1 percent (1934) to 46.8 percent (1946-1950) of total money investment. Taken as a share of total industrial investment (Cf. Table Q2), expenditures for equipment in both countries reflect again the

¹⁴Arakilyan, Economic Accounting, p. 67.

¹⁵Ibid., p. 68.

tendency for American spending to become more pronounced in the matter of equipment purchases. On the basis of two figures provided by Arakilyan respecting the "Structure of Productive Fixed Capital for the enterprises of the Peoples' Commissariats of Industry" it was concluded, that Soviet expenditures for equipment were probably in the neighbourhood of 35 to 40 percent of total industrial investment spending, throughout the prewar period. No data are available for the U.S.S.R., for the postwar period. American disbursements for equipment as a share of total industrial investments, for the period 1929-1950, were estimated to constitute from 41.4 percent (1930) to 66.8 percent (1935-36) of total industrial expenditures.

Statistics are never intended to prove anything, they are only intended to act as indicators. The data introduced above, of course, prove nothing, but they may indicate that there is, to use Arakilyan's terminology, a 'negative exponent' in the sum of Soviet productive fixed capital.

The issues of apportionment just discussed, and the waste these issues give rise to, are problems that will persist as long as major changes in the technique of allocation are not instituted. Soviet investment policy must pay its own special price for the privileges which it

assumes. That some of the economists of the U.S.S.R. are conscious of a necessity for substantial alteration of present policy is made evident by Malishev's article on, "Some Questions of Price Fixing in a Socialist Economy", (see Bibliography). A prime thesis of this article is, that the profit criterion is of outstanding importance in the determination of investment variants, but that this very criterion has been consistently ignored. Malishev is concerned, in general, about the lack of a realistic approach to the problems of economic accounting in the Soviet economy. He cites examples of economists who "ignore the objective unity of all branches of the national economy in the process of reproduction", (p. 93). Following this line of thought, he criticizes two Soviet economists (Bachurin and Meizenberg) who, hold in common, that "it is not at all necessary to convey in value form all the totality of social costs of production (with regard to wholesale prices for the means of production) in relation to output distributed among state enterprises on the basis of the plan of material-technical supply." (p. 93). Malishev continues his own argument by making untenable the proposition that, in the U.S.S.R., deviations of price from value are "planned" deviations (p. 101). A reflection on the tenor of the paper moves one to suspect that the argument is in favour of what sounds suspiciously like the

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pricing mechanism of the market. There are, of course, obstacles to the reinstitution of the market system in the U.S.S.R., and all of them are not ideological.

Recent Soviet measures concerned with the decentralization of economic controls provide the U.S.S.R. with a semblance of the multiplicity of planning centres encountered in an individual enterprise system.¹⁶ What salubrious effect this pattern of planning will have as far as problems dealing with the distribution of investment resources are concerned, is not yet manifest. The difficulty of administering the absolute development of very large urban areas such as Leningrad and Moscow can hardly be any less arduous than was the administration of the development of any one of the now defunct industrial ministries.

The losses which have occurred, as a result of centralized distribution of investment resources, have obviously not crippled Soviet investment planning. What remains to be established is whether, as the configuration of economic activities becomes increasingly more complex, the Soviet economy can sustain appreciable growth rates and yet bear the burden of what are liable to be mounting losses.

¹⁶ An interesting dissertation on the necessity for reorganization of centralized control is contained in the article by, N. S. Krushchev, Concerning the Further Improvement of the Organization of Administration over Industry and Construction, (beginning with) p. 12. See H. E. Ronimois, The Re-organization of the Soviet Economy in 1957, (A Paper prepared at the University of British Columbia, 1958).

That losses will probably rise is presumed from the assumption that as the economy becomes progressively richer in activity and content, then the difficulty of general administration must increase.

It is probable that radical changes in allocation techniques will be made by the Soviet authorities as the needs become compelling and as the political moments become auspicious. That the party is prepared, under its present leadership, to modify existing policy regarding the distribution of resources is made quite clear by the following excerpt from a speech made by N. S. Krushchev, in January of this year:

An end will be put to the bureaucratic distribution of machinery from the centre. At the present time, regrettably, the deficiencies of the system are responsible for enormous losses to the state.¹⁷

This statement by Mr. Krushchev is specifically concerned with the distribution of agricultural equipment. The Communist Party leader proposed in the course of his speech that the acquiring of equipment become the individual responsibility of the collective farms.¹⁸ The exer-

¹⁷Komsomol'skaya Pravda, January 25, 1958, p. 2.

¹⁸Sale of agricultural implements (formerly state property held by machine tractor stations) to individual collective farms, apparently commenced shortly after Mr. Krushchev's speech was published.

cise of choice in the matter of the acquisition of means of production is decidedly a new departure in Soviet investment policy even though the producing units involved are farms. The results of this scheme will not be apparent for some time yet.

The deficiencies of the Soviet technique of apportionment are judged to represent a problem the solution of which constitutes one of the more urgent concerns of Soviet planning authorities.

A P P E N D I C E S

APPENDIX A

TABLE A1

INVESTMENTS IN FIXED CAPITAL AND PROPORTIONS
FINANCED FROM THE STATE BUDGET IN THE
SOVIET UNION, 1933-41 AND 1946-50

(billions of current rubles)

Year	<u>Investments in Fixed Capital</u>		<u>Ratios</u>
	Total	From Budget	(1)
	(1)	(2)	(3)= $\frac{(1)}{(2)} \times 100$
1933	17.2	14.2	82.5
1934	21.8	16.2	74.3
1935	24.0	16.3	67.9
1936	30.3	21.5	70.9
1937	27.8	20.7	74.4
Plan 1938	35.8	24.9	69.5
Plan 1939	34.7	25.1	72.3
Plan 1940	36.1	24.4	67.5
1940	38.0	25.7	67.6
Plan 1941	60.0	46.6	77.6
Plan 1946	49.4	41.3	83.7
1946	44.2	37.4	84.6
Plan 1947	58.8	49.2	83.6
1947	53.1	44.5	83.8
1948	66.2	57.2	86.4
Plan 1949	105.5	79.8	75.6
Plan 1950	135.6	106.5	78.5

SOURCE: Norman Kaplan, Capital Investments in the Soviet Union, 1924-51 (Santa Monica, Rand Corporation, 1952), p. 117.

APPENDIX BTABLE BI

**THE TURNOVER TAX AS A PERCENTAGE OF TOTAL
BUDGET RECEIPTS IN THE SOVIET UNION,
1933-41 AND 1946-50**

(billions of current rubles)

Year	<u>Turnover Tax</u>	<u>Total Budget Receipts</u>	<u>Ratios</u>
	(1)	(2)	(3) = $\frac{(1)}{(2)} \times 100$
1933	27.0	46.4	58.2
1934	37.6	58.4	64.4
1935	52.2	75.0	69.6
1936	65.8	94.4	69.7
1937	75.9	109.3	69.6
1938	80.4	127.5	63.1
1939	96.9	156.0	62.1
1940	105.9	180.2	58.8
1941	93.2	177.0	52.6
1946	190.9	325.4	58.7
1947	239.7	386.2	62.1
1948	247.3	410.5	60.2
1950	236.1	422.8	55.8

SOURCE: Franklyn D. Holzman, Soviet Taxation
(Cambridge, Harvard University Press, 1955),
pp. 217, 222.

APPENDIX C

TABLE C1

ABSOLUTE AND PERCENTILE CONTRIBUTIONS OF VARIOUS SOURCES
OF BUDGET REVENUE, IN THE SOVIET UNION, 1931-1958

(billions of current rubles)

Revenue	1931	%	1933	%	1935	%	1937	%	1939	%
Turnover Tax	11.7	(46.4)	27.0	(58.2)	52.2	(69.6)	75.9	(69.6)	96.9	(62.1)
Profits Tax	2.2	(08.7)	3.4	(07.3)	3.3	(04.4)	9.4	(08.5)	15.8	(10.1)
Direct Tax	1.6	(06.3)	3.5	(07.5)	3.2	(04.3)	4.0	(03.7)	7.0	(04.5)
State Loan	3.3	(13.1)	4.4	(09.5)	4.9	(06.5)	5.9	(05.4)	8.4	(05.4)
Other, including Social Insurance etc.	6.4	(25.4)	8.1	(17.5)	11.4	(15.3)	14.2	(13.0)	27.9	(17.9)
Total Budget Receipts	25.2		46.4		75.0		109.3		156.0	

	1948	%	1950	%	1952	%	1957	%	1958	%
Turnover Tax	247.3	(60.2)	236.1	(55.8)	246.9	(49.7)	278.3	(45.1)	300.5	(46.8)
Profits Tax	27.2	(06.6)	40.4	(09.6)	58.5	(11.7)	116.0	(18.8)	130.3	(20.3)
Direct Tax	33.2	(08.1)	35.8	(08.5)	47.4	(09.5)	51.5	(08.3)	49.8	(07.8)
State Loan	23.9	(05.8)	31.0	(07.3)	42.6	(08.5)	26.6	(04.3)	4.6	(00.7) ¹
Other, including Social Insurance etc.	78.9	(19.2)	79.5	(18.8)	102.3	(20.6)	144.8	(23.5)	156.7	(24.4)
Total Budget Receipts	410.5		422.8		497.7		617.2		641.9	

SOURCES: Years 1931-1952, Cf. Franklyn D. Holzman, Soviet Taxation, (Cambridge, Harvard University Press, 1955), pp. 217, 222: 1957 and 1958, Cf. Economist, (January 4, 1958), p. 46, (data from Economist are estimates).

¹Note the virtual disappearance of this form of revenue.

APPENDIX D

Soviet investment in the national economy is a sum of several items, including centralized investments, extra-limit investments, capital repairs, and investments made by collective farms on their own behalf and from their own resources.¹ Industrial investment in the U.S.S.R., collects under one heading all capital expenditure made on behalf of every major industry.

American investment in the national economy includes, in general, all private and public expenditures for buildings and equipment (including construction expenditures for military facilities - taken from, United States, National Income 1954, pp. 208-209). Equipment charges to current account are included in total investments, but not in the data for industry. Although the investment totals for the national economy are inflated, it is believed that they do not radically distort the relevant ratios.

One of the most difficult problems encountered in the presentation of data for the various branches of industry in both the United States and the Soviet Union has been the endeavour to account in adequate fashion for the role of capital repairs in investment expenditures.²

¹Cf. note 30, p. 27. "Total Investments" in the U.S.S.R. (Investments in the National Economy), exclude labour participation in roadbuilding and labour contributions in kind to collective farms' investment from their own resources. Cf. Kaplan, Capital Investments, p. 37, p. 212.

²A capital repair is a fundamental or major reconstruction or renovation of some fixed asset (replacing the principal elements of a steam turbine, or relining the interior of a blast furnace, for example), as opposed to a current repair, which is commonly restricted to small scale renovation (replacing minor parts of machinery and equipment etc.).

Because of the extremely meagre data currently available pertaining to capital repairs, the writer has felt obliged to disregard the delineation of this item in both economies respecting industry and its branches. That this probably results in the deflation of some of the Soviet data may be inferred by consulting the figures published for the 1941 Plan in, Capital Investments in the Soviet Union, 1924-1951.³

It has been assumed that under the heading "Expenditures for Capital Goods",⁴ in the United States, are included all expenditures for such goods, whether the goods are destined for new projects or for renovation and extension of existing enterprises.

The following quotation regarding industrial investments in the U.S.S.R. is pertinent.

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"⁵ 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

³See also pp. 142-147 of Kaplan's study, Capital Investments, for further discussion of capital repairs.

⁴Dewhurst, America's Needs and Resources, p. 1009. Cf. Murray F. Foss and Vito Natrella, Survey of Current Business, (March 1957), p. 8.

⁵Consists of fixed capital devoted to social, cultural needs, etc., of the population. Cf. Kaplan, Capital Investments, p. 16.

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 postwar estimates particularly tenuous.⁶

The items enclosed by brackets in Columns (1) and (2) of Tables G1 through N1 under "U.S.S.R. - Investments" are estimates made by the writer in terms of 1945 prices, on the basis of data taken from the study by Kaplan, (Capital Investments). Estimates for investments in the "National Economy" were based on ratios developed by comparing (at current prices) centralized investments and total investments, and then applying the ascertained ratios to expenditures quoted for "Total National Economy", which were assumed to be centralized investments (at 1945 prices) for the period 1946-1950.⁷ Estimates for investments in "Industry" were also based on data drawn from the above mentioned study.⁸

⁶Kaplan, Capital Investments, p. 64.

⁷Cf. Table D1.

⁸Cf. Table D2.

APPENDIX D

TABLE D1

INVESTMENTS IN "TOTAL NATIONAL ECONOMY"
AND RATIO OF CENTRALIZED INVESTMENTS TO
TOTAL INVESTMENTS, IN THE SOVIET UNION,
1945 - 1950

(billions of rubles)

Year	Total National Economy (1)	Centralized Investments (2)	Total Investments (3)	Ratios 2/3 (4)
1945	36.3	36.3	49.9	.72
1946	42.5	44.2	67.0	.66
1947	46.8	53.1	79.7	.66
1948	57.6	66.2	100.2	.66
1949	69.1	-	143.0	-
1950	85.0	-	166.7	-

Source: Norman Kaplan, Capital Investments in the Soviet Union, 1924-1951, (Santa Monica, California, Rand Corporation, 1952), pp. 33-35, 207, 211.

Notes: Prices of 1945 apply to Column 1; current prices apply elsewhere.

Ratios for 1949 and 1950 were not calculated because of difficulties pertaining to inclusion of "extra-limit" expenditures in the data for the investment plan for these two years.

The writer arbitrarily selected the ratio common to the years 1946-1948 and divided the data under "Total National Economy" by the relevant decimal. The results of these computations appear under "Soviet Union: Investments in National Economy", Table G1 and others.

APPENDIX D

TABLE D2

INVESTMENTS BY PRINCIPAL BRANCHES OF
INDUSTRY AS A PERCENTAGE OF INVESTMENTS
BY TOTAL INDUSTRY, IN THE SOVIET UNION,
1947 - 1950

(billions of 1945 rubles)

Year	Principal Branches of Industry (1)	Total Industry (2)	Ratio 1/2
1947	21.9	(31.2)	
1948	28.2	40.4	.72
1949	34.3	47.3	.70
1950	40.1	(57.2)	

Source: Norman Kaplan, Capital Investments in the Soviet Union, 1924-1951, (Santa Monica, California, Rand Corporation, 1952), p. 66.

Notes: "Principal Branches of Industry" include data for only the following branches: Electric Power Stations; Coal and Petroleum Industries; Ferrous and Nonferrous Metallurgical Industry; and the Light and Food Industries.

As "Principal Branches of Industry" constituted about seventy percent of investments by "Total Industry" for the years 1948 and 1949, it was assumed that the same ratio applied also to "Principal Branches of Industry" as a proportion of total industrial investments for the years 1947 and 1948. The estimates (in brackets) for "Total Industry" were developed by dividing the data, assumed to apply to "Principal Branches of Industry", by decimal 7.

APPENDIX E

TABLE E1

INVESTMENTS IN INDUSTRY AND IN GROUP A INDUSTRY
IN THE SOVIET UNION, 1929-42

(billions of current rubles)

Soviet sources divide industry into groups A and B. Group A industry embraces those branches of industry which generate 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.

<u>Year</u>		<u>Prices</u>	<u>Investments</u> <u>in Group A</u> <u>Industry</u>	<u>Investments</u> <u>in</u> <u>Industry</u>	<u>Investments</u> <u>in Group A</u> <u>Industry as</u> <u>a Percentage</u> <u>of Investments</u> <u>in Industry</u>
			(1)	(2)	(3) = $\frac{(1)}{(2)} \times 100$
	1929		2.127	2.615	81.3
	1930		3.425	4.114	83.3
	1931		6.513	7.407	87.9
	1932		9.080	10.431	87.0
Plan	1933-37	1933	53.442	69.545	76.8
	1933		7.401	8.863	83.5
	1934		8.692	10.624	81.8
	1935		10.516	12.542	83.8
Plan	1936		10.647	13.956	76.3
Plan	1937		10.919	13.928	78.4
	1933-37		54.565	65.763	83.0
	1934-38		60.777	72.948	83.3
Plan	1938-42	1936-37	87.162	103.580	84.1

SOURCE: Norman Kaplan, Capital Investments in the Soviet Union, 1924-1951 (Santa Monica, California, Rand Corporation, 1952), p. 60.

TABLE F1

**INVESTMENTS BY INDUSTRIAL MINISTRIES
IN THE SOVIET UNION, 1929-1941**

(billions of current rubles unless otherwise noted)

Soviet sources have also presented distributions of investments by ministries and other administrative departments. 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 and petroleum industries, ferrous and non-ferrous ore mining, ferrous and non-ferrous metallurgy, and the automobile, tractor, machine building, construction materials, chemicals and defence industries. Under the jurisdiction of the Ministry of Light Industry were: the textile, clothing, leather, boot, shoe and glass industries. Under the jurisdiction of the Ministry of Timber Industry were: the woodworking, furniture, wood chemical, paper, match and logging industries. 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.

<u>Year</u>	<u>Ministry</u> <u>of Heavy</u> <u>Industry</u>	<u>Ministry</u> <u>of Light</u> <u>Industry</u>	<u>Ministry</u> <u>of Timber</u> <u>Industry</u>	<u>Ministry</u> <u>of Food</u> <u>Industry</u>	<u>Ministry</u> <u>of Local</u> <u>Industry</u>	<u>Other</u>	<u>Total</u> <u>Invest-</u> <u>ments</u> <u>in</u> <u>Industry</u>
1929	1.981	.314	.096	.204	--	.040	2.635
1930	3.147	.318	.200	.411	--	.095	4.171
1931	6.113	.276	.382	.592	--	.146	7.509
1932	8.505	.389	.444	.868	--	.197	10.403
1933	7.420	.513	.409	.919	--	.214	9.475
1934	8.458	.629	.467	.934	.471	.285	11.244
1935	8.959	.720	.559	.852	.500	.199	11.789
1936*	10.269	1.370	1.042	1.165	1.057	.115	15.019
1937*	8.667	1.406	1.010	.970	.770	.323	13.146
1941*	25.393	.757	.469	.545	.247	.065	27.476

SOURCE: Norman Kaplan, Capital Investments in the Soviet Union, 1924-1951 (Santa Monica, California, Rand Corporation, 1952), pp. 61-63.

*All figures for this year are plan figures.
'1936-37 prices.

(See Table V)

APPENDIX FTABLE F2

**INVESTMENTS BY INDUSTRIAL MINISTRIES
AS PERCENTAGES OF TOTAL INVESTMENTS
IN INDUSTRY IN THE SOVIET UNION,
1924-1941**

<u>Year</u>	<u>Ministry of Heavy Industry</u>	<u>Ministry of Light Industry</u>	<u>Ministry of Timber Industry</u>	<u>Ministry of Food Industry</u>	<u>Ministry of Local Industry</u>	<u>Other</u>	<u>Total</u>
1929	75.2	11.9	3.6	7.7	--	1.5	100
1930	75.4	7.6	4.8	9.9	--	2.3	100
1931	81.4	3.7	5.1	7.9	--	1.9	100
1932	81.8	3.7	4.3	8.3	--	1.9	100
1933	78.3	5.4	4.3	9.7	--	2.3	100
1934	75.2	5.6	4.2	8.3	4.3	2.5	100
1935	76.0	6.1	4.7	7.2	4.3	1.7	100
Plan 1936	68.4	9.1	6.9	7.8	7.0	0.8	100
Plan 1937	65.9	10.7	7.7	7.4	5.9	2.5	100
Plan 1941	92.4	2.8	1.7	2.0	.9	0.2	100

SOURCE: Norman Kaplan, Capital Investments in the Soviet Union, 1924-1951 (Santa Monica, California, Rand Corporation, 1952), p. 63.

INVESTMENTS IN THE IRON AND STEEL INDUSTRY, AS PERCENTAGES OF TOTAL INVESTMENTS IN EACH AREA AND TOTAL INDUSTRIAL INVESTMENTS IN EACH AREA, IN THE UNITED STATES AND THE SOVIET UNION, 1929-40 AND 1946-50

(billions of current dollars and rubles)

The iron and steel industry in the U.S.S.R. after 1947, includes non-ferrous metallurgy. Prior to 1938, the iron and steel industry in the U.S.A., as defined herein, includes only "primary" iron and steel; for 1939, it includes primary iron and steel plus fabricated metal products; and from 1946-50, it includes primary iron and steel, fabricated metal products and primary non-ferrous metallurgy.

Year	U.S.A.- Investments in:			Per Cent (1)	Per Cent (2)	U.S.S.R.- Investments in:			Per Cent (1)	Per Cent (2)
	National Economy	Industry	Iron and Steel			National Economy	Industry	Iron and Steel		
(1)	(2)	(3)				(1)	(2)	(3)		
1929	17.767	4.674	.150	0.8	3.2	5.805	2.615	.263	4.5	10.1
1930	14.125	3.607	.300	2.1	8.3	9.665	4.114	.418	4.3	10.2
1931	9.926	2.151	.120	1.2	5.6	15.501	7.407	.836	5.4	11.3
1932	5.622	1.307	.040	.7	3.0	19.866	10.431	1.422	7.2	13.6
1933	4.931	1.200	.050	1.0	4.2	19.4	8.863	1.726	8.8	10.5
1934	6.526	1.703	.040	.6	2.3	25.2	10.624	1.827	7.2	17.2
1935	7.997	2.106	.122	1.5	5.8	29.3	12.542	1.549*	5.2	12.6
1936	11.474	2.884	.200	1.7	6.9	38.1	13.956	1.050*	2.8	7.5
1937	13.085	3.804	.316	2.4	8.3	36.3	--	--	--	--
1938	11.477	2.635	.132	1.2	5.0	44.6	17.075	1.210	2.7	7.1
1939	13.307	2.874	.122	1.6	7.4	44.8	17.4	1.326	3.0	7.6
1940	15.394	4.120	--	--	--	50.1	17.9	2.238	4.4	12.5
1946	25.189	8.180	.593	3.8	11.6	(64.0)	--	6.5	10.2	--
1947	34.793	11.132	.816	3.4	10.6	(70.0)	(31.2)	6.5	9.2	20.8
1948	43.055	12.883	.965	3.0	10.2	(87.0)	40.4	8.5	9.8	21.0
1949	42.965	11.377	.747	2.4	8.9	(104.0)	47.3	10.0	9.6	21.1
1950	52.532	11.872	.733	2.0	9.1	(128.0)	(57.2)	11.6	9.0	20.2

SOURCES: See "Sources," Table II.

*Plan figures.

APPENDIX H

TABLE H I

INVESTMENTS IN THE ELECTRIC POWER INDUSTRY, AS PERCENTAGES OF TOTAL INVESTMENTS IN EACH AREA AND TOTAL INDUSTRIAL INVESTMENTS IN EACH AREA, IN THE UNITED STATES AND THE SOVIET UNION, 1929-40 AND 1946-50

(billions of current dollars and rubles)

Year	U.S.A.- Investments in:			Per	Per	U.S.S.R.- Investments in:			Per	Per
	National Economy	Industry	Electric Power Industry	Cent (3)	Cent (3)	National Economy	Industry	Electric Power Industry	Cent (3)	Cent (3)
	(1)	(2)	(3)	(1)	(2)	(1)	(2)	(3)	(1)	(2)
1929	17.767	4.674	.757	4.2	16.2	5.805	2.615	.251	4.3	9.6
1930	14.125	3.607	.814	5.8	22.6	9.665	4.114	.395	4.0	9.6
1931	9.926	2.151	.501	5.0	23.2	15.501	7.407	.550	3.5	7.4
1932	5.622	1.307	.259	4.6	19.8	19.866	10.431	.719	3.6	6.8
1933	4.931	1.200	.151	3.0	12.6	19.4	8.863	.609	3.1	6.8
1934	6.526	1.703	.155	2.4	9.1	25.2	10.624	.640	2.5	6.0
1935	7.997	2.106	.211	2.6	10.0	29.3	12.542	.841*	2.8	6.8
1936	11.474	2.884	.336	2.9	11.6	38.1	13.956	.976*	2.6	7.0
1937	13.085	3.804	.501	3.8	13.2	36.3	--	--	--	--
1938	11.477	2.635	.449	3.9	17.0	44.6	17.075	1.081	2.4	6.3
1939	13.307	2.874	.444	3.3	15.4	44.8	17.4	1.245	2.8	7.2
1940	15.394	4.120	.574	3.7	13.9	50.1	17.9	1.011	2.0	5.6
1946	25.189	8.180	.565	2.2	6.9	(64.0)	--	--	--	--
1947	34.793	11.132	.925	2.6	8.3	(70.0)	(31.2)	3.0	4.2	9.6
1948	43.055	12.883	1.866	4.3	14.4	(87.0)	40.4	3.6	4.1	8.9
1949	42.965	11.377	2.272	5.2	20.0	(104.0)	47.3	5.0	4.8	10.6
1950	52.532	11.872	2.187	4.2	18.4	(128.0)	(57.2)	6.6	5.2	11.5

SOURCES: See "Sources," Table II.

*Plan figures.

INVESTMENTS IN THE MACHINE-BUILDING INDUSTRY, AS PERCENTAGES OF TOTAL INVESTMENTS IN EACH AREA AND TOTAL INDUSTRIAL INVESTMENTS IN EACH AREA, IN THE UNITED STATES AND THE SOVIET UNION, 1934-40 AND 1946-50

(billions of current dollars and rubles, unless otherwise noted)

Total investments in the United States are an amalgam of "Total Expenditures from Capital Goods" (from J. F. Dewhurst- see below) and expenditures for military construction by the Federal Government (from National Income, 1954- see below). "Industry" in the United States, as defined herein, includes the following branches: manufacturing, mining, utilities (electrical and gas), oil pipeline, and industrial and commercial developmental construction. The "Machine-Building Industry" in the United States, as defined herein, includes: enterprises manufacturing motor vehicles and transportation equipment, electrical machinery and equipment, and non-electrical machinery.

Year	U.S.A.- Investments in:			Per		U.S.S.R.- Investments in:			Per	
	National Economy	Industry	Machine-Building Industry	Cent (3)	Cent (2)	National Economy	Industry	Machine-Building Industry	Cent (3)	Cent (2)
	(1)	(2)	(3)	(1)	(2)	(1)	(2)	(3)	(1)	(2)
1934	--	--	--	--	--	25.2	10.624	2.179*	8.6	18.4
1935	--	--	--	--	--	29.3	12.542	2.345*	8.0	19.2
1936	--	--	--	--	--	38.1	13.956*	1.960*	5.1	14.0
1937	--	--	--	--	--	36.3	--	--	--	--
1938	--	--	--	--	--	44.6**	17.075	--	--	--
1939	13.307	2.874	.324	2.4	11.2	44.8**	17.4	--	--	--
1940	--	--	--	--	--	50.1**	17.9	2.214	4.4	12.4
1946	25.189	8.180	1.493	5.9	18.2	(64.0)	--	4.0	6.2	--
1947	34.793	11.132	1.422	4.0	12.8	(70.0)	(31.2)	4.0	5.7	12.8
1948	43.055	12.883	1.396	3.2	10.8	(87.0)	40.4	4.6	5.2	11.4
1949	42.965	11.377	1.034	2.4	9.0	(104.0)	47.3	5.1	4.9	10.8
1950	52.532	11.872	1.248	2.4	10.5	(128.0)	(57.2)	5.6	4.4	9.8

SOURCES: J. Frederic Dewhurst and Associates, America's Needs and Resources (New York, American Book-Stratford Press, 1955), pp. 1009-15; Norman Kaplan, Capital Investments in the Soviet Union, 1924-1951, pp. 37,66; United States, Department of Commerce, National Income, 1954 (Washington, 1954), pp. 208-09.

*Plan figures.

**1936-37 prices.

APPENDIX J

TABLE J1

INVESTMENTS IN THE PETROLEUM INDUSTRY, AS PERCENTAGES OF TOTAL INVESTMENTS IN EACH AREA AND TOTAL INDUSTRIAL INVESTMENTS IN EACH AREA, IN THE UNITED STATES AND THE SOVIET UNION, 1929-40 AND 1946-50

(billions of current dollars and rubles)

Expenditures in the United States include those for production (drilling, etc.), refining, and other items (including transportation).

Year	U.S.A.- Investments in:			(1)	(2)	U.S.S.R.- Investments in:			(1)	(2)
	National Industry		Petroleum			National Industry		Petroleum		
	Economy	Industry	(3)			Economy	Industry	(3)		
	(1)	(2)	(3)			(1)	(2)	(3)		
1929	--	--	--	--	--	5.805	2.615	.249	4.2	9.5
1930	--	--	--	--	--	9.665	4.114	.350	3.6	8.5
1931	--	--	--	--	--	15.501	7.407	.415	2.6	5.6
1932	--	--	--	--	--	19.866	10.431	.452	2.2	4.3
1933	--	--	--	--	--	19.4	8.863	.483	2.4	5.4
1934	--	--	--	--	--	25.2	10.624	.698	2.8	6.6
1935	--	--	--	--	--	29.3	12.542	.860*	2.9	7.0
1936	11.474	2.884	(.689)	6.0	23.8	38.1	13.956	1.000*	2.6	7.2
1937	13.085	3.804	(.884)	6.8	23.2	36.3	--	--	--	--
1938	11.477	2.635	(.681)	5.9	25.8	44.6	17.075	1.150*	2.6	6.1
1939	13.307	2.874	(.725)	5.4	25.2	44.8	17.4	1.440	4.2	8.2
1940	15.394	4.120	(.702)	4.6	17.0	50.1	17.9	2.402	4.8	13.4
1946	25.189	8.180	(1.393)	5.5	17.0	(64.0)	--	--	--	--
1947	34.793	11.132	(2.165)	6.2	19.4	(79.0)	(31.2)	2.8	4.0	9.0
1948	43.055	12.883	(2.735)	6.4	21.2	(87.0)	40.4	3.6	4.1	8.9
1949	42.965	11.377	(2.302)	5.4	20.2	(104.0)	47.3	4.4	4.2	9.3
1950	52.532	11.872	(1.926)	3.6	16.2	(128.0)	(57.2)	5.7	4.4	10.0

SOURCES: See "Sources," Table II.
Cf. Appendix K.

*Plan figures.

APPENDIX K

The items appearing in the various columns of Table K1 are as follows:

Columns 1, 2, and 3 are capital expenditures for production, refining and other (transportation, etc.), respectively, by thirty principal oil companies in the United States; data were drawn from Regularization of Business Investment.

Column 4 (1936-1940) are estimates of capital expenditures for production purposes by the joint coal and petroleum industry. Column 4 (1946-1950) are capital expenditures by the coal and petroleum industry; data taken from America's Needs and Resources.

Column 5 are estimated capital expenditures by oil industry for production purposes.

Column 6 are estimated capital expenditures by coal industry.

To obtain the estimates for the coal industry (1946-1950), the figures in Column 1 (1946-1950) were subtracted from the figures in Column 4 (1946-1950); one half being arbitrarily assigned to the coal industry; the other to the petroleum industry. Estimates for the coal industry, for the period, 1936-1940, were obtained in the following manner. Between 1946 and 1950, production expenditures by thirty principal oil firms constituted about 62 percent of total expenditures for the coal and petroleum industry (America's Needs and Resources); it was therefore assumed that each figure for production expenditures between 1936 and 1940, constituted 62 percent of the total figure for coal and petroleum. The coal estimates for 1936-1940 then proceeded from the method followed for obtaining the 1946-1950 estimates.

It was finally assumed that the capital expenditures by thirty principal oil firms for refining and other processes made up the whole of such expenditures for the petroleum industry. These additional sums were then added

to the expenditure estimates for production.¹

Two limitations of the above estimates are especially important to note. We have ignored the influence of ancillary industries in the data excerpted from America's Needs and Resources; having been constructed independently, the estimates are not strictly comparable with the aggregates under "National Economy" and "Industry".

¹See Column 3 of Table J1, for total investment expenditures by petroleum industry.

APPENDIX K

TABLE K1

ESTIMATED INVESTMENT EXPENDITURES FOR
THE PETROLEUM AND COAL INDUSTRIES, IN
THE UNITED STATES, 1936-40 and 1946-50

(millions of current dollars)

Column	1	2	3	4	5	6
Year						
1936	370	59	146	(596)	(483)	(113)
1937	462	96	183	(745)	(604)	(142)
1938	355	88	127	(574)	(465)	(109)
1939	319	98	159	(516)	(468)	(148)
1940	331	97	172	(533)	(432)	(101)
1946	674	189	324	1,087	(880)	(206)
1947	879	349	508	1,736	(1,307)	(428)
1948	1,260	513	541	2,100	(1,680)	(420)
1949	1,128	388	456	1,789	(1,458)	(330)
1950	1,064	248	353	1,587	(1,325)	(261)

Sources: National Bureau of Economic Research, Regularization of Business Investment, (Princeton, Princeton University Press, 1954), pp. 140-142.
Logan, L. J., "Larger Companies Produce 62 percent and refine 86 percent of U.S. Oil", World Oil, vol. 130 (June 1950), p. 44.
J. Frederic Dewhurst, and Associates, America's Needs and Resources, (New York, American Book-Stratford Press, 1955), p. 1011.

Notes: Brackets indicate that the enclosed figures are estimates made by the writer.

APPENDIX L

TABLE L1

INVESTMENTS IN THE COAL INDUSTRY, AS PERCENTAGES OF TOTAL INVESTMENTS
IN EACH AREA AND TOTAL INDUSTRIAL INVESTMENTS IN EACH AREA, IN
THE UNITED STATES AND THE SOVIET UNION, 1929-40 AND 1946-50

(billions of current dollars and rubles)

Year	U.S.A.- Investments in:			%	%	U.S.S.R.- Investments in:			%	%
	National Industry	Coal	Industry	(3)	(3)	National Industry	Coal	Industry	(3)	(3)
	Economy			(1)	(2)	Economy			(1)	(2)
	(1)	(2)	(3)			(1)	(2)	(3)		
1929	--	--	--	--	--	5.805	2.615	.230	4.0	8.8
1930	--	--	--	--	--	9.665	4.114	.309	3.2	7.5
1931	--	--	--	--	--	15.501	7.407	.599	3.8	8.0
1932	--	--	--	--	--	19.866	10.431	.782	3.9	7.4
1933	--	--	--	--	--	19.4	8.863	.561	2.8	6.3
1934	--	--	--	--	--	25.2	10.624	.595	2.4	5.6
1935	--	--	--	--	--	29.3	12.542	.625*	2.1	5.1
1936	11.474	2.884	(.113)	0.9	3.9	38.1	13.956	.500*	1.3	3.6
1937	13.085	3.804	(.142)	1.0	3.7	36.3	--	--	--	--
1938	11.477	2.635	(.109)	0.9	4.1	44.6	17.075	2.339	5.2	13.7
1939	13.307	2.874	(.148)	1.1	5.1	44.8	17.4	1.529	3.4	8.8
1940	15.394	4.120	(.101)	0.6	2.4	50.1	17.9	--	--	--
1946	25.189	8.180	(.206)	0.8	2.5	(64.0)	--	5.8	9.0	--
1947	34.793	11.132	(.428)	1.2	3.8	(70.0)	(31.2)	6.3	9.0	20.2
1948	43.055	12.883	(.420)	1.0	3.2	(87.0)	40.4	8.1	9.3	20.0
1949	42.965	11.377	(.330)	0.7	2.9	(104.0)	47.3	9.9	9.5	20.9
1950	52.532	11.872	(.261)	0.4	2.2	(128.0)	(57.2)	10.7	8.4	18.7

SOURCES: See "Sources," Table I1.
Cf. Appendix K.

*Plan figures.

APPENDIX M

TABLE M1

INVESTMENTS IN RAILROAD TRANSPORT, AS PERCENTAGES OF TOTAL INVESTMENTS
IN EACH AREA AND TOTAL INDUSTRIAL INVESTMENTS IN EACH AREA, IN
THE UNITED STATES AND THE SOVIET UNION, 1929-40 AND 1946-50

(billions of current dollars and rubles)

Year	U.S.A.- Investments in:			%	%	U.S.S.R.- Investments in:			%	%
	National Industry	Railroad	Transport	(3)	(3)	National Industry	Railroad	Transport	(3)	(3)
	Economy			(1)	(2)	Economy			(1)	(2)
	(1)	(2)	(3)			(1)	(2)	(3)		
1929	17.767	4.674	.840	4.7	17.8	5.805	2.615	.873	15.0	33.4
1930	14.125	3.607	.865	6.1	24.0	9.665	4.114	1.112	11.5	27.0
1931	9.926	2.151	.360	3.6	16.7	15.501	7.407	1.910	12.3	25.8
1932	5.622	1.307	.164	2.9	12.5	19.866	10.431	2.569	12.9	24.6
1933	4.931	1.200	.101	2.0	8.4	19.4	8.863	2.107	10.8	23.8
1934	6.526	1.703	.218	3.3	12.8	25.2	10.624	2.928	11.6	27.6
1935	7.997	2.106	.168	2.1	8.0	29.3	12.542	3.752	12.8	29.9
1936	11.474	2.884	.308	2.6	10.6	38.1	13.956	4.762*	12.4	34.1
1937	13.085	3.804	.524	4.0	13.8	36.3	--	5.323*	14.6	--
1938	11.477	2.635	.240	2.0	9.1	44.6	17.075	5.0 *	11.2	26.6
1939	13.307	2.874	.280	2.1	9.7	44.8	17.4	--	--	--
1940	15.394	4.120	.439	2.8	10.6	50.1	17.9	--	--	--
1946	25.189	8.180	.583	2.3	7.1	(64.0)	--	5.6	8.8	--
1947	34.793	11.132	.889	2.6	8.0	(70.0)	(31.2)	6.0	8.6	19.2
1948	43.055	12.883	1.319	3.0	10.2	(87.0)	40.4	6.7	7.7	16.6
1949	42.965	11.377	1.352	3.1	11.8	(104.0)	47.3	8.8	8.4	18.6
1950	52.532	11.872	1.111	2.1	9.4	(128.0)	(57.2)	10.7	8.4	18.7

SOURCES: J. Frederic Dewhurst and Associates, America's Needs and Resources, pp. 1009-15; Norman Kaplan, Capital Investments in the Soviet Union, p. 195.

*Plan figures.

APPENDIX N

TABLE N 1

INVESTMENTS FOR ALL CONSTRUCTION PURPOSES AS A PERCENTAGE OF TOTAL INVESTMENTS, AND INVESTMENTS FOR URBAN RESIDENTIAL CONSTRUCTION AS A PERCENTAGE OF TOTAL INVESTMENTS AND TOTAL CONSTRUCTION, IN THE UNITED STATES AND THE SOVIET UNION, 1929-40 AND 1946-50

(billions of current dollars and rubles)

Year	U.S.A.- Investments in: %						U.S.S.R.- Investments in: %					
	Na-	Con-	Urban	(2)	(3)	(3)	Na-	Con-	Urban	(2)	(3)	(3)
	tional	struc-	Resi-	(1)	(1)	(2)	tional	struc-	Resi-	(1)	(1)	(2)
	Economy	tion	dences				Economy	tion	dences			
	(1)	(2)	(3)				(1)	(2)	(3)			
1929	17.367	10.793	3.625	62.1	20.8	33.6	5.805	3.612	.509	62.2	8.8	14.0
1930	13.825	8.741	2.075	63.2	15.0	23.7	9.665	5.813	.75	60.1	7.8	12.9
1931	9.726	6.427	1.565	66.0	16.0	24.4	15.501	9.787	1.116	63.1	7.2	11.4
1932	5.422	3.538	.630	65.2	11.6	17.8	19.866	13.015	1.591	65.5	8.0	12.2
1933	4.731	2.879	.470	60.8	9.9	16.3	19.4	10.769	1.343	55.5	6.9	12.4
1934	6.326	3.720	.626	58.8	9.8	16.8	25.2	14.817	1.729	58.8	6.8	11.6
1935	7.697	4.232	1.019	55.0	13.2	24.0	29.3	--	1.930	59.4	6.6	--
1936	11.174	6.497	1.626	58.1	14.6	25.0	38.1	26.0	2.4	60.4	6.2	9.2
1937	12.585	6.999	1.968	55.6	15.6	28.1	36.3	--	--	--	--	--
1938	11.077	6.980	2.025	63.0	18.2	29.0	44.6	--	--	--	--	--
1939	12.939	8.198	2.745	63.4	21.2	33.4	44.8	--	--	--	--	--
1940	14.996	8.682	3.185	57.8	21.2	36.6	50.1	--	3.2	60.8	6.4	--
1946	24.536	12.000	4.389	48.9	17.8	36.6	(64.0)	--	6.0	--	9.3	--
1947	34.020	16.689	6.510	49.0	19.1	39.0	(70.0)	--	7.0	--	10.0	--
1948	42.004	21.678	8.736	51.6	20.8	40.2	(87.0)	--	9.5	--	10.9	--
1949	41.896	22.789	8.626	54.4	20.6	37.8	(104.0)	--	12.2	--	11.7	--
1950	51.253	28.454	12.945	55.5	25.2	45.4	(128.0)	--	14.4	--	11.2	--

SOURCES: United States, Department of Commerce, National Income, 1954, pp. 208-09, 122-23; Norman Kaplan, Capital Investments in the Soviet Union, 1924-1951, pp. 2, 72; N.V. Kolganoff and others, ed., National Income of the U.S.S.R. (Moscow), p. 159; J. Frederic Dewhurst, America's Needs and Resources, pp. 1009-15.

APPENDIX O

Soviet data for construction in Table N1 are assumed to represent expenditures for "pure" construction (chistoe stroitel'stvo) and hence specifically exclude the expenses for the mounting of equipment¹ (montazh oborudovanie). Pure construction in the U.S.S.R. is defined to include:

... the erection of all sorts of buildings (industrial, residential, cultural-social, public administration, trade and commercial, municipal, agricultural, etc.), and likewise the construction of all sorts of structures (suaruzhenia), including industrial (blast furnaces, open hearth furnaces, electrical transmission lines, oil pipelines, etc.), transport (conveyance ways), hydro-technical, and municipal structures, and also reclamation and mining works.²

It is important to note that the data as presented in this study are supposed to be exclusive of collective farms' investments from their own resources, labour participation in road building, and expenditures for special purposes (in 1933 and 1934).³

The American data present expenditures for new construction, which represents:

... the value of progress made during the given year in the production of fixed works and structures. The value of progress made, or work put in place, is defined as equivalent to the value of labour and materials used plus overhead costs and profits accrued on operations during the given period. It

¹Kolganoff, National Income, p. 159: Cf. Kaplan, Capital Investments, pp. 1-3.

²Kolganoff, National Income, p. 159.

³Kaplan, Capital Investments, p. 41.

includes the installed value of equipment generally considered an integral part of a structure and commonly included in the construction contract price ... Fixed works and structures include not only dwellings and other buildings but also dams, bridges, roads, canals, and like. Certain types of works such as mine tunnels and farm ditches which might be classified as construction are not included.⁴

It is to be noted that the totals in Column 1 (Investments in National Economy - U.S.A.) Table N1 do not correspond with the totals given under "Investments in the National Economy - U.S.A." in other tables. This follows from the use of construction data from National Income, 1954 (Department of Commerce, U.S.A.). Previously, both construction and equipment data were drawn from, Dewhurst, America's Needs; in this particular case, the construction data in National Income, 1954, were used because a more detailed breakdown of items included under "construction" was provided by the latter source.

⁴United States, National Income, 1954, pp. 122-123.

APPENDIX P

"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." (L. Kantor, Osnovnye fondy promyshlennosti i ikh ispol'zovanie - Fixed Capital of Industry and its Use - Goslenizdat, 1947, 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, and
- 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, labour 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 labour for the construction project as a whole and for its various components. The prices of materials (including equipment) and labour 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, Ibid., pp. 84-87, and M. D'iachkov and V. Kiparisov, Uchet Kapital'nogo stroitel'stva - (The Calculation of Capital Construction), Gosplanizdat, 1948, pp. 16-19.

Source: Norman Kaplan, Capital Investments in the Soviet Union, 1924-1951 (Santa Monica, California, Rand Corporation, 1952), p. 4.

APPENDIX Q

Table Q1 presents data concerning the proportions of total investments represented by equipment expenditures in the U.S.A., and the U.S.S.R..

To develop the ratios applicable to the United States, certain items were first eliminated from the sums given for total investments.¹ The items excluded constituted expenditures for projects which were:

- a. not a significant feature of Soviet investment spending (highway construction²);
- b. non-essential for the purposes of the present exercise, i.e., non-productive fixed capital (residential construction and the erection of religious edifices).

The section of Table Q1 devoted to data applying to the United States, consists of the following items: Column 1 refers to total investments in the national economy; Column 2 to total subtractions for housing, etc.; Column 3 equals Column 1 minus Column 2; Column 4 refers to total investment expenditures for equipment; Column 5 is the ratio of Column 4 to Column 3 expressed as a percentage, and delineates the proportion of total investments constituted by expenditures for equipment.

The computation of residual data respecting total Soviet investments, involved the elimination of housing expenditures only. Equipment expenditures were estimated

¹The subtractions include investment spending for highways, private and public residential construction, and the erection of religious structures.

²Highway construction in the U.S.S.R., during the period 1929-1950, was apparently confined to the building of access roads in or to major cities. Cf. United States, Trends in Economic Growth, p. 173.

by subtracting housing expenditures from total construction expenditures and then subtracting this latter residual from the residual for total investments.

The entries in Table Q1 applicable to the Soviet Union are as follows: Column 1 presents total investments in the national economy; Column 2 refers to investment for public residential construction; Column 3 equals Column 1 minus Column 2; Column 4 gives total Soviet construction expenditures; Column 5 equals Column 4 minus Column 2; Column 6 is assumed to represent total expenditures for equipment; Column 7 is the ratio of Column 6 to Column 5 expressed as a percentage and is hence the ratio of expenditures for equipment to expenditures for total (residual) capital work.

Table Q2 presents data concerning investment spending for industrial equipment as a percentage of total industrial investments.

Equipment expenditures in the United States were estimated by subtracting expenditures for total industrial construction³ from expenditures for total industrial investments. The data consist of the following items:

³Industrial construction is defined to include: construction of industrial buildings; warehouses; 10 percent of stores and restaurants; "other" public utilities (less local transit); 50 percent of all other private and public industrial construction; petroleum and gas drilling. Cf. National Income, 1954.

Industrial construction in the United States as defined here, includes expenditures for structures not normally included within the category of industrial construction in the U.S.A.. Such "extraordinary" inclusions were necessary in order to compensate for similar expenditures made in the U.S.S.R., by industrial organizations and classified under the category of industrial construction. It was of course impossible to gauge the exact dimensions and make the proper allowances for all of the exceptional expenditures made in the U.S.S.R., by industry. The data presented and the conclusions based on their acceptance are hence tentative.

Column 1 presents total industrial investment expenditures; Column 2 consists of figures representing total industrial construction; Column 3 is a ratio of Column 2 to Column 1 expressed as a percentage; Column 4 equals 100 minus Column 3, and is assumed to represent the proportion of total industrial investments spent for equipment as distinct from buildings etc..

The data for equipment expenditures as components of total industrial investment in the U.S.S.R., are represented by two figures for the prewar period. The percentages that are given reflect combined expenditures for equipment and "mounting" in both years.

Soviet data pertaining to the structure of capital investments in the U.S.S.R., for the years 1946 to 1955, came to the attention of the writer at a late date and hence, precluded the possibility of reference being made to the figures in the text proper. The data indicate that with total capital investment⁴ taken as 100, construction-installation work accounted for from 60 percent (1950) to 70 percent (1946) of total investment-equipment, tools and stock making up the respective balances.⁵

Data is also available with respect to the "Fixed Production Capital of State Industry According to Types", (Struktura Promish lenno Proizvodstvennikh Osnovnikh Fondov Gosudarstvennoi Promishlennosti, C.C.C.P., Vidam - see p. 33 of Soviet work cited below). With the total of Fixed Production Capital of State Industry taken as 100, buildings and installations accounted for 50 percent of the total in 1939 and 51 percent of the total in 1950 - the balances consisting of power equipment, production equipment, transmission facilities, transport facilities, implements, instruments and other fixed assets.

⁴Total capital investment here includes investment funds allocated by the Central State Plan, plus funds from enterprises and other decentralized sources.

⁵U.S.S.R., Central Statistical Administration, "Struktura Kapital'nikh Vlozhenii", National Economy of the U.S.S.R., Moscow, 1956, p. 160. An English translation of this Soviet handbook has been made by the National Industrial Conference Board. See N.I.C.B., Studies in Business Economics, No. 55.

APPENDIX Q

TABLE Q1

INVESTMENT EXPENDITURES FOR EQUIPMENT AS A PERCENTAGE
OF TOTAL INVESTMENTS, IN THE UNITED STATES AND THE SOVIET UNION,
1929 - 1950.

U.S.A., (billions of current dollars)										
Year	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Column 1	17.767	14.125	9.926	5.622	4.931	6.526	7.997	11.474	13.085	11.477
Column 2	5.185	3.833	3.066	1.657	1.368	1.683	1.953	3.098	3.338	3.576
Column 3	12.582	10.292	6.860	3.965	3.563	4.843	6.044	8.376	9.747	7.901
Column 4	6.574	5.084	3.299	1.884	1.852	2.606	3.465	4.677	5.586	4.097
Column 5	52.2	49.4	48.0	47.5	52.0	53.8	57.3	55.8	57.3	51.8
U.S.S.R., (billions of current rubles)										
Year	1939	1940	—	—	—	1946	1947	1948	1949	1950
Column 1	13.307	15.394	—	—	—	25.189	34.793	43.055	42.965	52.532
Column 2	4.280	4.691	—	—	—	5.769	8.770	11.499	11.812	16.389
Column 3	9.027	10.703	—	—	—	19.420	26.023	31.556	31.153	36.143
Column 4	4.741	6.314	—	—	—	12.536	17.331	20.326	19.107	22.799
Column 5	52.5	59.0	—	—	—	64.6	66.6	64.4	61.3	63.0
U.S.S.R., (billions of current rubles)										
Year	1929	1930	1931	1932	1933	1934	1946-----through-----1950			
Column 1	5.805	9.496	15.116	19.351	16.790	21.909	250.32			
Column 2	.509	.75	1.116	1.591	1.343	1.729	42.3			
Column 3	5.296	8.746	14.000	17.760	15.447	20.180	208.0			
Column 4	3.612	5.813	9.787	13.015	10.769	14.817	153.0			
Column 5	3.103	5.063	8.671	11.424	9.426	13.088	110.7			
Column 6	2.193	3.683	5.329	6.336	6.021	7.092	97.3			
Column 7	41.4	42.1	38.0	35.6	39.0	35.1	46.8			

Sources: J. Frederic Dewhurst and Associates, America's Needs and Resources, (New York, American Book-Stratford Press, 1955), pp. 1009-15; United States, Department of Commerce, National Income, 1954, (Washington, 1954), pp. 208-209; Norman Kaplan, Capital Investments in the Soviet Union, 1924-1951, (Santa Monica, California, Rand Corporation, 1952), pp. 37, 41, 72; M. V. Kolganoff and others, ed., National Income of the U.S.S.R., (Moscow, Publishers for State Planning Commission, 1939), p. 159.

Notes: All figures applying to the U.S.S.R. for 1946-1950, are in 1945 prices; they are also plan figures.

APPENDIX Q

TABLE Q2

INVESTMENT EXPENDITURES FOR INDUSTRIAL
EQUIPMENT AS A PERCENTAGE OF TOTAL
INDUSTRIAL INVESTMENTS, IN THE UNITED
STATES AND THE SOVIET UNION, 1929-1950

U.S.A., (billions of current dollars)										
Year	1929	1930	1931	1932	1933	1934	1935	1936	1937	1938
Column 1	4,674	3,607	2,151	1,307	1.200	1.703	2.106	2.884	3.804	2.635
Column 2	2.718	2.112	1.168	.632	.552	.608	.699	.958	1.525	1.125
Column 3	58.2	58.6	54.3	48.4	46.0	35.7	33.2	33.2	40.0	42.6
Column 4	41.8	41.4	45.7	51.6	54.0	64.3	66.8	66.8	60.0	57.4
Year	1939	1940	—	—	—	1946	1947	1948	1949	1950
Column 1	2.874	4.120								
Column 2	1.160	1.563				3.631	4.274	4.952	4.996	5.602
Column 3	40.4	37.9				44.4	38.4	38.4	43.9	47.2
Column 4	59.6	62.1				55.6	61.6	61.6	56.1	52.8
U.S.S.R.										
Year										
Column 1										
						1935	1936			
						35.32	37.54			

Sources:

A. A. Arakilyan, Economic Accounting and Utilization of Fixed Capital in Industry in the U.S.S.R., (State Publishers of Political Literature, 1954), p. 66; Cf. Table Q1.

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