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INTRODUCTION

INTRODUCTION

1 GROSS AND NET CAPITAL FORMATION

CAPITAL may be defined as the stock of commodities and of the less tangible properties of human beings and of institutional arrangements,[1] capable of rendering services to the consumers and producers of the nation. In this most inclusive sense of the term, capital covers a wide variety of economic goods, ranging from consumers' goods, such as flour and coffee on the household shelf, to producers' goods, such as the heavy machinery in the industrial plant; from tangible goods, such as commodities, to less tangible forms of accumulated services and of goods consumed in the past, such as the skill of a trained machinist or the goodwill attached to a trade mark; from perishable commodities such as beverages, whose period of utilization is brief, to durable commodities, such as buildings, whose period of utilization may be fifty years.

In line with this broad concept of capital, capital formation may be defined as the flow of currently produced commodities and services into the stock of economic goods. Thus defined, the volume of capital formation is one of two parts of the total volume of currently produced commodities and services. The other part represents consumption by ultimate consumers, i.e., consumption that does *not* result in additions to the stock of economic goods. Since such ultimate consumption may exceed the volume of commodities and services currently produced, capital formation may be negative, thus constituting a draft from the existing stock of economic goods into ultimate consumption. The definition of capital formation given above must, therefore, be expanded to include, in addition to the flow of currently produced goods into stock, drafts from existing stock into current ultimate consumption.

Inasmuch as the volume of capital formation is part of the total volume of the current production of economic goods, whatever criteria are used to define and measure the latter should also be applied to the former. If the investigator wishes to include in total current production not only the finished commodities but also the raw and semi-finished materials entering into them, thus obtaining a gross production total, the corresponding volume of capital formation will also contain similar duplications and thus measure one of the several possible concepts of *gross* capital formation. If, however, the total volume of current output is adjusted for the raw materials and capital equipment consumed in the process of production, thus yielding a net production total, the sum of commodities withdrawn from immediate ultimate consumption will be adjusted likewise and yield the volume of *net* capital formation.

For purposes of economic analysis it is the net total of goods produced and the net volume of capital formation that are of primary significance. These totals attempt to provide an unequivocal measure of the national economy's end-product and of the part of the latter that is retained to augment the stock of goods for future use. The gross totals of the volume of either production or capital formation, on the contrary, are necessarily arbitrary in that they depend upon the extent of duplication implied. Such duplication may be allowed among separate plants; separate enterprises; separate industries; or major industrial branches of the economic system—yielding several gross totals of the volume of production and of capital formation, each pair vastly different from the others. The measurement of these gross totals depends partly upon the extent of duplication desired, and partly upon the distinctions that can be established and hence the duplication measured with the available data. In both respects the gross production and capital formation totals vary with the specific purpose at hand and with the detail of available data much more than do the net production or net capital formation totals.

However, one type of gross production and gross capital formation is of importance, viz., that which does not adjust the sum of commodities that are currently produced or are diverted to future use for the current consumption of durable goods.[2] Two reasons may be suggested for dispensing with this adjustment, or rather for making it

[1] As in all economic analysis it is assumed that these commodities and properties are sufficiently scarce to make their disposal an economic problem.

[2] Durable goods are those whose period of utilization is at least three years; see Section 3.

a separate operation; and thus for measuring both the net and the gross volume of capital formation, 'gross' in the sense just stated. First, in contrast to the consumption of raw materials, which is a clearly apprehended and measurable process, the current consumption of durable goods is largely invisible over short periods; and its evaluation is at best a rough estimate, even when attempted by the productive or consumptive agency that uses the durable good in question. Hence, even if the ultimate aim is to measure net capital formation alone, the exigencies of statistical technique demand a separate measurement of total gross capital formation before the necessarily approximate adjustment for the consumption of durable goods is made. And at some points where such adjustment proves impossible, gross capital formation totals must serve as a substitute for net capital formation totals. Second, the indeterminateness of the adjustment for current consumption of durable goods reflects not only lack of reliable data, but also its own necessarily arbitrary character. This in its turn implies that the replacement of durable commodities in use by new durable commodities is not as rigidly controlled by technical considerations as is the replacement of raw materials, but leaves considerable room for the discretion of the entrepreneur or consumer. Such a wide area of discretion implies a great variability over short periods in the replacement demand for durable goods. Hence, if the volume of capital formation is studied as a highly variable element in business cycles, a viewpoint dominant in this investigation, it seems important to measure not only net capital formation as the expression of the demand for new capital goods, but also gross capital formation as inclusive of the demand for the replacement of capital goods. Both types of demand are highly variable and tend to be related in business cycles.

2 THE EXCLUSION OF INTANGIBLES AND OF REVALUATIONS

The broad concept of capital given above was suitable for drawing the distinction between gross and net capital formation. It was also useful as a preliminary concept, since its inclusive scope reveals clearly any omissions that might be entailed in narrower concepts, if the latter seem, as they usually do, more practicable guides in actual measurement. At this point, when the contents of capital formation must be made more specific to serve as a guide in the measurement to follow, this all-inclusive concept must be narrowed.

In the first place, all intangible items are omitted from capital; and correspondingly, any flow of commodities and services that may result in intangibles is omitted from capital formation. The reason for this omission is evident when the main types of these intangible properties of business enterprises and of human beings are considered: (a) goodwill of business enterprises; (b) monopoly powers of business enterprises; (c) capacities of the members of the nation as producers. The volume of capital formation relevant to these three types is undoubtedly substantial, for large volumes of commodities and services are consumed annually in replacing or enhancing the fully or partly monopolistic positions of business enterprises and the capacities of the productive members of the nation. But obviously it would be exceedingly difficult to measure capital formation resulting in an increase (or net decrease) in these three types of capital goods. The difficulties arise largely from the vagueness of the analytical distinction needed to segregate such capital formation. Thus for goodwill it would be almost impossible to distinguish in the total expenditures by business enterprises on advertising, for example, the part that should be treated as embodied in the commodities and services produced by them from the part that may be considered as additions to the stock of intangible goodwill. It would likewise be exceedingly difficult to measure the current consumption of this intangible stock. Similar difficulties in the case of expenditures for the acquisition of monopolistic rights are further complicated by the doubt whether genuine capital formation can be possible when the source of services to the business enterprise is obviously at the expense of the potential volume of services to society at large. For goods consumed in replacing and augmenting the capacities of human beings, the difficulty lies in drawing the line between economic activity and life in general. Should education be treated as an increase in the stock of economic goods, and thus included in capital formation? If the answer is in the affirmative, it may seem reasonable to contend also that a large part of the food, clothing, etc., consumed by ultimate consumers should be included in capital formation, since they are used to replace and augment the power of human beings as producers. Obviously, in all three cases the inclusion of intangibles as capital would make it impossible to differentiate clearly between capital formation and the processes of intermediate or ultimate consumption.

For these reasons the measures below are of cap-

ital formation confined to the flow of commodities and of services embodied in commodities. In accordance with this strict limitation of the concept to the movement of commodities to and from the existing commodity stocks, our measures omit another important item that is included by some economists under capital formation, viz., changes in the market value of already existing commodities. Even commodities held in stock (disregarding intangibles) may change in value from year to year, owing to variations over time in the yield or in the relations between the market supply and demand. For durable commodities such changes in market values may be quantitatively great.

The exclusion of changes in the value of the already existing stock of commodities is largely predetermined by our consideration of capital formation as the result of an apportionment of the total current production of commodities and services. Changes in the value of capital goods, which are not due either to their consumption in the process of production or to diversion of currently produced goods into an addition to the capital stock, may arise either from a change in the economic power of a specific capital stock (such as the attainment of an effective monopoly) or from a changed income productivity of all capital stock (such as arises from favorable shifts in the cost structure of the enterprise). In the first event, the change in the capital value can hardly be considered an addition to the capital stock of society as a whole. In the second, the increased or diminished income of the capital stock is reflected in the value of an increased or diminished flow of currently produced commodities and services, and is therefore already considered in the measurement of the total volume of the latter. The change in the value of existing commodities is therefore not included in the measure of the national product, i.e., of currently produced commodities and services. It should, accordingly, be excluded also from that part of currently produced commodities and services which we call capital formation.

The latter is now confined to the flow of commodities to and from the existing commodity stock, exclusive of any flow to and from the stocks of intangibles and of revaluations of already existing goods. But even within this narrower scope, variants of capital formation may be distinguished, according as the investigator may find it useful to include in capital all commodities or only certain groups whose characteristics need particular emphasis. Some of these variants will be discussed below. But first, a brief discussion of the methods available for the measurement of capital formation, and especially of the commodity classification used, will be helpful in order to suggest more clearly the nature and contents of the different variants of both gross and net capital formation.

3 METHODS OF ESTIMATE AND THE COMMODITY CLASSIFICATION

Since capital formation is the total result of the flow of commodities to and from the existing stock of commodities, it naturally represents the change in commodity stocks. Net capital formation represents a *net* change in commodity stocks, full adjustment having been made for the consumption of already existing stocks; gross capital formation represents a net change in the stocks of all nondurable commodities, but a gross change in the stocks of all durable commodities, i.e., gross additions without adjustment for the consumption of already existing durable commodities. So far as the statements above refer only to the stocks of commodities held within the country and so far as capital formation for a given country must take account of the change in its international position, both gross and net capital formation include in addition to changes in domestic stocks of commodities net changes in claims against foreign countries, an item that most fully covers the net result of transactions with other countries for a given country's stock of economic goods.

In estimating the annual volume of gross and net capital formation as defined above, two methods are possible. One, the change-in-stock method, proceeds to establish at some time within each year the stock of commodities within the country. Then, by subtraction, the net change in the stock can be obtained; the addition of the net change in claims against foreign countries yields directly the volume of net capital formation. If to it is added the estimated current consumption of durable commodities, the total represents gross capital formation.

The other method combines the flow-of-goods method with the change-in-stock method, the former accounting for quantitatively the most important part of the final estimates. It begins with the measurement of the flow of commodities rather than with their existing stock. In the current flow of commodities and services this method attempts to segregate those which, because of their technical nature, constitute a gross addition to the stocks of durable commodities in the hands of their users. Provided such a segregation can be made, the resulting total accounts for the bulk of gross capital

formation. The two items missing would be the net changes in claims against foreign countries and in stocks of all non-durable commodities and of durable commodities in process. These items added, the sum would cover fully gross capital formation. To obtain net capital formation the current consumption of durable commodities would be subtracted from this sum.

Since no comprehensive annual data on the stocks of commodities in this country are available, and whatever measures are available must be corrected for changes in valuation, an especially dif-

CLASSIFICATION OF COMMODITIES

(for definition of terms see footnote)

A Consumers' Goods

I *Perishable*
- 1 *At Destination*
  - a Finished—bread, coal used by households, etc., in hands of households
  - b Unfinished—none
- 2 *In Circulation*
  - a Finished—same as under AI–1a, but in hands of producers and distributors
  - b Unfinished—raw materials, fuels, supplies so far as they are used for production, transportation and distribution resulting in AI–1a

II *Semidurable*
- 1 *At Destination*
  - a Finished—shoes, clothing, etc., in hands of households
  - b Unfinished—none
- 2 *In Circulation*
  - a Finished—same as under AII–1a, but in hands of producers and distributors
  - b Unfinished—raw materials, fuels, supplies, used for production, transportation and distribution resulting in AII–1a

III *Durable*
- 1 *At Destination*
  - a All finished—passenger cars, jewelry, furniture in hands of households
    - aa Residential buildings
    - bb All other
  - b Unfinished—none
- 2 *In Circulation*
  - a Finished—same as under AIII–1a, but in hands of producers and distributors
  - b Unfinished—raw materials, fuels, supplies, used for production, transportation and distribution resulting in AIII–1a

B Producers' Goods

I *Perishable*
None

II *Semidurable*
None

III *Durable*
- 1 *At Destination*
  - a Finished—industrial, farm machinery, buildings, trucks, etc., in hands of business units who will use them
  - b Unfinished—none
- 2 *In Circulation*
  - a Finished—same as under BIII–1a, but in hands of producers and distributors
  - b Unfinished—raw materials, fuels, supplies, etc., used for production, transportation and distribution resulting in BIII–1a

Durable Commodities—Commodities that, without marked change and retaining their essential physical identity, are ordinarily employed in their ultimate use over a long period (for purposes of this study more than three years). Examples: a building; a steam engine or dynamo; an automobile or truck; a bed, table or chair.

Non-durable Commodities—Commodities that, without marked change and retaining their essential physical identity, are ordinarily employed in their ultimate use over a short period (for purposes of this study less than three years). Non-durable commodities are further classified into:

Semidurable Commodities—Commodities that, without marked change and retaining their essential physical identity, are ordinarily employed in their ultimate use for from six months to three years. Examples: automobile tires, clothing, shoes.

Perishable Commodities—Commodities that, without marked change and retaining their essential physical identity, are ordinarily employed in their ultimate use less than six months. Examples: bread, cigarettes.

Commodities at Destination—Commodities that have reached either the household or the producing units wherein they find their ultimate use. Examples: bread in the household larder; truck in hands of firm using it.

Commodities in Circulation—Commodities that are still in process of production, transportation or distribution and have not as yet reached the units wherein they find their ultimate use. Examples: clothing in department store; coal in factory bin.

Finished Commodities—Commodities, whether durable or non-durable, in the form in which, without significant alteration, they are employed in their ultimate use. Examples: shoes, furniture, machinery.

Unfinished Commodities—Commodities that, whether ultimately durable or non-durable, are not yet in the form in which they are employed in their ultimate use. Examples: raw cotton; structural steel beams.

Consumers' Goods—Commodities and services that, whether finished or unfinished, are, when finished and at their destination, used by households or large ultimate consuming units. Examples: flour, bread, raw wool, clothing.

Producers' Goods—Commodities and services, whether finished or unfinished, that are, when finished and at their destination, used by business agencies in the process of production. Examples: industrial machinery; steel used therein.

ficult operation whose results are unreliable, we have used the second approach. It requires first of all a careful classification of commodities to make possible the segregation of the net output without duplication, except that involved in the consumption of durable commodities; and then the segregation, within the net output, of commodities that must be a part of capital formation. The commodity classification, given in detail above, is designed to facilitate the measurement of the different variants of capital formation so that the one most suitable for a specific purpose may be singled out.

The classification includes commodities alone, not services, or rather services only so far as they have been embodied in new commodities. But one group of services is of some importance in measuring capital formation, viz., services performed in connection with existing finished durable commodities (usually at their destination) that neither result in a new finished commodity nor constitute non-durable current maintenance. Such services are typified by a substantial alteration of an existing building, or a substantial repair or reconstruction of an engine already produced and installed. They may be interpreted as adding to stocks of commodities rather than as representing unfinished commodities or ultimate consumption, and should therefore be taken into account in the more detailed definition of the scope of capital formation.

4 VARIANTS OF CAPITAL FORMATION AND THEIR CONSTITUENT PARTS

In the light of the preceding discussion and with the help of the commodity classification, it is now possible to describe the several possible variants of capital formation and their composition.

All these variants confine capital formation to the movement of commodities and of services embodied in commodities, and exclude both intangibles and revaluations. Within these limits the variants differ in degree of inclusiveness, and are presented here in the order of diminishing scope.

The most comprehensive variant includes the changes in the stock of all commodities as well as all alterations, repairs, and maintenance.

VARIANT ONE

GCF 1—Gross Capital Formation =

net changes in stocks of all non-durable commodities, whether in circulation or at their destination (A–I–1, A–I–2, A–II–1, A–II–2)

plus

net changes in stocks of all finished durable commodities in circulation (A–III–2, B–III–2)

plus

flow of all finished durable commodities to their ultimate recipients (A–III–1, B–III–1)

plus

repairs and alterations of existing durable commodities (mostly at destination)

plus

net changes in claims against foreign countries

NCF 1—Net Capital Formation =

GCF 1, gross capital formation of the same variant, minus the current consumption of all durable commodities at their destination (i.e., current consumption of A–III–1 and B–III–1 including consumption assumed to be offset by repairs and alterations)

Available data do not make it possible to measure net changes in the stocks of non-durable commodities at their destination, i.e., in the hands of their ultimate consumers. Moreover, it may be argued that these stocks are the result of forces significantly different from those that determine changes in stocks in circulation, i.e., in the hands of business enterprises, or the total flow of finished durable commodities. Barring exceptional disturbances (such as occurred in some countries during the War or in Germany in years of extreme inflation), the stock of non-durable commodities in the households of a nation is a part of the stable pattern of ultimate consumption, changing but slowly. The stocks of commodities in circulation and the flow of durable commodities are, on the contrary, much more likely to fluctuate by reason of the sensitivity of the demand for them to the varying conditions of business activity and varying level of income flow. But whether stable or variable, the net changes in stocks of non-durable commodities at their destination cannot be measured; and it is therefore necessary to exclude this item, and thus develop the second variant of capital formation.

VARIANT TWO

GCF 2—Gross Capital Formation =

net changes in stocks of all commodities in circulation (A–I–2, A–II–2, A–III–2, B–III–2)

plus

flow of all finished durable commodities to their ultimate recipients (A–III–1 and B–III–1)

plus

repairs and alterations of existing durable commodities

plus

net changes in claims against foreign countries

NCF 2—Net Capital Formation =
GCF 2 minus the current consumption of all durable commodities at their destination

It may be argued further that Variant Two does not remove from capital formation certain elements whose characteristics would fit them better to be classified under ultimate consumption. Thus the acquisition by ultimate consumers of such movable durable commodities as furniture, passenger cars and rugs may be considered as ultimate consumption rather than as capital formation. With this change in classification, the only consumers' durable commodities whose flow enters capital formation would be residential buildings; and accordingly, repairs and alterations of consumers' durable commodities (except residential buildings) should also be excluded. This step results in the third variant of capital formation.

VARIANT THREE

GCF 3—Gross Capital Formation =
GCF 2 minus flow to ultimate consumers of movable durable commodities (i.e., excluding A–III–1–aa) and minus repairs and alterations of these commodities
NCF 3—Net Capital Formation =
GCF 3 minus current consumption of producers' finished durable commodities and residential construction.

Finally, a question may be raised concerning the inclusion of repairs and alterations under gross capital formation. Since the justification for singling out this particular type of *gross* lies in the durable and relatively unchangeable character of commodities whose current consumption is not being allowed for, it may be asked whether the results of repairs and alterations are sufficiently durable. For, obviously, if they are not durable, there is no more reason to include them under gross capital formation than there is to include non-durable commodities produced. This doubt concerning the character of repairs and alterations suggests a fourth variant of capital formation.

VARIANT FOUR

GCF 4—Gross Capital Formation =
GCF 3 minus all repairs and alterations
NCF 4—Net Capital Formation =
GCF 4 minus current consumption of producers' finished durable commodities and of residential construction

This completes the list of variants needed for guidance in the statistical analysis. Obviously, it is possible, even with the omissions suggested, to formulate additional variants; or, further, to continue the process of narrowing the scope, excluding such items as residential construction, or such parts of producers' durable commodities as are used by non-profit agencies. But the scope of the measures that follow can be fully understood in terms of the variants already listed.

The study whose details are presented in this volume is confined to the measurement of gross capital formation. The available data make possible approximations to gross capital formation as defined under Variants Two, Three and Four; and since the component parts are clearly distinguished, and are subdivided in more detail than that indicated in the schematic summary above, a critical student can utilize them to build his own totals of capital formation, most suitable for the purpose at hand.

The values of all the items are taken at cost to those particular groups which, for the purpose of definition and measurement, are the ultimate holders and recipients. Thus the flow of finished commodities and services to final consumers is evaluated at the cost to them; the net changes in stocks of commodities are measured at their cost to those who hold them.

5 SCOPE AND OUTLINE OF THE STATISTICAL ANALYSIS

Of the various items listed above as entering gross and net capital formation, the measurement of some concerns us but little in this volume, because they have been adequately estimated elsewhere; for example, net changes in claims against foreign countries, an item easily derived from the balance of international payments published annually (and recently semi-annually) for this country by the Department of Commerce. Similarly, the estimates of current consumption of durable commodities are the subject of a separate study now being carried on by Solomon Fabricant at the National Bureau of Economic Research;

and their derivation will be presented in *Capital Consumption*. The omission of these two items from detailed treatment confines the statistical analysis in this report to the first three items listed under the variants of gross capital formation: flow of durable finished commodities to their ultimate recipients; net change in commodity stocks in circulation; repairs and alterations. Since for practical reasons, the value of repairs and alterations must be estimated from the same sources and by the same methods as the much more important item of the flow of finished durable commodities, the two can be treated together. The statistical analysis is consequently divided into two rather unequal parts: one, based on the flow-of-commodities method, aims at an annual estimate since 1919 of the flow to ultimate users of new durable commodities and of the repair and alteration of existing durable commodities, at the cost to these users; the second, based on the change-in-stock method, aims to measure net changes in the inventories of all commodities held by their producers and distributors.

The basic sources for an annual estimate of the flow of durable commodities and of related services are the Biennial Census of Manufactures, the Censuses of Distribution and of Construction for 1929, and some releases on transportation charges for separate commodities, issued by the Interstate Commerce Commission. Obviously, the basic information is much more comprehensive for *manufactured* durable commodities than for construction. Furthermore, the problem of estimating transportation and distributive costs is quite different for movable durable commodities, which, with few exceptions, are manufactured, and for construction. Hence, in the detailed statistical analysis it is best to treat the problems of estimating the flow of movable durable commodities and the volume of construction separately.

The principal problem in measuring the flow of movable durable commodities is to segregate finished commodities from unfinished; among finished commodities to segregate durable from non-durable; and among finished durable commodities to segregate producers' goods from consumers' goods. The complexity of this problem, the possibility of extensive disagreement, and the basic importance of decisions to be made in solving it for all the subsequent stages of the statistical analysis, rendered advisable not only presenting this part of the study fully, but also an attempt to estimate the volume of both finished durable commodities and other finished commodities. An estimate of the flow of finished perishable and semidurable commodities is useful, first, as a check upon the segregation of durable commodities and to enable those who are willing to extend the concept of durability to include commodities lasting less than three years; second, as yielding a comprehensive measure of the volume of finished commodities with which the movement of durable commodities may be compared. The task thus becomes one of measuring the annual flow of all finished commodities, classified by their durability, at the cost to the ultimate recipients.

These brief comments provide the reasons for the order of the statistical analysis in this report.

PART I CLASSIFICATION OF MANUFACTURED COMMODITIES

Part I classifies the value of products data in the Census of Manufactures, industry by industry, for each Census year, 1919–33, into finished and unfinished; segregates construction materials from the latter, and divides the finished commodities into about fifty minor groups, which are subsequently classified as perishable, semidurable, consumers' durable, and producers' durable.

PART II ANNUAL OUTPUT OF FINISHED COMMODITIES, IN CURRENT AND 1929 PRICES

Part II supplements the data from the Census of Manufactures (in Part I) with estimates of the production of non-manufactured finished commodities flowing from farms, mines and fisheries; interpolates the value of finished manufactured products, by the fifty minor groups, for the even years in the period (1920, 1922, and so on); adjusts the flow of finished commodities for exports and imports; and attempts to correct those dollar value totals, given so far in current prices, for changes in the price level.

PART III THE SPREAD IN 1929 BETWEEN THE VALUES OF FINISHED COMMODITIES AT PRODUCERS' PRICES AND AT THEIR COST TO ULTIMATE CONSUMERS

On the basis of the Census of Manufactures, Distribution of Sales, Census of Distribution, and data from the Interstate Commerce Commission, Part III attempts to trace the flow of finished commodities through the channels of the transportation and distribution system, and to estimate the spread in 1929 between producers' values and the ultimate cost to consumers. The attempt is made

for the minor commodity groups used in Parts I and II, although some have to be combined to make possible a reasonable comparison among the various censuses.

PART IV CHANGES OVER TIME IN TRANSPORTATION COSTS AND DISTRIBUTIVE MARGINS

Part IV assembles sample data on transportation costs and distributive margins (largely the latter) available continuously for several years during the period, in order to throw light on their variability over time. They are used largely to indicate what margin of error is likely to be involved in the assumptions made in Parts V and VI in order to estimate annually the spread between producers' values and costs to ultimate recipients of finished commodities and construction materials.

PART V FLOW OF FINISHED COMMODITIES TO ULTIMATE CONSUMERS, AT THE COST TO THEM

Part V estimates the spread between producers' values and the cost to ultimate consumers of finished commodities for all years in the period, largely on the basis of the survey in Part IV. After the spread is estimated the totals for the four major groups are adjusted for changes in finished inventories, and the final estimates of the flow to ultimate recipients at the cost to them obtained. These estimates are presented in both current and 1929 prices.

PART VI THE VOLUME OF CONSTRUCTION

The volume of construction materials produced in the years covered by the Census of Manufactures was estimated in Part I. Part VI begins with a recapitulation for construction materials of the procedures followed in Part II, i.e., an estimate of production for the intercensal years, adjustment for imports and exports and for changes in prices, and then proceeds to trace the flow of construction materials to their ultimate users, i.e., various construction agencies. The value of construction materials is adjusted at every stage in the distributive system for changes in inventories as well as for transportation charges and distributive margins, and finally, as an estimate of the annual consumption of construction materials, becomes the basis for an estimate of the total volume of construction. The latter is compared with an estimate of the volume of construction by type and the discrepancies are analyzed.

PART VII NET CHANGES IN INVENTORIES

Part VII assembles the data available on the volume of inventories at the end of each year in the period covered, corrects the estimated inventories for price changes, obtains net changes in inventories in constant prices, and then, multiplying them by indexes of current prices, obtains net changes in inventories in current prices.

PART VIII SUMMARY

Part VIII assembles, in a set of summary tables, all the final estimates of the various constituents of gross capital formation, in the possible variants, includes preliminary estimates for 1934 and 1935, and utilizing data from the capital consumption study, provides estimates of net capital formation.

Each part is prefaced by a description of the sources of the various estimates, of the quantitative analysis in it, of the various statistical problems met and of the methods used to solve them. The attempt throughout is to give a clear picture of the procedures. Consideration of space prevented the copying of data from printed publications, except those that embodied decisions concerning classification or necessary adjustments. But it is hoped that the form of the statistical analysis gives any critical student the opportunity to judge the adequacy of the procedures and to rearrange the data the better to secure their conformity to any special purposes he may have in mind.