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CHAPTER 8

Classification by Industrial Source and Type of Income

1 Industrial

A GENERAL CHARACTERISTICS

THE general characteristics of the industrial classification followed in our estimates may be presented conveniently in tabular form. For most of the period covered, 1919-38, we allocated the several types of income from most industrial groups to the major divisions listed in the second column of the summary. A few income types we allocated to more detailed industrial divisions, which are also summarized.

The classification reflects the compromise we had to make between what would be desirable for analytical purposes and what was possible with the data at our disposal. On the one hand, some industrial groups we now treat as units—agriculture, construction, wholesale trade, retail trade—should but cannot be further subdivided, owing to absence of data for a sufficiently long period and often even for a single year. On the other hand, we refrained from presenting all the detail available for some industries; for example, we estimate but do not present separately income originating in the Pullman Company and railway express. Both are closely related to steam railroads and income from them is small compared with that from some broader categories that could not be subdivided.

The miscellaneous group is vastly different from the others

in that it is a hodge-podge of industries as diverse as taxicabs and brokerage, aviation and fisheries, autobus transportation and finance companies. The one feature characterizing all is the impossibility, because of lack of data, of making tolerably good estimates of income originating in each, either separately or as part of the wider industrial group to which it properly belongs. Consequently in contrast to the other groups and divisions, which have a positive meaning in the classification, the miscellaneous group has a negative meaning: it is the part of national income that cannot be properly allocated by industrial source.

INDUSTRIAL GROUP	MAJOR DIVISION	NOTES ON COVERAGE
Agriculture	None	Excl. agriculture not on farms. The Census defines a farm as any tract of land of 3 or more acres; & incl. under 'farms' those with less acreage if agricultural products in the year covered were valued at \$250 or more (1925, 1930, 1935); or if the continuous service of at least one person was required for agricultural operations.
Mining	Anthracite coal Bituminous coal Oil & gas Metal Other minerals	Incl. sand & stone, oil & gas throughout. The Census excl. bituminous coal mines with an output of less than 1,000 tons; production of sand & gravel by enterprises whose output was less than 25,000 tons; production of other mining & quarrying enterprises whose output was valued at less than \$500 (1919) & \$2,500 (1929), or, if not producing, whose development work cost less than \$5,000 (1919) & \$2,500 (1929); mining of placer gold & hunting for precious stones by itinerant individuals & miners employing no help; production of stone, sand, & gravel by rr. & public utility plants for their own consumption; production by governmental enterprises of all minerals except coal.
Manufacturing	Food & tobacco Textile & leather Construction materials & furniture Paper Printing Metal & metal products Chemical Misc. & rubber	Excl. automobile repairing (1919), mfd. gas, motion picture production, rr. repair shops; incl. ship building. With a few exceptions the Census incl. establishments reporting products valued at \$5,000 or more. In the 1919 Census, however, data were obtained from all establishments reporting products valued at \$500 or more.
Construction	None	Contract construction alone. Excl. construction on force account. The Census has no size limitations but is admittedly incomplete.

INDUSTRIAL GROUP	MAJOR DIVISION	NOTES ON COVERAGE
Transportation & other public utilities	Electric light & power & mfd. gas Steam rr., Pullman, & rwy. express Other transp. (water transp., street rwy., pipe lines) Communication (telephone, telegraph)	Excl. minor public utilities, such as air transportation, autobus lines, taxicabs, cartage & storage, radio broadcasting, water companies. There are no coverage limitations except for water transportation, from which the Census excl. all vessels & craft of less than 5 tons net register; yachts of 15 gross tons and under; stationary wharf boats, scows, or craft used for storage purposes; house boats, without propelling machinery; craft operating exclusively in the waters of the Philippine Islands, or between those islands and foreign ports; non-commercial vessels owned by the federal government; American owned vessels under foreign registry.
Trade	Wholesale Retail	Excl. itinerant hucksters & peddlers; stands in hotels; restaurants. The Census has no coverage limitations but is admittedly incomplete, specifically for milk dealers & other dispersed transient & minor retail units.
Finance	Banking Insurance Real estate	Excl. stock & bond brokers; loan & finance companies; investment banks & trusts, etc. Incl., under real estate, rents received by individuals from all real property owned by them as well as imputed rent on owner-occupied houses.
Service	Professional Personal Domestic Misc.	Incl. restaurants & motion picture production. Excl. all service pursuits attached to other industries. The Census has no coverage limitations but is admittedly incomplete.
Government	Federal State County City Public education	
Misc.	None	Incl. the various industries indicated specifically above as omitted and not incl. elsewhere; the fractions of industries measured separately but not incl. because of coverage limitations; in short, the residue that cannot be allocated by industrial source.

The classification is applicable in varying detail to the different types of income. Only for estimates of employee compensation can we give several minor and some major industrial divisions. In the groups in which wages can be measured separately from salaries, e.g., manufacturing, it is the former that can be divided into the minor categories; salaries must be combined into broader groups. In some groups, such as gov-

ernment, finance, service, and trade throughout the period, and mining during the later part of the period, wages and salaries combined are given by minor industrial divisions. On the other hand, for entrepreneurial income and especially for property income and business net savings the allocation by industrial source cannot be as detailed.

INDUSTRIAL GROUP & MAJOR DIVISION	MINOR INDUSTRIAL DIVISION						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Manufacturing</i>							
Food & tobacco	Food	Tobacco					
Textile & leather	Wearing apparel	Textile fabrics	Other leather goods				
Wearing apparel	Boots & shoes, other than rubber	Boots & shoes, rubber	Hosiery & knit goods	Men's clothing	Women's clothing	Mil-linery	Other wearing apparel
Textile fabrics	Woolen goods	Cotton goods	Silk & rayon	Dyeing & finishing	Other textile fabrics		
Construction materials & furniture	Lumber	Stone, clay, glass	Heating apparatus	Other construction materials	Furniture		
Metal	Iron & steel	Non-ferrous metals	Motor vehicles	Machin-ery			
Machinery	Machin-ery proper	Ship build-ing	Other transp. equip-ment, excl. motor vehi-cles	Hard-ware			
Chemical	Petro-leum refin-ing	Other chemi-cals					
Misc. & rubber	Rubber, excl. boots & shoes	Misc.					

INDUSTRIAL GROUP & MAJOR DIVISION	MINOR INDUSTRIAL DIVISION						
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Transportation & other public utilities</i>							
Elec. light & power, & mfd. gas	Elec. light & power	Mfd. gas					
Other transp.	Street rwy.	Water transp.	Pipe lines				
Communica- tion	Tele- phone	Tele- graph					
<i>Finance</i>							
Banking	Commer- cial, incl. stock savings	Mutual savings	Federal Reserve	Insol- vent			
Insurance	Life	Other than life	Agencies				
<i>Service</i>							
Professional	Private educa- tion	Religious	Cura- tive	Other			
Personal	Hotels	Restau- rants	Power laun- dries, & clean. & dye.	Other			
<i>Government</i>							
Federal	Legis- lative	Judicial	Execu- tive	Military			

B PROPERTY INCOME AND BUSINESS SAVINGS

Since industries are differentiated chiefly by the characteristics of the transforming operations that constitute their productive function and of goods in which these operations result, it is natural to assume that income originating in a given industry represents the value (at market prices) of the services of labor, capital, and enterprise devoted to a specific series of operations performed on a given, well defined category of goods. Thus, it is assumed that income originating in

manufacturing represents the net market value of the services of the various production factors consumed in transforming raw materials into movable fabricated commodities.

This interpretation is largely correct but is subject to some qualifications. Even of total wages, some fraction represents payment for participation in auxiliary rather than primary functions of the industry; e.g., all commodity producing industries and public utilities engage in construction activity with their own forces, some on a considerable scale. In many industries the maintenance of plants and buildings often develops into substantial real estate management. In some ostensibly purely service branches, such as trade, auxiliary manufacturing operations are carried on. Consequently, wages paid out in any single branch, as well as salaries, wages and salaries combined, and entrepreneurial withdrawals even to a greater extent than wages, represent payments for a mixture of operations, of which only the preponderant part is peculiar to the given branch.

A second and much more important source of 'impurity' affects the classification of dividends, interest, corporate net savings and, in less degree, net income of unincorporated firms. A single corporation (and, to a less extent, an unincorporated firm) may comprise under one proprietorship and management unit establishments that engage in different production operations and belong to different industrial divisions. In such cases property income and net savings originating in a given corporation (or unincorporated firm) include payments for services of production factors engaged in several industrial divisions and cannot be allocated.

This difficulty was discussed in Chapter 3, Section 2 A and is recalled here only to indicate its effect upon our estimates. For all except three industrial groups—agriculture, transportation and other public utilities, and government—our data on dividends, interest, and corporate savings (and, indirectly, savings of unincorporated firms) come from *Statistics of Income*, i.e., from returns filed by corporations for income

tax purposes. During 1919-33, the greater part of the period under consideration, the income tax law permitted consolidated returns, i.e., a single return for a corporation and the various subsidiaries which, while separate legal entities, were under its financial control. The Bureau of Internal Revenue entered each return under the industrial division from which the major part of the gross and net income of the consolidated group of corporations was derived during the given year.

Consequently during most of the period covered by our estimates the industrial classification of property income and business net savings is subject to two qualifications. First, the practice of filing consolidated returns increased considerably the mixture of industrial affiliations occasioned by the fact that even a single corporation can comprise producing establishments belonging to more than one industrial division. Some corporations availed themselves of the privilege of filing consolidated returns: there were 6,462 such returns in 1933 and 418,602 non-consolidated returns. But the former naturally accounted for a greater proportion of gross income than of the number of returns: \$24.5 billion, out of a total gross income of all corporations of \$73.6 billion.¹ Second, the degree and character of the mixture of industrial affiliation in the data on property income and business net savings must have changed from year to year, partly because of the practice of classifying each return by the industrial source of the major share of income *during any given year*, partly because of changing extent and direction of consolidation within single corporate units, and partly because of changing extent and direction of consolidation represented by consolidated returns.

Since 1934 the law has required a separate return for each corporation and expressly forbade the filing of consolidated returns (except by railroads). This eliminated only one source of the mixture of industrial affiliations in the reporting of property income and business savings. The other source, the

¹ The number and amounts are for all corporations excluding public utilities.

combination of establishments pursuing different industrial activities under the aegis of a single corporation, still remains, and has perhaps been intensified by the change in the law, since the advantages, for purposes of taxation, of filing a single return may have forced into a single corporation several that were formerly legally independent.

The 'unconsolidation' of consolidated returns increased the reported value of certain income items, such as gross dividend and interest payments; as well as the reported value of certain offsetting items, such as dividends received. Were the Bureau of Internal Revenue the sole source of our data on corporate incomes and income payments, the grand totals for 1934 on consolidated and non-consolidated bases would be identical, so far as they refer to *net* income originating or to net business savings. But since the data for transportation and other public utilities are based on Interstate Commerce Commission records, which are more satisfactory, even the grand totals for 1934 on the two bases differ somewhat. On a non-consolidated basis, they are somewhat larger for dividends and corporate net savings and somewhat smaller for interest.

In the industrial classification of these totals a more important difficulty inheres. The Bureau of Internal Revenue classified the returns for 1934 of corporations that filed consolidated returns in 1933 according to business: (a) reported on a non-consolidated basis in 1934, the basis that prevails for years since 1934; (b) reported on a consolidated basis in 1933. Shifting from a consolidated to a non-consolidated basis increased substantially amounts under construction, trade, service, and finance, and reduced amounts under mining, manufacturing, and transportation and other public utilities. On the basis of the two classifications we prepared two sets of estimates of dividends, interest, corporate net savings, and entrepreneurial net income and savings: one, using classification (a) above, the non-consolidated classification of 1934 comparable with the estimates for the years since 1934; the other, using

classification (b) above, of 1934 returns on the 1933 basis comparable with the estimates for the years prior to 1934.

This double set of estimates for 1934, which appears in our tables for dividends, interest, net savings, and all the totals that include these items for all industrial divisions except agriculture, public utilities reporting to the Interstate Commerce Commission, finance, and government, provides the sole connecting link between two somewhat different industrial allocations of national income: one for the years before 1934, the other for the years after 1934. No other way of obviating the difficulties raised by the non-comparability of the industrial allocation seems possible with the available data. It is impracticable to assume that the absolute and relative discrepancies between the 1934 estimates for the industrial divisions with the same name would be characteristic of other years, and accordingly extrapolate either discrepancy to the years prior or subsequent to 1934. On the contrary, it is much more likely that the difference caused by the shift from a consolidated to a non-consolidated basis would vary from year to year with the state of business conditions and the progress of the consolidation movement. These differences could be ascertained only by an intensive study of Bureau of Internal Revenue files for years other than 1934. However, the differences for 1934 are not strikingly large, and in most industrial divisions are minor.² The notable exceptions are in the miscellaneous division, which is of little importance in the industrial classification.

C NUMBER EMPLOYED AND ENGAGED

The allocation of the number employed and engaged naturally reflects the peculiarities of the allocation of wages and salaries and of entrepreneurial income, since the same industrial divisions are used. But in addition, our estimates of the number employed and engaged have peculiarities of their own. First and foremost, they are in terms of theoretical units,

² *Statistics of Income for 1934, Part 2, pp. 19-29.*

not *persons*. The number employed in a given industry is not the number of individuals who, during the year, received wages and salaries from enterprises belonging to it. The figures represent theoretical, fully employed units, i.e., the number of persons that would have been employed if each employee worked full-time during the year, no more and no less; if there were no changes in personnel; and if each employee held only one job. The number of entrepreneurs in our estimate is a somewhat closer approximation to the actual number of persons involved, but even here a person included in a given industry may possibly be partly covered as a fraction of a full-time employed unit in another industry. A rigorous classification of persons among the industries in which they are engaged would encounter the difficulties of how to treat those who held jobs in more than one industry and how to combine those engaged on a full-time basis with those engaged only part-time. Our apportionment avoids these difficulties by using equivalent full-time units, a concept that is a direct derivative of and corollary to that of the income flow.

Second, we present no estimates of the number of persons receiving property income corresponding to the flow of property income. It is impossible to estimate the number of persons who depend entirely upon receipts of property income or the total number of property income recipients. Either total would be of doubtful value compared with that of the number of theoretical full-time units in receipt of service income.

D GENERAL QUALIFICATIONS

Before concluding the discussion of the industrial classification, we may summarize, at the risk of tiresome repetition, some of the major qualifications upon the significance of our allocation by industrial source.

i) Strictly, income originating is allocated neither among distinct types of productive function nor among activities concerned with distinct types of economic goods. Any single in-

come flow represents compensation for activities of which that peculiar to the industrial division to which it is traced back is only the preponderant part, not the whole. Thus not all wages paid in manufacturing are for purely *manufacturing* functions; nor is all property income originating in manufacturing the compensation of capital employed only in manufacturing uses.

ii) This mixture of industrial activities and affiliations is most heterogeneous for property income and net savings of both incorporated and unincorporated firms. For these income types the institutional categories of the classification do not coincide with the analytical categories by type of productive function; also, incomes are reported for establishments that may belong to several, institutionally different, industrial divisions.

iii) Income payments originating in an industry should not be identified with the amounts actually disbursed by the enterprises classified under it. For wages and salaries the differences (e.g., gratuities, deductions for social security) are not likely to be large. For dividends and interest the estimates are of net amounts originating, not totals disbursed directly to individuals.³

iv) Income payments should not be confused with the total income receipts of people attached to a given industry, not only for the reasons indicated under (iii) but also because people attached to any given industry may derive income from other sources. For example, income originating in agriculture is not the sole income of farmers, nor do farmers receive the entire amount; and wages paid in mining may not be the sole income of mine workers.

v) The number employed or engaged, estimated for a given industrial division, should not be identified with the number of *persons* who drew wages, salaries, or entrepreneurial income from it. The figures represent theoretical units of fully

³ For further discussion of this point, see Sec. 2 C.

employed or engaged, and are bound to be smaller than the number of persons.

vi) The varying adequacy of data affects the trustworthiness of the industrial classification in numerous respects. In some cases estimates of changes over time have to be based on data not for the industry in question but for other industries. Relative changes in the totals for divisions for which specific data are lacking (e.g., some divisions under service, and practically all miscellaneous) are therefore subject to wide margins of error, which, of course, affect the percentage allocation of national income among the industrial branches as well.

2 *By Type of Income*

A GENERAL CHARACTERISTICS

The types of income differentiated in our estimates for most industries are outlined herewith. Their characteristics, as reflected in our estimates, are commented on in detail below. A few general observations are made here.

I *Income Payments*

A *Service Income*

- 1 Wages, including: (a) gratuities, (b) compensation in kind
- 2 Salaries, including: (a) compensation in kind, (b) commissions
- 3 Other compensation of employees, including: (a) pensions, (b) compensation for injury, (c) relief
- 4 Entrepreneurial withdrawals

B *Property Income*

- 1 Dividends
- 2 Interest
- 3 Rent

II *Undistributed Income*

- 1 Net savings of corporations and of government
- 2 Net savings of entrepreneurs (this item combined with A-4 yields net income of entrepreneurs)

Like the allocation by industrial source, that by type of income represents merely what is practicable with the present data, not all that is desirable from the viewpoint of analysis and evaluation. It would have been desirable to estimate separately wages of skilled and unskilled workers; and the compensation of those salaried employees who, owing to their position in the corporation, are virtually independent entrepreneurs separately from the compensation of purely subordinate salaried employees. It would have been of interest to segregate withdrawals by and the net income of entrepreneurs into parts that correspond to compensation for their services and to returns on their property investment. There might have been some value in separating dividends on preferred and common stock, especially when voting privileges are attached to the latter alone; or various categories of interest according to the character of the underlying debt. But with the available data such distinctions cannot be made for enough industries or years to warrant allowance for them in the general classification by type of income.⁴

Especially to be noted is the treatment of rents and royalties. Royalties are an exceedingly minor item and cannot be estimated by years.⁵ But net rents over the period were about as large as dividends, and slightly less than interest. Unfortunately it is not possible to estimate net rent originating in each industrial branch. We might treat rent as a return for entrepreneurial activity in the real estate industry or as property income arising in the several industrial divisions. Because of lack of data, however, we are forced to assign all rent, even as property income, to the real estate industry. Were it possible to apportion rent by industrial source, national income would be somewhat differently allocated by industries than it is in the tables in Part Four. The share of the real estate industry

⁴ Data on the compensation of corporation officers and on salaries of executive employees in selected industries make possible some breakdown of total salaries (or of salaries and wages combined). The series are presented in Part Five, Table I.

⁵ See their tentative evaluation in Ch. 9.

would naturally be smaller, since it would be confined to residential properties; and the relative shares of industries in which the practice of renting is extensive, such as agriculture, would be larger.

Finally, as already indicated, the classification by type of income is applicable in varying detail to the different industries. In general, more data are available for the commodity producing industries and the established public utilities. For the former, separation of wages from salaries is practicable because of the clear distinction between the actual production process and the auxiliary and managerial functions; and the basic data make it possible also to segregate unincorporated firms. From the relatively plentiful data for the long established public utilities the various types of income can be estimated separately. In other industries the difficulties of differentiating among types of income and the relative scarcity of relevant data forced us to combine related types and use fewer categories.

B SERVICE INCOME

The industrial classification can be carried through with most detail for wages and salaries since data are relatively plentiful, especially when the two types of payment are combined. But our estimates even of wages and salaries are incomplete. They should include not only regular wages and salaries but also bonuses, commissions, compensation in kind, expense accounts, gratuities, discounts of various types, etc. Bonuses and commissions are included, so far as they are reported in basic sources; gratuities are estimated whenever they seem to be an important source of income; compensation in kind for industries in which it is common (agriculture, water transportation, restaurants, hotels, domestic service, military service, etc.) is also measured, although as in the case of gratuities, the estimates are necessarily rough. It may be assumed that the items omitted would add up to a sum small in comparison with the large total of wages and salaries recorded in our estimates,

although it is improbable that the available data cover exhaustively the numerous forms in which compensation flows from enterprises to employees.

Our estimates of other compensation of employees probably omit a large proportion of the amounts disbursed in this form. However, since the items are small and any estimates that could be computed for them would necessarily be crude, we considered it inadvisable to go beyond the few industries for which the essential data were readily available. Our estimates therefore cover pensions and compensation for injury paid out in merely a few industries, but the omitted totals are insignificant compared with *total* employee compensation recorded.

The estimates of entrepreneurial withdrawals are subject to an entirely different and a much more serious qualification. What we want to ascertain are the amounts individual entrepreneurs withdraw, in the form of either money or goods, to be used for living expenses or any other purpose that cannot be interpreted as an expense of carrying on the business. But such withdrawals are not reported on any scale, comprehensive or narrow; their exact size is known to merely a small fraction of the entrepreneurs themselves; and their measurement would, in a large majority of firms, require considerable intensive analysis. In this quandary, our sole recourse is to bold assumptions; and the results are exceedingly crude. The assumptions are described in detail in the comments on sources and methods in Part Four. Here we need merely state that the estimates are subject to a larger relative error than any other group in the total, except possibly net savings of enterprises.

Finally, no sharp line should be drawn between employee compensation and entrepreneurial withdrawals, because frequently one who may appear to be an entrepreneur is really an employee. The most conspicuous case is in agriculture. The Census of Agriculture treats as independent farm opera-

tors both farmers who own their land and renters and sharecroppers. But sharecroppers, whose farming activity is under the direction of farm proprietors and who contribute little, if anything, beyond labor, are virtually employees whose compensation takes the form of a share in the crop. Similarly, a considerable proportion of renters who are not sharecroppers and who contribute neither capital nor entrepreneurial direction to the conduct of their agricultural activity must be in much the same category.⁶

Similar overlapping may be encountered in mining, retail trade, and some service and miscellaneous industries, where also entrepreneurial withdrawals include a part that should properly be considered employee compensation. On the other hand, salaries may and do include items that represent entrepreneurial withdrawals; for example, compensation of executive officers in large corporations and payments to officers in one-man corporate units. It is doubtful that whatever overlapping there is would affect materially the larger category, wages and salaries, except possibly in agriculture. But it may constitute a substantial fraction of the smaller total, entrepreneurial withdrawals, in many industries.

⁶ According to the 1930 *Census of Agriculture* there were about 776,000 sharecroppers and 1,399,000 "all other tenants, including those giving a share of the products for the use of the land or a share for part and cash for part" (IV, 145). It is impossible to say how many of these 'other' tenants are, like sharecroppers, really employees working under direction and with the capital of the landowner. But even if we classify only sharecroppers as employees, somewhat less than 40 per cent is added to the two million estimated full-time equivalents of farm wage earning labor; and on the assumption of a per capita income of sharecroppers equal to that of farm workers, about \$0.5 billion would be added to employee compensation in 1929, with a corresponding deduction from entrepreneurial withdrawals and a significant increase in the per capita income of independent farm operators.

According to the recent report by the National Resources Committee, *Consumer Incomes in the United States* (Washington, 1938), of 6,167,000 farm families living in rural areas in 1935-36, 732,000 were sharecropper. The median income per sharecropper family in the South, the only region in which sharecropper income was segregated, was \$530; independent farm operators in the South earned \$902; all farm families in the country, \$965 (see Tables 9, 10B, 18B, and 28B).

Finally, there is lack of comparability between the number of employed wage and salary earners and of entrepreneurs. Our estimates of the former are in terms of fully employed units, an attempt being made to adjust for partial employment; and the coverage of the number of employees is as complete as that of the flow of income to them. In the case of entrepreneurs we assumed, in the absence of other information, that all reported as entrepreneurs are fully employed. When, in addition, the impossibility of estimating properly the number corresponding to the flow of property income is considered, it becomes obvious that the apportionment in our estimates of the number by categories of employment or work status is too crude to merit analysis.

C PROPERTY INCOME

In estimating income payments we attempt to gauge the amount paid by enterprises to individuals in compensation for services rendered either by the individuals themselves or by their property. Accordingly, in estimating dividends and interest by industrial divisions we attempt to gauge the amount paid to individuals as individuals (not as entrepreneurs) by enterprises classified under each industrial division. The data needed for this purpose are, therefore, not total dividends and interest, but the amounts paid to and received by individuals.

With the single exception of interest on government debt, for which we have data on total payments and on receipts by corporations (so that by subtraction, we can obtain receipts by individuals, including entrepreneurs), no such data are available. Individuals' federal income tax returns cover a large proportion of dividends and interest received by all income recipients in this country; but the fraction covered varies and its magnitude cannot be determined unless the countrywide total can somehow be estimated. Besides, the data do not admit of a breakdown by industrial source. The annual compre-

hensive tabulations for corporations in *Statistics of Income* show total dividends paid and received and total interest paid, but do not separate payments to individuals from payments to enterprises.

For dividends the difficulty is solved by subtracting dividends received from dividends paid by enterprises in each industrial division. The remainder is not the amount paid to individuals by the enterprises in the division, but the amount contributed by the latter to the countrywide pool of dividend payments to individuals.⁷ Dividends are derived in this manner for all industrial divisions except two: life insurance companies and banks. For these it is impossible to ascertain net income payments to individual policyholders or depositors; it is therefore impossible to estimate what part of the dividends received from other enterprises is passed on to the ultimate consumers who eventually benefit from them. Under these circumstances, dividends received by banks and life insurance companies cannot be subtracted, and they are thus automatically included in total net dividend payments to individuals. Hence, the estimated total of dividends may differ from the amount actually received by individuals.

For interest payments further difficulties arise because while *Statistics of Income* reports total interest paid by corporations, the only long term interest receipts recorded are those on tax-exempt government securities. Since a substantial fraction of total interest payments must be short term interest paid to banks and other enterprises, it is impossible to assume that the total paid out closely approximates the total received by individuals. It is also impossible to adopt the procedure used in estimating net dividend payments.

The procedure actually followed assumes that short term interest is usually paid by corporations to other economic enterprises, but that long term interest is paid either directly to individuals or to enterprises that can be treated as associations of individuals, such as life insurance companies, savings

⁷ Gross dividends paid and dividends received are given in Part Five, Table III.

banks, and philanthropic institutions. In other words, intercorporate (exclusive of the institutions just mentioned) holdings of long term debt are assumed to be negligible; and short term interest payments are assumed to flow to enterprises which disburse them in the form of other income payments or accumulate them as savings. Hence we estimate the outstanding long term debt of all corporations (excluding associations of individuals); multiply it by an interest rate paid by a sample of corporations; from the product, gross interest payments, we subtract interest received on government securities. For public utilities alone do we have data with which we can adjust for receipts of interest on all long term obligations held. For agriculture, in which corporations and corporate debt are negligible, the method of estimating interest payments is somewhat different.⁸

These assumptions undoubtedly do some violence to the actualities, and our estimates of net interest paid to individuals may deviate from the true totals. They may be underestimates so far as they omit: (i) possible payments of interest by unincorporated firms directly to individuals; (ii) payments by other enterprises to individuals in the form of short term interest. On the other hand, they are overestimates so far as intercorporate holdings of long term debt (excluding public utilities and associations of individuals) are not considered and payments on them are assumed to enter the total paid to individuals. The item (i) omitted is likely to be rather small; and *total* short term interest paid by corporations in mining, manufacturing, construction, trade, service, and transportation and other public utilities seems to have ranged from \$950 million in 1929 to \$520 million in 1934. The net shortage in our estimates, if there is a shortage, is probably not great.

As noted, rent is treated as property income in the real estate industry. It includes both money rent received by indi-

⁸ Series on gross long term interest paid and on interest received by corporations are given in Part Five, Table III.

viduals and imputed rent of individuals residing in their own houses. The estimates are based upon gross rent and expenses chargeable as proper deductions from the latter. The difficulties involved in measuring properly both the minuend and the subtrahend further qualify the estimates of net rent.

D NET SAVINGS

Income payments by any given group of enterprises do not necessarily add up to the net value of product originating, i.e., the gross value of product minus the cost of raw materials, equipment, and services of other enterprises consumed in the production process. The difference between income payments and net value product constitutes the last category in our classification by type of income, net savings. Our information on this item, except for agriculture, government, and some public utilities, comes from corporation reports for income tax purposes, summarized annually in *Statistics of Income*. If the accounting practices of corporations conformed in all respects to the economist's definition of net value product, no difficulty would arise in estimating corporate net savings. They would be accurately represented by the reported net profit or loss, after payment of dividends. But since the prevailing accounting practices depart in several respects, especially for certain cost items, from those conforming to the concepts appropriate for purposes of economic analysis, we made several adjustments in the reported amounts of net profit or loss after payment of dividends.

i) The reported amounts include gains and losses on sales of capital assets. For reasons presented in Chapter 1, Section 2 B, such gains and losses are not considered part of national income. They should, therefore, be eliminated from total profit and loss reported by corporations. But since data for making this adjustment by industrial divisions are available only since 1929, our estimates for the earlier years for the separate industries had to be left unadjusted in this particular

respect.⁹ The items in question are not large (see Part Five, Table IV), but fluctuate cyclically. Failure to exclude them for years before 1929 probably exaggerates the cyclical fluctuations in our estimates of net savings by industries.

ii) Business enterprises commonly compute the cost of materials consumed by adding to the value of inventory at the beginning of the year (at beginning of year valuation) the value of materials purchased during the year (at cost of purchase), and then subtracting the value of the inventory at the end of the year (at end of year valuation). Since, by definition, the cost of any material consumed should be taken at its market value at the time the production of the good into which it enters is completed, this accounting method of computing costs of materials consumed would yield a correct estimate only on the improbable assumption that prices are constant through the year (or of some equally improbable combination of price rise and decline within the year). Actually, during periods of rising prices this method underestimates costs of materials consumed and correspondingly overestimates net income and net savings; and during periods of declining prices it overestimates costs of materials consumed and underestimates net income and net savings. By converting inventories at the beginning and end of the year to the same valuation level and converting the difference between them to price levels prevailing during the year, we obtain a correct estimate of the value of the part of inventory that was consumed during the year in the production process (or purchased and added to inventory). Subtracting it from the difference between inventories at the beginning and end of the year, taken at their current and hence different valuations (as they are in the accounting procedure described above), yields the approximate gain or loss on inventory holdings included in the reported net income of enterprises. By using the National Bureau's study of commodity flow and capital formation, we carried

⁹ For the earlier years we did make a rough approximation of gains and losses on sales of capital assets for all industries combined.

through this adjustment for most industrial divisions for the entire period covered by our estimates.¹⁰

iii) In calculating the cost of durable capital equipment consumed during the year, the accounting practice of corporations is to apply some apportionment rate (based on estimated life and an apportionment formula) to the value of durable equipment based on original cost of acquisition. But on the principle that costs should be taken at the current market value of materials consumed, the proper estimate is the product of the rate and the value of durable equipment based on its market or reproduction price. And while for this item the disparity between the accounting and the economic measures is not as great or as variable as that between the two measures of inventories, it is sufficient to call for adjustment.

Given the current value of durable capital equipment, as well as an index of value based on original cost, total depreciation and depletion charges based on current valuation can be computed. The difference between the latter and total depreciation and depletion charges actually reported in the various accounts based on original cost (the annual rates being the same in the calculation of the two totals) can be used as an adjustment factor to be applied to net income as reported by enterprises. These various calculations have been carried out by Dr. Fabricant, and their results used to adjust our estimates.¹¹ However, unlike the adjustments listed under (i) and (ii), which were made for the several industrial divisions, the correction for the disparity in depreciation charges between cost and reproduction bases can be carried through only for the private business system as a whole.

The three adjustments described above are the only ones applied to reported net income, after payment of dividends, to derive an approximation of corporate net savings. No ad-

¹⁰ The data underlying this adjustment are presented in Part Five, Table VII. The problem is discussed in detail in *Studies in Income and Wealth* (National Bureau of Economic Research, 1937), Vol. One, Part Four.

¹¹ See *Capital Consumption and Adjustment* (National Bureau of Economic Research, 1938), especially Tables 29 and 31.

justment of reported net income is made for the bad debts, taxes, and philanthropic contributions that have already been deducted. These items are proper deductions in estimating net savings, but as explained in Chapter 9, their positive counterparts are not fully recorded as additions to income elsewhere in our estimates. A more serious qualification of corporate net savings is that they may be subject to a downward bias especially in years of prosperity. Reporting for income tax purposes tends to minimize gains; and it is not safe to assume that the vigilance of income tax authorities and the dictates of conscience fully offset the effects of a desire to save on tax payments.¹² At any rate, comparisons of reports to the Bureau of Internal Revenue and reports published by the same corporations suggest that net income reported to the former is smaller.¹³ While this is no positive proof of a downward bias in the basic data in *Statistics of Income*, the possibility should be considered in interpreting our estimates, although little can be done in the way of testing or adjusting them.

So far our discussion has been largely in terms of net income reported by corporations, and of the adjustments needed to arrive at a proper estimate of corporate net savings. To obtain

¹² The tabulations in *Statistics of Income* are from unaudited returns, and any upward revisions of net income figures that may result from auditing are not available to allow revision of the estimates. The amount of depreciation alone that was disallowed in each fiscal year ending June 30, 1934-38 was approximately \$250 million. Correspondingly, there was a revision upward of about the same amount in taxable net income. It is probable, though no definite evidence is available, that such disallowances were considerably smaller before 1934. There is no information concerning other expense items that may have been lowered by audits or income items that may have been raised. cursory examination of published corporate reports, including those to the Securities and Exchange Commission, in which statements are made concerning additional income taxes assessed upon audit of tax returns, suggests that for years prior to 1934 no serious revisions would be made even were audited figures available.

¹³ See 'Income Forecasting by the Use of Statistics of Income Data' by J. F. Ebersole, S. S. Burr, and G. M. Peterson, *Review of Economic Statistics*, Nov. 1929.

net savings of unincorporated firms we subtract entrepreneurial withdrawals from the total net income of entrepreneurs. But the latter is measured, in most industries, on the basis of certain items in corporation accounts, including net profit and loss. Hence whatever adjustments are applied to the net income reported by corporations are, in most industries, applied also to net income and net savings of unincorporated firms. In agriculture alone is the net income of entrepreneurs obtained directly by subtracting current expenses from current gross income.

The item 'net savings by governments' is called for by our decision to evaluate governmental services on the basis used in evaluating the services of production factors in all other branches of the economic system, viz., market value. This market value of governmental services is gauged by current payments by the community—taxes, fees, etc. But like all other economic agencies, governments can expend on the production factors used in turning out the current product an amount larger or smaller than they take in, thus realizing a net saving or sustaining a net dissaving. And like other economic agencies, they can borrow money, either to cover their net dissaving or to invest in additions to their assets.

Since it is difficult to estimate net governmental savings directly, we adopted a somewhat circuitous procedure. We estimated net additions to governmental assets and to governmental debts. We then derived positive net savings as the excess of the former over the latter, negative net savings as the excess of the latter over the former.¹⁴ These estimates are crude, owing to the sparsity of relevant data; and numerous questions arise about the items that may properly be treated as governmental assets or liabilities (consider debts owed by foreign governments). Yet it seemed to us that allowing for these net savings yielded a total of net income from govern-

¹⁴ Net savings in other industries could be estimated similarly, were it possible to calculate net additions to assets exclusive of changes in the reported figures caused by changing valuation.

mental activity more nearly comparable with net income for other branches of the economic system than a total excluding this net savings item would have been.

In Part Four we give fully both the unadjusted and the adjusted estimates of net savings and in Part Five the basis of the adjustments in detail, whenever they are not already available elsewhere. The definition and proper method of estimating net savings (including the adjustments made to reported net income after payment of dividends) is perhaps the most controversial issue in the whole field of national income and the estimates naturally reflect all the difficulties and controversial points in the definition of net value product. Of course our estimates reflect also our judgments concerning these moot points and it seemed advisable to provide the detail that would make possible the estimation of net savings and net income according to other concepts. Furthermore, the computations of net profit or loss reported in accordance with accounting practice, diverging as they do from business net savings as defined here, are of interest and value in their own right: they show what the business community conceives net profit or loss to be and the estimates it uses in arriving at decisions concerning the present and future.

3 Territorial Coverage and Year

A THE AREA

As indicated in Chapter 3, Section 3 B, the area to which our estimates of national income apply is largely the continental United States; total service income is made up of payments to residents of that area alone; property income covers payments to residents of the same area and also to residents of some territorial possessions; corporate net savings are for corporations located within the continental United States and Alaska, Hawaii, and Puerto Rico.

The classifications by industrial source and by type of income, as described above, appear to be all inclusive, in the

sense that all industrial divisions combined and all types of income combined account for total national income. But this inclusiveness is real only for the classification by type of income, and even there only for the broader categories; for the simple reason that the controlling totals are available for these broad type of income categories alone. Therefore, the apportionment of the national total among these larger groups (service income, comprising employee compensation and entrepreneurial withdrawals, property income, and net savings of enterprises) is for the continental United States, in that each category actually covers this area or some close approximation to it.

As said above, the miscellaneous division has no positive meaning; it represents merely the part of the national income total that cannot be properly allocated by industrial source. But it contains the adjustments yielding the desired territorial coverage of total national income. Wages and salaries, entrepreneurial withdrawals, dividends, and interest, as they are estimated for all the industrial divisions except the miscellaneous, represent payments by enterprises domiciled in the United States to any and all individual recipients, whether they are residents of the United States or of another country. In the miscellaneous division alone, by estimating the service income of the gainfully occupied and employed residing within the continental United States and not accounted for in the other industrial divisions, do we make the proper adjustment; the resulting total of service income covers residents of the continental United States alone. Similarly, it is in the miscellaneous division that we take account of the net balance of the international flow of property income payments during the year; by adding it to dividends and interest paid by domestic corporations in all industrial divisions (including domestic enterprises comprised under miscellaneous), we obtain total property income paid to the residents of the balance-of-payments area (a total close to that for residents of the continental United States).

It must therefore be remembered in interpreting our estimates that the allocation by industrial source applies not to total income paid to residents of the United States but to all income payments originating in enterprises located in the United States. And since this is true of the industrial allocation, it is true also of the industrial type of income cells. Thus wages and salaries originating in manufacturing, water transportation, or government may include payments to individuals residing outside the United States. And, on the other hand, earnings of residents in the United States employed by manufacturing, water transportation, or governmental enterprises of foreign countries may be included in the wage and salary totals in the miscellaneous industrial division.

B THE YEAR

We attempted throughout to adhere to the calendar year basis. But in many cases crude adjustments had to be made to attain that end; and in some no adjustment could be made, so that minor departures from the calendar year basis remain in our estimates.

For employee compensation the calendar year basis of reporting prevails for most industries. There are, however, notable exceptions. For governments, which report on a fiscal year basis, the calendar year figures we show are averages of fiscal years. A similarly crude procedure had to be followed for estimates for education, since the basic data are reported for school years. But since in both government and education year to year changes are either minor or regular, our procedures do not damp pronounced cyclical fluctuations, as they might in some other industries.

Most of the basic information on dividends, interest, and business savings, derived from corporate data primarily, is for calendar years. However, a fraction of corporations do report for fiscal years; e.g., for 1929, about 11 per cent of all corporations did so, accounting for 10.4 per cent of the net income of all corporations reporting net income and 14.4 per

cent of the net deficit of all corporations reporting no net income. To the extent suggested by these figures, our estimates of property income and corporate savings depart from the calendar year basis for all industries for which we utilize *Statistics of Income* data (i.e., all except agriculture, transportation and other public utilities, and government).

To the extent that entrepreneurial withdrawals are based upon wage and salary data, the estimates tend to follow the calendar year basis; and to the extent that estimates of net income and business savings of unincorporated firms are based on corporate data, they reflect the departure from the calendar year basis indicated above.

The departures from the calendar year basis that characterize the underlying data and survive in our estimates are small, and certainly minor compared with the other limitations that result from lack of specific data for some industrial divisions or types of income.