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CHAPTER 5

Distribution by Industrial Source

1 *Annual Distribution of National Income*

How THE stock of data conditioned our industrial classification is recounted at length in Chapter 8. Here we may say in general that it is not feasible to distribute national income or its components precisely among the productive functions that form the basis of our industrial classification; that, for savings of enterprises and property income payments particularly, the shares attributed to a given industry may contain substantial amounts of income from productive factors engaged in other industries; and that even compensation of employees and entrepreneurs can be attributed precisely to only a few industrial divisions.

These qualifications lessen but do not destroy the essential usefulness of the distribution by industrial source. The resulting divisions of the national product reflect differences in the economic conditions of the people who derive most of their livelihood from them; represent segments susceptible in varying degree to the benefits of economic progress and to the disturbing effects of business cycles; and in divers ways reveal the capacity of the nation to sustain itself and its role in the concert of nations.

As has been indicated, net income originating may be interpreted as a measure of a given industry's contribution to or draft upon the total net product of the nation. We might consider income from agriculture and the percentage it con-

stitutes of national income as measuring the amount and share that productive factors—labor, capital, and enterprise engaged in agriculture—contributed to the total value of that hypothetical heap of goods we call national income; or as measuring how much they succeeded in wresting from the common pot in return for their services, i.e., the total price they forced society to pay. The two interpretations are equally cogent if we define the value of any good, of any positive economic contribution, as the price it fetches on the market.

Under either interpretation income originating in the several industries measures results of interdependent processes; and this interdependence implies the contingency of one value upon others. During a given phase of economic and social development, a phase that may last several decades, some relations among activities representing various industrial functions tend to persist; for example, between functions of government and those of the private economic system or between amounts spent upon construction and capital formation and upon immediate consumption. Consequently, the percentage distribution of national income by industrial source tends to vary within narrow limits, especially when it is of averages for broad industrial groups for a long period.[1] If a large or small amount of income originates in an industry, a correspondingly large or small amount originates in other industries. In this sense a given industry that contributes to or draws from national income a certain net value product does so only because and so long as the other industries contribute or draw corresponding net value products.

For this reason the easiest and most promising way to analyze the distribution by industrial source is to emphasize that in percentage terms. Fluctuations in the totals have already been considered in Chapter 4. Here we try to answer two questions: What was the industrial composition of national income and of various types of income during the period as a whole? What

[1] This is especially true for a large and relatively self-contained national economy, like that of the United States.

TABLE 12

National Income * and its Percentage Distribution by Major Industrial Divisions, 1919–1938

	AGR. (1)	MINING (2)	MFG. (3)	CONSTR. (4)	TRANSP. AND OTHER PUB. UTIL. (5)	TRADE (6)	FINANCE (7)	SERVICE (8)	GOV. (9)	MISC. (10)	TOTAL (11)
					TOTALS (billions of dollars)						
1919	10.9	1.8	16.2	2.0	6.0	10.2	6.8	6.1	3.8	2.2	65.9
1920	9.1	2.3	19.8	2.6	7.4	11.5	7.4	6.8	7.0	2.4	76.4
1921	5.5	1.7	12.6	2.0	6.3	9.5	7.8	6.7	6.2	2.0	60.3
1922	5.9	1.3	13.1	2.3	6.2	8.6	8.3	7.4	6.1	2.3	61.5
1923	6.7	2.0	16.8	3.3	7.1	10.1	8.8	8.3	7.0	2.7	72.9
1924	7.1	1.7	15.6	3.7	7.1	9.8	9.6	8.6	7.3	2.8	73.4
1925	7.9	1.8	16.8	4.0	7.6	10.2	9.8	9.3	7.4	3.1	77.8
1926	7.5	2.2	18.1	4.3	7.9	11.5	9.8	10.1	8.1	3.2	82.8
1927	7.5	1.9	17.2	4.1	7.8	10.6	10.3	10.3	8.5	3.3	81.4
1928	7.3	1.6	17.9	4.0	8.0	11.0	10.9	10.7	8.3	3.7	83.4
1929	7.7	1.8	19.8	4.1	8.5	11.4	10.9	11.3	8.9	3.5	87.8
1930	5.8	1.4	16.3	3.5	7.7	11.0	9.7	10.4	8.9	2.9	77.6
1931	4.0	0.83	11.0	2.2	6.5	9.0	7.9	8.8	7.4	2.6	60.3
1932	2.8	0.48	6.3	1.1	4.9	6.3	5.9	6.5	6.2	2.1	42.6
1933	3.6	0.48	6.6	0.71	4.7	5.2	5.2	5.8	7.5	2.0	41.8
1934	4.7	0.83	9.0	0.83	4.8	7.0	5.1	6.8	8.2	2.3	49.5
1935	5.4	0.92	11.4	1.0	5.2	7.4	5.7	7.4	7.5	2.6	54.4
1936	6.1	1.2	14.2	1.6	5.8	8.5	6.0	8.3	8.2	2.9	62.7
1937	6.3	1.4	15.9	1.8	6.1	9.0	6.6	9.1	10.7	3.2	70.1
1938	5.5	1.1	12.6	1.7	5.5	9.3	6.5	8.9	10.8	3.0	64.9

TABLE 12 (concl.)

	AGR. (1)	MINING (2)	MFG. (3)	CONSTR. (4)	TRANSP. AND OTHER PUB. UTIL. (5)	TRADE (6)	FINANCE (7)	SERVICE (8)	GOV. (9)	MISC. (10)	TOTAL (11)
					PERCENTAGE DISTRIBUTION						
1919	16.5	2.7	24.6	3.0	9.0	15.5	10.3	9.3	5.7	3.4	100.0
1920	11.9	3.0	25.9	3.5	9.7	15.0	9.7	9.0	9.2	3.1	100.0
1921	9.2	2.8	20.9	3.3	10.5	15.8	12.9	11.1	10.3	3.3	100.0
1922	9.5	2.2	21.3	3.8	10.1	14.0	13.4	12.0	10.0	3.7	100.0
1923	9.2	2.8	23.0	4.6	9.7	13.9	12.1	11.3	9.7	3.7	100.0
1924	9.7	2.3	21.3	5.1	9.7	13.4	13.1	11.8	9.9	3.8	100.0
1925	10.2	2.4	21.6	5.1	9.8	13.1	12.5	12.0	9.5	3.9	100.0
1926	9.1	2.6	21.9	5.2	9.5	13.9	11.9	12.2	9.8	3.9	100.0
1927	9.2	2.3	21.1	5.1	9.6	13.0	12.7	12.7	10.4	4.0	100.0
1928	8.8	2.0	21.5	4.8	9.6	13.2	13.0	12.8	9.9	4.4	100.0
1929	8.8	2.1	22.5	4.6	9.7	13.0	12.4	12.8	10.1	4.0	100.0
1930	7.5	1.8	20.9	4.5	10.0	14.1	12.6	13.4	11.5	3.7	100.0
1931	6.7	1.4	18.3	3.7	10.7	15.0	13.1	14.6	12.3	4.3	100.0
1932	6.6	1.1	14.7	2.6	11.5	14.8	13.9	15.3	14.5	5.0	100.0
1933	8.5	1.1	15.8	1.7	11.3	12.5	12.4	13.9	17.9	4.8	100.0
1934	9.6	1.7	18.2	1.7	9.7	14.2	10.2	13.6	16.5	4.6	100.0
1935	9.9	1.7	20.9	1.9	9.5	13.6	10.4	13.5	13.8	4.7	100.0
1936	9.7	1.9	22.6	2.5	9.3	13.5	9.5	13.2	13.1	4.7	100.0
1937	8.9	2.0	22.7	2.6	8.8	12.8	9.5	13.0	15.3	4.5	100.0
1938	8.4	1.7	19.4	2.6	8.5	14.3	10.1	13.7	16.7	4.6	100.0

* Unadjusted for the disparity between depreciation and depletion charges at cost and reproduction prices, and gains and losses from sales of capital assets before 1929. Social Security contributions of employers are omitted.

changes occurred in the relative weight of the different industries in national income and in the countrywide totals of various types of income?

Table 12 answers both questions in a preliminary fashion. But for close analysis the distribution shown is unsatisfactory in several respects. First, only national income is apportioned; changes in it cannot be clearly understood until they are seen as changes in the industrial apportionment of the constituent types. Second, the industrial classification omits the minor industrial divisions. Third, and most important, it follows institutional lines which, while interesting in themselves, should perhaps be recast in order to satisfy more directly analytical purposes. Such recasting can, of course, be done only by combining the minor industrial divisions into broader analytical categories, since it is impossible to subdivide them further.

2 *Average for the Period*

Table 13 presents percentage distributions of national income and of its components by major and minor industrial divisions, based on arithmetic means of the totals for the two decades, 1919–38. Serving to introduce the countrywide totals of national income and the components whose industrial distribution can be studied, it reveals the composition of some of the major industrial groups; although omitting several industry type of income cells, it suggests the multitude of separate elements of which national income and other countrywide income totals are composed. Chiefly for reference, enabling the reader to gauge the relative importance of the various cells in the industrial type of income structure, it calls for no extended comment.

We should note, however, the striking differences in the shares of one and the same industry in the countrywide totals of various types of income; for example, while agriculture accounts for about 10 per cent of national income, it accounts for less than 3 per cent of wages and salaries, over 40 per cent of entrepreneurial income, and for slightly over 3 per cent of

TABLE 13

National Income and its Components, Percentage Distribution by Industrial Source, Based on Average Values for 1919–1938

	NATIONAL INCOME	AGGREGATE PAYMENTS Incl. entrep. savings	AGGREGATE PAYMENTS Excl. entrep. savings	WAGES AND SALARIES	ENTREPRENEURIAL Withdr.	ENTREPRENEURIAL Net income	SERVICE INCOME Incl. entrep. savings	SERVICE INCOME Excl. entrep. savings	DIVIDENDS	INTEREST	PROPERTY INCOME INCL. RENT
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
I Agriculture	9.6	9.6	10.0	2.6	45.2	41.9	11.1	11.6	0.43	8.6	3.3
II Mining	2.2	2.5	2.5	3.3	0.20	0.19	2.6	2.6	5.2	0.84	2.0
1 Anthracite coal	0.33	0.35	0.36	0.54	... [1]	... [1]	0.40	0.41	0.17	0.21	0.14
2 Bituminous coal	0.96	1.0	1.0	1.6	0.04	0.04	1.2	1.2	0.49	0.23	0.24
3 Metal	0.30	0.36	0.36	0.39	0.01	0.01	0.30	0.30	1.9	0.11	0.65
4 Oil & gas	0.35	0.45	0.46	0.52	0.14	0.13	0.42	0.43	1.6	0.17	0.58
5 Other	0.21	0.26	0.26	0.30	0.02	0.02	0.23	0.23	1.1	0.12	0.39
III Manufacturing [2]	21.0	21.0	21.1	28.6	2.9	3.2	22.3	22.4	44.0	3.4	15.5
1 Food & tobacco [2]	2.6	2.5	2.6	3.1	0.98	0.96	2.5	2.5	7.3	0.74	2.7
2 Textile & leather [2]	3.9	3.9	3.9	5.7	0.76	0.84	4.5	4.5	4.4	0.12	1.5
3 Constr. mat. & furn. [2]	2.4	2.5	2.5	3.6	0.33	0.38	2.8	2.8	3.5	0.28	1.2
4 Paper [2]	0.61	0.60	0.60	0.82	0.03	0.04	0.63	0.63	1.2	0.24	0.47
5 Printing [2]	1.6	1.6	1.6	2.3	0.34	0.40	1.8	1.8	1.9	0.17	0.69
6 Metal [2]	7.2	7.1	7.1	9.8	0.22	0.30	7.5	7.5	15.2	0.97	5.3
7 Chemical [2]	1.5	1.6	1.6	1.7	0.12	0.13	1.3	1.3	8.2	0.55	2.9
8 Misc. & rubber [2]	1.2	1.2	1.2	1.7	0.12	0.13	1.3	1.3	2.3	0.30	0.87
IV Construction	3.8	3.8	3.8	5.3	2.9	3.0	4.7	4.6	0.90	0.16	0.35

V	Transp. & other pub. util.	9.8	9.6	9.6	11.1	0.05	0.05	8.6	8.6	21.1	19.2	14.0
1	Elec. light & power	1.4	1.3	1.3	0.82	0.02	0.01	0.62	0.63	7.2	5.0	4.2
2	Mfd. gas	0.25	0.27	0.27	0.22			0.17	0.17	1.3	0.75	0.69
3	Steam rr., Pull., & exp.	5.4	5.3	5.3	6.7			5.2	5.2	5.9	10.2	5.7
4	Street rwy.	0.74	0.75	0.75	0.88			0.66	0.67	0.88	2.2	1.1
5	Water transp.	0.73	0.75	0.75	1.1	0.03	0.04	0.86	0.86	0.62	0.22	0.28
6	Pipe lines	0.20	0.19	0.19	0.10			0.07	0.07	2.0	0.03	0.68
7	Telephone	0.94	0.92	0.92	1.1			0.83	0.84	3.0	0.78	1.3
8	Telegraph	0.16	0.16	0.16	0.22			0.17	0.17	0.21	0.05	0.08
VI	Trade	13.5	13.6	13.4	15.5	18.4	19.4	16.0	15.7	10.3	0.86	3.7
VII	Finance	11.9	12.2	12.3	5.1	1.8	1.7	4.2	4.3	10.9	32.4	46.0
1	Banking	1.4	1.3	1.3	1.4			1.1	1.1	7.4		2.4
2	Insurance	1.6	1.7	1.7	2.2	1.8	1.7	2.0	2.0	0.93	—0.49	0.12
3	Real estate	8.9	9.2	9.3	1.5			1.1	1.2	2.5	32.9	43.5
VIII	Service	12.6	12.8	12.4	12.8	25.0	26.8	15.5	15.1	1.9	1.4	1.1
1	Professional				2.5		17.2	5.7				
2	Personal				3.7		6.6	4.3				
3	Domestic				3.8			2.8				
4	Misc.				2.8		3.0	2.7				
IX	Government	11.6	10.6	10.7	10.9			10.6	10.7		29.0	10.8
1	Federal		5.2	5.2	3.6			4.9	4.9		17.6	6.5
2	State		0.55	0.56	0.73			0.64	0.64		0.55	0.20
3	County		0.58	0.58	0.72			0.55	0.55		1.9	0.70
4	City incl. pub. educ.		4.3	4.3	5.8			4.5	4.6		8.9	3.3
X	Miscellaneous	4.0	4.3	4.2	4.8	3.7	3.8	4.5	4.5	5.2	4.1	3.2
	Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 13 (concl.)

	NATIONAL INCOME (1)	AGGREGATE PAYMENTS Incl. entrep. savings (2)	AGGREGATE PAYMENTS Excl. entrep. savings (3)	WAGES AND SALARIES (4)	ENTREPRENEURIAL Withdr. (5)	ENTREPRENEURIAL Net income (6)	SERVICE INCOME Incl. entrep. savings (7)	SERVICE INCOME Excl. entrep. savings (8)	DIVIDENDS (9)	INTEREST (10)	PROPERTY INCOME INCL. RENT (11)
CLASSIFICATION A BY CHARACTER OF PRODUCTIVE FUNCTION											
1 Commodity producing	38.2	38.5	39.0	40.8	51.1	48.2	41.4	42.0	59.0	18.7	26.1
2 Commodity transp. & distr.	19.8	19.8	19.6	23.4	18.4	19.5	22.1	21.9	18.9	11.3	10.3
3 Services	41.9	41.7	41.4	35.8	30.5	32.3	36.5	36.1	22.1	70.0	63.6
CLASSIFICATION B BY DURABILITY OF PRODUCT											
1 Non-durable	43.2	43.9	44.0	32.6	72.6	71.2	40.2	40.3	33.9	48.2	59.3
2 Durable	13.9	14.0	14.0	19.3	3.4	3.7	15.4	15.5	22.5	1.6	7.9
3 Mixed	42.9	42.1	42.0	48.0	24.0	25.1	44.3	44.2	43.6	50.2	32.8
4 Non-durable as % of durable & non-durable	75.7	75.8	75.9	62.8	95.5	95.1	72.3	72.2	60.1	96.8	88.2
CLASSIFICATION C BY TYPE OF BUSINESS ORGANIZATION											
1 With large proportion of individual firms	52.4	53.3	53.1	42.5	95.1	94.9	52.9	52.6	21.3	48.1	55.2
2 Private corp.	23.2	23.5	23.6	31.9	3.1	3.4	24.9	25.0	49.2	4.2	17.5
3 Semi-public corp.	12.8	12.6	12.6	14.7	1.8	1.8	11.6	11.7	29.5	18.7	16.5
4 Public	11.6	10.6	10.7	10.9			10.6	10.7		29.0	10.8

[1] Less than 0.005 per cent.

[2] Including salaries of employees at central administrative offices.

property income. The share of the electric light and power industry in property income is about seven times its share in service income. Indeed the net income of few industries has a composition similar to that of national income. This diversity betokens the great diversity among industries in the character of their business organization, which determines the relative importance of entrepreneurial income; in the ratio of direct labor to capital, which largely determines the importance of wages and salaries compared to property income; in the relative availability of various types of long term credit, which determines the relative importance of interest and dividends, etc. These differences in the composition of income by type among industries are measured directly and treated in more detail in Chapter 6, but they necessarily appear here in the distribution of national income components by industrial source.

The three new classifications into which we combined the major and minor industrial divisions, based on significant characteristics, are useful in economic analysis; their composition is revealed in the accompanying tabular exhibit.

Classification A is based on the nature of the productive function, not the physical characteristics of the industry's product. A portion of governmental and banking services is embodied in the commodity whose production governmental administration or the credit activity of banks has helped promote; and the value of the commodity certainly embodies the cost of governmental or banking activities. But the productive function of government or banks is not part of the physical process of extraction or fabrication, and it is the substantive nature of the production process that is the basis of the distinction.

Viewed in this light, the classification is obviously rough. Agricultural and manufacturing enterprises, and the corresponding industries as a whole, engage in transportation, distribution, and services that are only indirectly related to the physical process of production, as well as in the extraction and

Composition of Groups in the Industrial Classifications by Character of Productive Function, Durability of Product, and Type of Business Organization

A BY CHARACTER OF PRODUCTIVE FUNCTION

Commodity Producing	*Commodity Transporting and Distributing*	*Services*
Agriculture (I)	Steam rr., Pullman, & express (V-3)	Street rwy. (V-4)
Mining (II)	Water transp. (V-5)	Telephone (V-7)
Manufacturing (III)	Pipe lines (V-6)	Telegraph (V-8)
Construction (IV)	Trade (VI)	Finance (VII)
Elec. lt. & power (V-1)		Service (VIII)
Mfd. gas (V-2)		Government (IX)
		Misc. (X)

B BY DURABILITY OF PRODUCT

Non-durable	*Durable*	*Mixed*
Agriculture (I)	Metal mining (II-3)	Bituminous coal (II-2)
Anthracite coal (II-1)	Other mining (II-5)	Misc. & rubber mfg. (III-8)
Oil & gas (II-4)	Construction materials & furniture (III-3)	Elec. lt. & power (V-1)
Food & tobacco (III-1)	Metal mfg. (III-6)	Steam rr., Pullman, & express (V-3)
Textile & leather (III-2)	Construction (IV)	Water transp. (V-5)
Paper (III-4)		Telephone (V-7)
Printing (III-5)		Telegraph (V-8)
Chemical (III-7)		Trade (VI)
Mfd. gas (V-2)		Banking (VII-1)
Street rwy. (V-4)		Insurance (VII-2)
Pipe lines (V-6)		Government (IX)
Real estate (VII-3)		Misc. (X)
Service (VIII)		

C BY TYPE OF BUSINESS ORGANIZATION

With Large Proportion of Individual Firms	*Private Corporations*	*Semi-public Corporations*	*Public*
Agriculture (I)	Mining (II)	Transp. & other pub. util. (V)	Government (IX)
Construction (IV)	Mfg. (III)	Banking (VII-1)	
Trade (VI)		Insurance (VII-2)	
Real estate (VII-3)			
Service (VIII)			
Misc. (X)			

The roman and arabic numerals in parentheses designate the line number of the industrial division in Table 13.

fabrication of commodities. On the other hand, governmental agencies and some public utilities carry on some commodity production, e.g., by engaging in construction on force account. Yet the distinction is real in that in agriculture and manufacturing, transportation, distribution, and service are subsidiary to extraction and fabrication; likewise, in telephone companies and governmental agencies commodity production is secondary and auxiliary.[2]

It is the physical characteristics of the final product, including both the finished product and the materials that eventually enter it, that underlie Classification B. The criterion of durability is whether the product, in its utilization by the ultimate user, ordinarily lasts longer than three years; and by ultimate use we mean not only consumption by ultimate consumers but also the utilization by enterprises of such durable capital as buildings and machinery.[3]

Unfortunately, the industrial division followed in our estimates is not fine enough for a clear-cut classification by durability; indeed, no purely *industrial* (rather than *product*) classification could be. We could not separate perishable product from semidurable product industries; and more important, we had to classify industries by the characteristics of the preponderant part of their product, without further division of the latter. Even on this crude basis, we could classify only a majority of industries. A substantial number in which the proportion of durable or of non-durable products was too large to be ignored had to be placed in a mixed category.

Classification C, by type of prevailing organizational unit, distinguishes industries in which a substantial proportion of

[2] The inclusion of electric light and power and manufactured gas under commodity production may be questioned. Yet it is perhaps more questionable to include them under services. They are admittedly borderline industries. The Pullman Company should properly be excluded from commodity production and distribution and put under services. But the items involved are so minor that it was not considered worth while to make the necessary calculations.

[3] For a more detailed discussion of this classification see *National Income and Capital Formation, 1919–1935,* pp. 35–7.

the field is still in the hands of entrepreneurs from others in which large private corporations, corporations of more public character and hence subject to governmental regulation, and governmental agencies predominate to the virtual exclusion of individual proprietorship. This also is a rough classification. We disregarded the formally corporate character of numerous one-man corporations in such fields as trade, construction, or service, and we may have put too much weight on the fact that in such fields as steam railroading or banking, corporations are subject to more public control than in mining or manufacturing; yet these two groups differ significantly in flexibility and freedom in price, production, and cost policies.

Commodity producing industries account for about two-fifths of national income, aggregate payments to individuals, and wages and salaries, a somewhat larger share of entrepreneurial withdrawals, and a smaller share of property income. Commodity transporting and distributing industries account for roughly one-fifth of national income and aggregate payments, a larger share of wages and salaries, a smaller share of entrepreneurial withdrawals, and half as large a share of property income. Service industries account for the remaining two-fifths of national income and aggregate payments, a larger share of property income, and smaller shares of entrepreneurial withdrawals and wages and salaries.

The significant aspect of Classification A is the substantial proportion of total net product accounted for by activities that are not production, transportation, or distribution of commodities. It is perhaps exaggerated in Table 13, since commodity producing activities in the service industries may be greater than purely service activities in the other industries. Yet the exaggeration cannot be so large as to invalidate the inference that at least one-third of the net national product is accounted for by services that do not contribute directly to the increase in commodity stocks or to their availability to ultimate users. Such a high proportion is undoubtedly possible only in communities of advanced economic development, since low

productivity would compel greater concentration on the production and distribution of objects of prime necessity, the preponderant part of which is in the form of commodities.

In Classification B the share of industries that produce durable commodities mainly is small, amounting to 14 per cent of national income and of aggregate payments, a somewhat larger percentage of wages and salaries, and a somewhat smaller percentage of property income. The smallness of the share that, by the nature of the goods included, is a source of additions to the stock at the disposal of consumers and producers is partly determined by the definition: we assume that tangible goods alone can be durable, and classify as non-durable or mixed some products of service industries for which a claim of longevity may be made (e.g., education). And, of course, there may be a substantial share of durable products in the mixed category. Yet the proportion of durable goods, whether consumer or producer, in national income probably does not exceed one-fifth; the great majority of goods currently produced are obviously for fairly immediate consumption.[4]

The distribution in Classification C may seem at first to contradict the generally prevalent notion of the predominance of the corporate and non-personal form of organization in our economy: the share of industries in which entrepreneurs are numerous is slightly over one-half of national income, of aggregate payments, and of property income (including rent). But the contradiction is only apparent. Predominance need not be judged by the apportionment of the *net* product of the economy. Of gross volume of activity the share of industries in which corporations and non-personal forms of organization predominate is possibly larger than in Table 13; and the same is likely to be true of the share of material capital. Moreover,

[4] For reasons already indicated, no really satisfactory classification by durability can be derived by using the industry as the unit. Classification B is, therefore, omitted in the analysis of changes in the industrial composition over the period. We return to it in Chapter 7, where we analyze the distribution of national income by type of final product.

corporations and other non-personal organizations may exercise an effect on the course of economic affairs quite out of proportion to their share in net or gross income, or in the total of all physical resources. Nevertheless, for the understanding of changes in the national product it is worth noting that industries with large groups of entrepreneurs still play an important role. Also, a substantial share of the ultimate product is contributed by industries that are either completely public or under social control sufficient to affect greatly the freedom with which they can adapt their activity to market demand, and thus to the changing needs or wishes of ultimate users. The combined share of these two groups (public and semi-public corporations) average about one-fourth of national income.

Other classifications could probably be devised, despite the difficulty of fitting the unwieldy units of our industrial divisions into them neatly.[5] Broader groups could be based on differences in the spatial mobility of the product; on variations in the extent to which industries depend upon foreign countries, either as markets or as sources of supplies; on differences in the cost structure of industries, i.e., the ratio of capital to direct labor, etc.; or on differences in the pattern of secular or cyclical fluctuations. But some of these groupings are not relevant, in that they would not reveal any significant tendencies in the industrial distribution of the national product; while others will emerge in the analysis of temporal changes below. Classifications A, B, and C promise to add to the conclusions concerning the distribution of national income and of its components by industrial source. Even of these three, that by durability has to be abandoned in some of the analysis in this chapter; and the crudities in the other two make it necessary often to go behind the broad categories in order to check the conclusions suggested in terms of the minor and major industrial divisions of which they are composed.

[5] One that unfortunately could not be carried through satisfactorily is that between consumer and producer goods industries.

3 *Changes over the Period*

The percentage distribution of national income tends to reflect the structure of the nation's productive system and is not likely to show the pronounced and violent fluctuations that often characterize the totals. Yet even during a period as short as that since the first World War, the distribution by industrial source may have changed radically, especially as notable structural shifts took place, reflecting the post-War readjustment and new developments that led to the severe depression of 1929–32 and its aftermath. We therefore consider changes in the industrial distribution of income, first during the period as a whole, as possible indicators of secular movements in the industrial structure of the economy, then the shorter term cyclical fluctuations. To some degree we can make up for the shortness of the period by utilizing King's estimates back to 1909.

The basic series for establishing changes over the period in the distribution by industrial source are the annual percentage shares of major and minor industrial divisions in the country-wide totals, shown fully in the Statistical Appendix to Part Two. From these annual percentages we derive averages for longer periods in which the transient effects of business cycles are moderated and that should, therefore, reveal the longer term movements in the percentage distribution. After experimenting with various periods, we chose the decades 1919–28 and 1929–38, and, as a check on the decade measures for possible effects of the severe contraction of 1929–32, the quinquennia 1919–23 and 1934–38. By computing the arithmetic means [6]

[6] It would have been more proper to take geometric means. But the percentages do not show extreme variations and the minor improvement that would be effected by taking geometric means did not warrant the additional labor.

It would also have been possible to follow the procedure adopted in Table 13 and compute percentages based on arithmetic means of absolute values for decades or quinquennia. This is tantamount to computing arithmetic means of percentages, each percentage weighted by the base to which it is computed. But there did not seem to be sufficient reason why, in establishing average percentage shares for the study of changes in percentage distributions over the period, a percentage should be given greater weight because the absolute total from which it is derived is larger. Accordingly, in all subsequent calculations

of percentages for them we obtained two measures of change in each percentage distribution—one, the difference between the arithmetic means for the two decades, the other, the difference between the arithmetic means for the two quinquennia.

These changes in average shares from the first decade to the second and from the first quinquennium to the last are usually in the same direction for one industry in one income total; but they vary in magnitude and direction among industries within the various totals.

To summarize the evidence most effectively and bring out clearly the most telling conclusions, we established the following broad categories of change: (a) a minor rise or decline over the period—both measures rise or decline, but neither more than one-tenth of the average share for 1919–38 (as given in Table 13); (b) a significant rise or decline—both measures rise or decline, one or both more than one-tenth of the average percentage for the entire period, but not more than four-tenths; (c) a large rise or decline—same as (b), but the rise or decline exceeds four-tenths of the average percentage for the period; (d) no definite movement—the two measures of change have opposite signs. In Tables 14, 15, and 16 changes of type (a) are designated by o with a sign attached to differentiate a minor rise from a minor decline; (b) is denoted by. + if a rise and by — if a decline; (c) by + * if a rise and by — * if a decline; and (d) by an unadorned o.

Columns 1–4 of Table 14 illustrate the classification of direction and magnitude of change. The first column gives the percentage for the entire period accounted for by various industries in national income (from Table 13); the second column, the change from the arithmetic mean of percentages for 1919–28 to that for 1929–38; and the third, the change from

relating to changes in percentage distributions over the period we used arithmetic means of percentages rather than percentages of arithmetic means of absolute values. However, because changes in both percentages and/or their bases were fairly moderate within quinquennia or decades, the alternative procedure would reveal shifts in distribution similar to those shown by our present procedure.

the arithmetic mean of percentages for 1919–23 to that for 1934–38. The symbols in column 4 are derived by applying to columns 1–3 the rules formulated in the preceding paragraph; e.g., the entry for agriculture is — because the measures of change in columns 2 and 3 are both negative and one or both exceed one-tenth, but not four-tenths, of the percentage in column 1. The other entries in column 4 are similarly derived from columns 1, 2, and 3. Columns 5 and 6 contain the final entries—changes in the industrial distribution of the two totals of aggregate payments—derived by a procedure strictly analogous to that followed for the distribution of national income.

Three considerations must be borne in mind in interpreting the conclusions suggested by this and the following tables. First, since we are dealing with percentages, not with totals, an increase in the share of an industry does not necessarily mean an increase in the income originating in it. Second, the percentages are interdependent in that if the share of one industry rises during a period, the share of another *must* decline; i.e., the share of an industry depends upon the composition of the countrywide total and if percentages are based upon a total made up of different components, a different movement results. For example, the percentage that trade constitutes of national income declines from 14.1 for 1919–23 to 13.8 for 1934–38 because service and government are included. If for some reason they were excluded, it would be 17.6 and 19.2 respectively, thus increasing instead of decreasing. Third, and perhaps most important, the distributions in Table 14 and subsequent tables are of totals in current prices. Consequently we must not infer from a decrease or increase in the share of an industry that its share in the *goods* volume of the national product, i.e., in constant prices, changed similarly. Were it possible to adjust the incomes originating in the various industries for fluctuations in the specific price levels involved, the shifts in the distribution might differ from those in Table 14.

The industrial distributions of national income and of aggregate payments in current prices changed considerably

(Table 14). The shares of most commodity producing industries declined, some strikingly—not only those of the four major divisions—agriculture, mining, manufacturing, and construction—but also those of most minor divisions under mining and manufacturing. Under mining, the share of oil and gas alone failed to decline over the period; under manufacturing, food and tobacco, paper, printing, and chemicals are the sole increasing shares.

Although it is primarily the commodity producing industries whose shares decline, the shares of two other groups also decline: the public utility—steam railroads, street railways, and water transportation, forms of transportation whose development was distinctly retarded by new competitors; and the finance—real estate and banking; on these two latter industries the effect of the downward sweep of the cycle after 1928 may perhaps have been greater and more prolonged than on others.

Other knowledge concerning the dark spots in the nation's economic picture from 1919 to 1938 is corroborated by the severe declines in the shares of anthracite coal, bituminous coal, construction materials and furniture, construction, steam railroads, street railways—the laggards in the productive system.

The list of industries whose shares in national income and aggregate payments increase is also familiar. In addition to food and tobacco, paper, printing, and chemicals, it comprises electric light and power (large increase), manufactured gas, pipe lines (large increase), telephones (large increase), insurance, the service industries, total government and all its branches (large increase), and miscellaneous. It thus includes the more rapidly growing manufactures; the utilities that are not affected by new technical competitors but profit from technological progress and increasing urbanization; services (professional, personal, etc.) the demand for which increases with an improvement in the standard of living; and government, whose more vigorous participation in the economic life of the nation is reflected in its increasing share in national income. The in-

TABLE 14

National Income and Aggregate Payments to Individuals Change over the Period in the Percentage Distribution by Industrial Source, 1919–1938

	NATIONAL INCOME			DIRECTION AND MAGNITUDE OF CHANGE		
		CHANGE FROM		AGGREGATE PAYMENTS		
	AVG. % 1919–38	*1919–28 to 1929–38*	*1919–23 to 1934–38*	NATIONAL INCOME	Incl. entrep. savings	Excl. entrep. savings
	(1)	(2)	(3)	(4)	(5)	(6)
Agriculture	9.6	−1.9	−2.3	—	—	—*
Mining	2.2	−0.83	−0.87	—	—*	—*
Anth. coal	0.33	−0.12	−0.19	—*	—*	—*
Bit. coal	0.96	−0.47	−0.61	—*	—*	—*
Metal	0.30	−0.13	−0.08	—*	—	—
Oil & gas	0.35	−0.04	+0.04	0	0	0
Other	0.21	−0.07	−0.04	—	—	—
Manufacturing	21.0	−2.4	−1.4	—	0 —	0 —
Food & tobacco	2.6	+0.42	+0.47	+	+	0 +
Text. & leather	3.9	−0.72	−1.0	—	—	—
Constr. mat. & furn.	2.4	−1.2	−1.0	—*	—	—*
Paper	0.61	+0.05	+0.10	+	+	+
Printing	1.6	+0.32	+0.30	+	+	+
Metal	7.2	−1.1	−0.26	—	—	—
Chemical	1.5	+0.07	+0.24	+	+	+
Misc. & rubber	1.2	−0.28	−0.27	—	—	—
Construction	3.8	−1.5	−1.4	—	—*	—
Transp. & other pub. util.	9.8	+0.22	−0.88	0	—	—
Elec. light & power	1.4	+1.1	+1.1	+*	+*	+*
Mfd. gas	0.25	+0.07	+0.09	+	+*	+
Steam rr., Pull., & exp.	5.4	−1.3	−2.1	—	—*	—*
Street rwy.	0.74	−0.20	−0.38	—*	—*	—*
Water transp.	0.73	−0.05	−0.12	—	—	—
Pipe lines	0.20	+0.11	+0.10	+*	+*	+*
Telephone	0.94	+0.46	+0.46	+*	+*	+*
Telegraph	0.16	0.0	−0.01	0 —	+	0 +
Trade	13.5	−0.08	−0.31	0 —	0 —	0 +
Finance	11.9	−0.90	−2.1	—	—	—
Banking	1.4	−0.24	−0.19	—	0	0
Insurance	1.6	+0.67	+0.78	+*	+	+
Real estate	8.9	−1.3	−2.7	—	—	—
Service	12.6	+2.3	+2.5	+	+	+
Government	11.6	+4.8	+5.7	+*	+*	+*
Federal					+*	+*
State					+*	+*
County					+*	+*
City incl. pub. educ.					+*	+*
Miscellaneous	4.0	+0.35	+1.1	+	+	+

TABLE 14 (concl.)

	NATIONAL INCOME			DIRECTION AND MAGNITUDE OF CHANGE		
		CHANGE FROM			AGGREGATE PAYMENTS	
	AVG. % 1919–38	*1919–28 to 1929–38*	*1919–23 to 1934–38*	NATIONAL INCOME	Incl. entrep. savings	Excl. entrep. savings
	(1)	(2)	(3)	(4)	(5)	(6)
CLASSIFICATION A BY CHARACTER OF PRODUCTIVE FUNCTION						
Commodity prod.	38.2	—5.5	—4.8	—	—	—
Commodity transp. & distr.	19.8	—1.3	—2.5	—	—	—
Services	41.9	+6.8	+7.3	+	+	+
CLASSIFICATION C BY TYPE OF BUSINESS ORGANIZATION						
With large proportion of individual firms	52.4	—2.1	—3.1	o —	o —	o —
Private corp.	23.2	—3.3	—2.3	—	—	—
Semi-public corp.	12.8	+0.65	—0.29	o	o	o
Public	11.6	+4.8	+5.7	+*	+*	+*

The symbols are based upon the direction and magnitude of change in the average percentages from 1919–28 to 1929–38 and from 1919–23 to 1934–38: o means that the signs of change in the two comparisons are different; o + or o —, that the change, in the same direction for both comparisons, is in both less than 10 per cent of the average percentage for 1919–38; + or —, that the change in one or both comparisons is more than 10 per cent but less than 40 per cent of the average percentage for the period; + * or — *, that the change in one or both comparisons is more than 40 per cent of the average percentage for the period.

crease in the share of the miscellaneous division seems to be due largely to the inclusion of some industries for which, because of their very rapid growth, continuous estimates for the period could not be made: motor transportation, aviation, and brokerage.

These movements in the shares of specific industries cause changes in the relative distribution among categories of Classifications A and C. In Classification A the share of commodity producing industries declines, of course; that of commodity transporting and distributing industries also declines since its two chief components, steam railroads and trade, decline markedly and slightly, respectively. The share of service industries rises significantly.

In Classification C the share of industries in which private corporations predominate (i.e., mining and manufacturing) declines significantly. That of industries with a large propor-

tion of individual firms also declines, but slightly; the marked decline in the shares of agriculture and construction and the slight decline in that of trade tend to be offset by the rise in the share of professional, personal, and other service industries in which individual firms are numerous. The share of semi-public corporations shows no definite movement, increases in the shares of some public utilities and divisions of finance offset-

TABLE 15

Aggregate Payments to Individuals excluding Entrepreneurial Savings, Change over the Period in the Percentage Distribution by Industrial Source, King's and Present NBER Estimates, 1909–1938

	PERCENTAGE SHARES 1919–23		INDEXES (1919–23 = 100)			DIRECTION AND MAGNITUDE OF CHANGE [1]		
	King (1)	Present NBER (2)	*1909–18* (3)	*1919–28* (4)	*1929–38* (5)	*1909–18 to 1919–28* (6)	*1919–28 to 1929–38* (7)	*1909–18 to 1929–38* (8)
1 Agriculture	12.2	12.7	101.9	90.2	67.2	—	—	—
2 Mining	2.8	3.1	105.7	93.5	63.6	—	—	—*
3 Manufacturing	21.8	22.5	93.0	97.7	88.6	0+	0—	0—
4 Construction	3.1	3.8	140.6	117.8	77.5	—	—	—*
5 Steam rr.	6.3	6.5	101.0	93.0	68.3	0—	—	—
6 Street rwy.	0.98	0.94	111.2	92.5	67.6	—	—	—*
7 Water transp.	1.1	0.91	72.7	88.2	76.8	+	—	0+
8 Communication	0.84	0.80	76.2	110.3	160.0	+	+*	+*
9 Elec. light & power	0.60	0.63	66.7	138.3	279.8	+*	+*	+*
10 Trade	13.0	13.4	93.8	99.2	101.4	0+	0+	0+
11 Banking	1.3	1.3	95.4	103.5	104.1	0+	0+	0+
12 Rent	9.9	8.9	114.0	102.1	80.7	—	—	—
13 Government	9.0	8.4	72.6	97.9	162.8	+	+*	+*
14 All other	17.2	16.1	112.8	110.3	136.4	0—	+	+
CLASSIFICATION A [2] BY CHARACTER OF PRODUCTIVE FUNCTION								
15 Commodity prod. (1 + 2 + 3 + 4 + 9)	40.5	42.7	99.8	97.5	82.2	0—	—	—
16 Commodity transp. & distr. (5 + 7 + 10)	20.3	20.8	95.4	96.8	89.9	0+	0—	0—
17 Services (6 + 8 + 11 + 12 + 13 + 14)	39.2	36.4	102.5	104.7	126.6	0+	+	+
CLASSIFICATION C [2] BY TYPE OF BUSINESS ORGANIZATION								
18 With large proportion of individual firms (1+4+10+12+14)	55.4	54.9	107.7	102.1	98.8	0—	0—	0—
19 Private corp. (2 + 3)	24.6	25.6	94.4	97.2	85.5	0+	—	0—
20 Semi-public corp. (5+6+7+8+9+11)	11.1	11.1	94.9	97.6	91.8	0+	0—	0—
21 Public (13)	9.0	8.4	72.6	97.9	162.8	+	+*	+*

[1] See note to Table 14.
[2] Classifications A and C are not strictly comparable with those in other tables. Manufactured gas is excluded from line 15, pipe lines from line 16, and both are included in line 17. Manufactured gas, pipe lines, and insurance are excluded from line 20 and included in line 18. Rent, here, is the sum of rent received by individuals, imputed rent, and real estate interest.

ting declines in the shares of others. The public sector, i.e., government, rises markedly.

For the distribution of aggregate payments excluding entrepreneurial savings we extend the analysis to 1909 by using King's estimates (Table 15). The first two columns show the differences in the industrial distributions, which are roughly continuous for the three decades, during the quinquennium for which the two series of estimates can be compared. The symbols in columns 6–8 are determined by a procedure analogous to that used in Table 14, except that the distinctions between slight, significant, and large changes are based upon a comparison of the change with the average percentage share in the middle decade, 1919–28.

The movements in the shares of several industries during the last two decades characterized also the longer span of three decades: the shares of agriculture, mining, construction, steam railroads, street railways, and rent (roughly comparable to real estate in the other tables) declined not only from 1919–28 to 1929–38 but also from 1909–18 to 1919–28; the shares of electric light and power, communication (largely telephone), trade, banking, and government increased not only from 1919–28 to 1929–38 but also from 1909–18 to 1919–28. In other industries the change from the first to the second decade was in the opposite direction from that from the second to the third: the shares of manufacturing and water transportation rose from 1909–18 to 1919–28 but declined from 1919–28 to 1929–38; that of the 'all other' division declined from 1909–18 to 1919–28 and rose from 1919–28 to 1929–38. Comparison of column 8 in Table 15, recording the movement from the first to the third decade, with column 6 in Table 14, showing changes in the industrial distribution of the same total during two decades, indicates similarity for comparable industrial branches. The only difference is that the share of water transportation rises slightly in Table 15, i.e., over the three decades, and declines in Table 14; and that the share of banking rises slightly in Table 15 but not at all in Table 14.

The decline in the share of commodity producing industries (Classification A) was persistent, although less from the first to the second decade than from the second to the third; the share of commodity transporting and distributing industries increased slightly between 1909–18 and 1919–28, the decline developing only after the first World War; and the share of service industries rose persistently, although more markedly during the third than during the earlier decades. In Classification C the share of industries in which individual firms predominate declined slightly but consistently; and the share of government rose throughout but especially during the recent decades. The shares of industries in which private corporations predominate and of semi-public industries rose from 1909–18 to 1919–28 and declined from 1919–28 to 1929–38.

Having established that the shares of commodity producing industries, of the older public utilities, and of real estate declined in national income and aggregate payments, while the shares of some public utilities, direct service industries, and government rose, we now inquire whether similar declines and rises characterized their shares in the countrywide totals of wages and salaries, entrepreneurial income, dividends, interest, etc. (Table 16). The symbols that indicate slight, significant, and large rises; slight, significant, and large declines; and no movement, are determined by a procedure analogous to that used in Table 14. The one minor modification was to disregard shares that, for the period as a whole, averaged less than one-tenth of one per cent of the countrywide total. Changes in such minute shares are likely to be extremely erratic; they are designated 'a', which means that for the given industry the type of income or payment does not exist, is not estimated, or changes in its share are not classified.

a) The first impression conveyed by Table 16 is that in few industries do their shares in various types of income move similarly. If we assume as the criterion of consistency the same sign in all the columns (excluding those marked a), whether it follows o (designating a slight change), stands by itself (desig-

TABLE 16: Direction and Magnitude of Change * over the Period in the Percentage Distribution by Industrial Source of Types of Income, 1919–1938

	WAGES & SALARIES (1)	ENTREPRENEURIAL Withdr. (2)	ENTREPRENEURIAL Net income (3)	SERVICE INCOME Incl. entrep. savings (4)	SERVICE INCOME Excl. entrep. savings (5)	DIVIDENDS (6)	INTEREST (7)	DIVIDENDS & INTEREST (8)	PROPERTY INCOME INCL. RENT (9)	NATIONAL INCOME (10)
Agriculture	−*	−	o −	−	−*	o	−*	−*	−	−
Mining	−*	−*	−*	−*	−*	−	−	−	o	−
Anthracite coal	−*	a	a	−*	−*	−*	−	−	−	−*
Bituminous coal	−*	a	a	−*	−*	−*	−*	−*	−*	−*
Metal	−*	a	a	−*	−*	−*	o	−	−	−*
Oil & gas	o	−*	−*	o −	o −	o	+	o	+*	o
Other	−	a	a	−	−	o	o	o	+	−
Manufacturing	o −	−*	−*	−	−	o −	+	o	+	−
Food & tobacco	o +	−*	o +	o	o −	+*	−	+*	+*	+
Textile & leather	−	−*	−*	−	−	−*	−*	−*	−*	−
Constr. mat. & furn.	−	−*	−*	−*	−*	−*	+	−	o	−*
Paper	o	a	a	+	+	−	+*	−	+	+
Printing	+	−	−*	+	+	+	+*	+	+*	+
Metal	−	−*	−*	−	−	o	+	o	+*	−
Chemical	o +	−*	o	o +	o +	+	+*	+	+*	+
Misc. & rubber	−	−	−*	−	−	−*	−*	−*	−*	−
Construction	−*	o	−*	−*	−*	−	−*	−	o	−
Transp. & other pub. util.	−	a	a	−	−	+	o −	+	+	o
Elec. light & power	+*	a	a	+*	+*	+*	+*	+*	+*	+*
Mfd. gas	o +	a	a	o +	o	+*	+*	+*	+*	+
Steam rr., Pull., & exp.	−*	a	a	−*	−*	−*	−	−*	−	−
Street rwy.	−*	a	a	−*	−*	−*	−*	−*	−	−*
Water transportation	−	a	a	−	−	+	+	+	+*	−
Pipe lines	+	a	a	a	a	+*	a	+*	+*	+*
Telephone	+	a	a	+	+	+*	o	+*	+*	+*
Telegraph	o +	a	a	+	o +	−*	a	−*	a	o −

Trade	o +	o	—	o —	o	o	o	o	+	o —
Finance	+	+*	+*	+	+	—*	+	o +	—	—
Banking	+	a	a	+	o +	—*	a	—*	—	—
Insurance	+	+*	+*	+	+	—	—	—*	—*	+*
Real estate	o +	a	a	+	o +	—*	+	+	—	—
Service	+	+*	+	+	+	o	+*	+*	+*	+
Professional	+*	a	+	+	a	a	a	a	a	a
Personal	+	a	o	o +	a	a	a	a	a	a
Domestic	—	a	a	—	a	a	a	a	a	a
Misc.	+*	a	—	+	a	a	a	a	a	a
Government	+*	a	a	+*	+*	a	o	o +	+	+*
Federal	+	a	a	+*	+*	a	—*	—*	o —	a
State	+*	a	a	+*	+*	a	+*	+*	+*	a
County	+*	a	a	+*	+*	a	+*	+*	+*	a
City incl. pub. education	+*	a	a	+*	+*	a	+*	+*	+*	a
Miscellaneous	+*	+*	+	+	+	o —	—*	—	o	+
CLASSIFICATION A BY CHARACTER OF PRODUCTIVE FUNCTION										
Commodity producing	—	—	—	—	—	o +	o —	o	+	—
Commodity transp. & distr.	—	o	—	—	—	—	—	—	o +	—
Services	+	+*	+	+	+*	—	o +	o +	—	+
CLASSIFICATION C BY TYPE OF BUSINESS ORGANIZATION										
With large proportion of individual firms	o +	o +	o +	o —	o —	o —	o	o	—	o —
Private corp.	—	—*	—*	—	—	o —	o +	o —	+	—
Semi-public corp.	—	+	+*	—	—	+	o —	o	+	o
Public	+*	a	a	+*	+*	a	o	o +	+	+*

* See note to Table 14. An entry of 'a' signifies that the corresponding type of income is either absent, has not been estimated, or is less than 0.1 per cent of the countrywide total.

nating a significant change), or has an asterisk (designating a large change), we find that the shares of anthracite coal, bituminous coal, textiles and leather, miscellaneous and rubber manufacturing, steam railroads, Pullman, and express, and street railways declined consistently. The shares of electric light and power, pipe lines, and state, county, and city subdivisions of government rose. Thus of 42 major and minor industrial divisions and 7 categories in Classifications A and C, the shares of only 11 in national income and all its components rose or declined consistently. Naturally enough, these 11 are the industries whose shares in national income rose or declined most over the period.

b) In some industries an increase or lack of change in their shares in wages and salaries is accompanied by a decrease in their shares in either entrepreneurial withdrawals or net income or both: oil and gas, food and tobacco, printing, chemicals, and trade (col. 1, 2, and 3). In other industries the movements are in the same direction, but the change over the period in their shares in entrepreneurial withdrawals and net income is algebraically smaller than in wages and salaries: total manufacturing, textile and leather, construction materials and furniture, metal, miscellaneous and rubber manufacturing, professional, personal, and miscellaneous service. The major factor in these differences is the declining relative importance of unincorporated firms. The greater decrease in the share of entrepreneurial withdrawals in oil and gas, various branches of manufacturing, trade, and some divisions of direct service industries than in other industries in which unincorporated firms predominate is due to the more rapidly diminishing scope of the noncorporate form of organization in these fields. On the other hand, for agriculture, the one industry in which unincorporated firms predominate and in whose relative importance no notable reduction occurred, the change in its share in entrepreneurial withdrawals or net income is algebraically greater than in wages and salaries.

c) Because in most industries wages and salaries (including

or excluding other compensation of employees) are so much greater than either entrepreneurial withdrawals or net income, the industrial distributions of total service income and of wages and salaries are similar; consequently, changes over the period in them are also similar. When we compare columns 4 and 5 with column 1 we find divergence in sign for merely a few industries: oil and gas, food and tobacco, paper, trade, and, naturally enough, the category of industries in Classification C in which unincorporated firms predominate.

d) Changes in the industrial distributions of dividends and interest are divergent (col. 6 and 7). In oil and gas, total manufacturing, construction materials and furniture, paper, metal manufacturing, total finance, real estate, and direct service industries a decline or no movement in their shares in dividends is accompanied by a rise in their shares in interest. In anthracite coal, metal mining, and steam railroads a decline in their shares in dividends is accompanied by a less notable decline (or absence of decline) in their shares in interest. In printing and chemicals a rise in their shares in dividends is accompanied by a much more pronounced rise in their shares in interest. On the other hand, in a few but important industries the change in their shares in dividends is algebraically greater than in their shares in interest: agriculture, food and tobacco, construction, total transportation and public utilities, telephone, and miscellaneous.

These divergent changes over the period in the industrial distributions of dividends and interest arise from several factors. In many industries one or both of these income types are so small that changes in the industry shares in the country-wide totals are likely to be erratic: e.g., the share of agriculture in dividends and of service industries in both. In industries in which dividends were much more severely affected by the depression of the 1930's, even changes over the period would reveal the greater decline (or smaller rise) in their shares in dividends compared with their shares in interest. In other indus-

tries fixed interest indebtedness may have been reduced and replaced by dividend paying stocks.

e) Because of the divergence in changes in the industrial distributions of these two types of property income, and the shift in their relative weight, changes in the industrial distribution of dividends and interest combined are unlike those in either. The inclusion under property income of rent and its assignment to real estate cause another big difference. Since rent declined much more than interest and dividends the algebraic value of the change in all industries except real estate is raised, i.e., any decline in their shares in total property income is reduced and any increase, augmented (col. 8 and 9).

f) Perhaps the most interesting comparison is between changes in the industrial distributions of service income (col. 4 and 5) and property income (col. 8 and 9). In oil and gas, other mining (non-metal mines and quarries), total manufacturing, food and tobacco, metal manufacturing, transportation and other public utilities, and water transportation a decline in their shares in service income is accompanied by a rise or absence of decline in their shares in interest and dividends combined. In chemicals, manufactured gas, telephone, and service an absence of decline or a rise in their shares in service income is accompanied by a distinct or greater rise in their shares in dividends and interest combined. Industries in which changes in their shares in service income exceed algebraically the changes in their shares in dividends and interest combined are chiefly in the finance and government groups.

Since for most industries the change in their shares in property income including rent is algebraically greater than in their shares in property income made up of dividends and interest alone, the conclusions drawn from comparing columns 4 and 5 with column 8 are strengthened in the comparison with column 9. In the preponderant majority of cases the decrease in the share of an industry in total service income is accompanied by a smaller decrease (or no decrease, or an increase) in its share in total property income; and an increase in its share in total

service income is often accompanied by a larger increase in its share in total property income. The notable exceptions are textiles and leather, miscellaneous and rubber manufacturing, total finance and its subgroups, and total and federal government.

g) In Classification A the shares of commodity producing industries in wages and salaries combined, entrepreneurial withdrawals and net income, and in both totals of service income decline. Their shares in dividends and in property income including rent rise, but their share in interest declines slightly. The shares of commodity transporting and distributing industries in all totals except entrepreneurial withdrawals and property income including rent decrease; those of service industries in all except dividends and property income including rent increase.

h) In Classification C the shares in the various totals of industries in which unincorporated firms predominate change only slightly. The one significant decrease is in their share in property income including rent. The industries in which private corporations predominate account for decreasing shares in service income and its components, and for a relatively unchanging share in property income (but an increasing share in property income including rent). The semi-public industries account for a decreasing share in wages and salaries, and surprisingly enough, for an increasing share in entrepreneurial net income; but their share in the latter countrywide total is so slight that the increase is of no moment. The shares of government behave most consistently, increasing over the period in the various type of income totals (except interest) to which government contributes.

Table 16 shows clearly that a decline or rise in the share of an industry in national income or aggregate payments does not necessarily mean a similar change in the relative importance of that industry as a source of wages and salaries, of entrepreneurial income, or of property income. This conclusion is not unexpected. That an industry whose share in national in-

come decreases may yet have an increasing share in total wages and salaries or dividends is not a matter for surprise. For even if the composition of national income by type were to remain constant, i.e., even if the percentage share in national income of wages and salaries, entrepreneurial income, dividends, etc. were to remain exactly the same over the period, the direction and magnitude of industry shares might still diverge because of changes in the relative importance of various types of income within each industry. For example, if the share of wages and salaries in national income were to remain constant, a decrease in its share and an increase in the share of dividends in net income originating in manufacturing could cause a decrease in the share of manufacturing in total wages and salaries, an increase in its share in total dividends, and either movement in its share in national income. Such shifts within industries are common because of changes in the organization of an industry, in the composition of its productive resources (between direct labor and capital), and in its disbursement policy with respect to types of income. If, in addition to these shifts within industries, we consider that the relative distribution of national income by type of income or payment also changed, the reasons for divergence in the movement of the shares of one and the same industry in various countrywide type of income totals become abundant.

If we were to treat the type of income composition of national income as constant, changes in the industrial distribution of national income (or of aggregate payments) would be different from those in Table 14. If the industrial composition of the various countrywide type of income totals changed similarly, changes in the type of income composition of national income could not affect changes in its industrial composition; i.e., shifts in the type of income composition would mean changing weights, all applied to one and the same series of figures measuring changes in the industrial composition of the various type of income totals. But the differences among columns in Table 16 mean that, if the distribution of national

income or aggregate payments by type of income or payment changed, their industrial composition would also be affected. For example, since the share of manufacturing in wages and salaries declined, and that in interest rose, a shift in the composition of national income in favor of interest, reducing the share of wages and salaries, would raise algebraically the change in the share of manufacturing in national income.

If we assumed that the percentage distribution of national income by type of income remains constant, we could calculate changes in its industrial distribution, allowing the industrial distribution of each type of income total to vary from year to year. But this assumption is unrealistic: there is no discernible mechanism in society that either consciously or unconsciously operates to hold the distribution of national income by type constant.[7] Nor is the industrial distribution of an income type a sufficiently realistic concept to be worth pushing far: all people receiving entrepreneurial income from various industries hardly constitute a homogeneous group. We therefore considered it unnecessary to carry out laborious calculations in order to derive an industrial distribution of national income or of aggregate payments, on the assumption of constancy over the period in their relative distributions by type.

4 Changes during Business Cycles

The brevity of the period covered, the time unit used, the crude and approximate character of the estimates for some of the industry type of income cells—all bar detailed analysis of cyclical fluctuations in the income flows. Yet we can perhaps answer a few questions concerning their cyclical behavior, and

[7] Some mechanisms of this type may be evolving. The attempt of governments to maintain the purchasing power of the farming population relative to that of urban may be interpreted as an effort to hold the ratio of entrepreneurial income in farming constant relative to all other components of national income. The relief policy of the government is essentially an attempt to maintain the relative share of wages. But these attempts are for much narrower groups than those in our type of income or payment classification. With the detailed estimates in Volume II any student willing to formulate the assumptions and undertake the labor involved, can make the necessary calculations.

take advantage of the comprehensiveness of the estimates to study areas for which more adequate data are not yet available.

How do the income totals of various types that originate in the various industries of the nation change during business cycles? Do they rise during expansions, decline during contractions, and do their rates of movement decline from expansion to contraction? If they rise and decline in fair conformity with expansions and contractions in the nation's economy at large, do some rise or decline more than others?

With the help of reference cycle dates established in the National Bureau's study of business cycles, we determined the direction of change in the income totals during each expansion and contraction, and the sign of the differential movement, i.e., the difference in the rate of change *per year* between each expansion and the following contraction. An increase was credited with + 1; a decline, with — 1; no movement, with 0. Then the scores were added algebraically for the five expansions, the five contractions, and the five differential movements, i.e., the five differences in the annual rate of movement between an expansion and the following contraction. Thus, if an income total originating in a given industry rose during each expansion, its score is + 5; if it rose in four and declined in one, its score is + 3; if it rose in three, declined in one, and failed to change in one, its score is + 2; if it rose in three and declined in two, its score is + 1; and similarly for the behavior during the five contractions and cycles. A plus or minus sign indicates the direction of the preponderant number of changes in a given income during the reference periods.

The scores can, of course, range from — 5 to + 5, with every intervening integer and 0. However, for net income originating in each industry, 5 and 3 predominate, and 1 and 0 are rare, the values and signs indicating that net income originating in each industry tends to increase during expansions, decrease during contractions, and that its differential movement is negative (Table 17, col. 1, 3, and 5). Such scores suggest consistent positive conformity to business cycles.

TABLE 17

Direction of Movement during Business Cycles in Totals and Percentage Shares of Net Income Originating in Industrial Divisions, 1919–1938

	EXPANSION		CONTRACTION		DIFFERENTIAL	
	Total value (1)	Percentage share (2)	Total value (3)	Percentage share (4)	Total value (5)	Percentage share (6)
Agriculture	+3	−3	−3	−3	−5	+1
Mining	+5	+3	−5	−5	−5	−5
Anth. coal	+1	−3	−3	+1	−3	+3
Bit. coal	+3	+3	−5	−5	−5	−3
Metal	+5	+5	−5	−5	−5	−5
Oil & gas	+5	+5	−5	−3	−5	−5
Other	+3	+3	−3	−3	−5	−5
Manufacturing	+5	+3	−5	−5	−5	−5
Food & tobacco	+3	−1	−1	+3	−3	+3
Text. & leather	+1	−1	−3	−1	−3	+1
Constr. mat. & furn.	+5	+1	−5	−5	−5	−5
Paper	+5	+3	−3	−3	−5	−5
Printing	+5	+1	−1	+5	−5	+5
Metal	+5	+5	−5	−5	−5	−5
Chemical	+5	+3	−1	−3	−5	−5
Misc. & rubber	+5	+1	−3	−3	−5	−3
Construction	+5	+1	−3	−1	−5	−3
Transp. & other pub. util.	+5	+1	−5	−1	−5	+1
Elec. light & power	+5	+3	+1	+5	−5	+5
Mfd. gas	+3	−1	+1	+5	−3	+3
Steam rr., Pull., & exp.	+5	−3	−5	−3	−5	−1
Street rwy.	+1	−3	−5	+1	−5	+5
Water transp.	+3	−1	−3	−1	−3	−1
Pipe lines	+5	+3	−1	+3	−3	+1
Telephone	+5	+1	+1	+5	−5	+5
Telegraph	+5	−1	−3	+1	−5	+2
Trade	+3	−3	−5	−1	−5	+1
Finance	+5	−3	+1	+5	−1	+5
Banking	+5	+1	−1	+3	−1	+3
Insurance	+5	−1	+3	+5	−1	+5
Real estate	+3	−3	+1	+5	−1	+5
Service	+5	+1	−1	+5	−5	+3
Government	+5	−1	+1	+5	−5	+3
Miscellaneous	+5	+3	−1	+3	−5	+1
Total	+5		−3		−5	

Lack of such conformity to expansions or contractions is associated in part with pronounced long term rises or declines in the totals. We noted in the preceding section that the shares in national income of anthracite coal, textiles and leather, and street railways declined markedly over the period. Since national income in current prices also declined, the drop in these shares must have meant an even more marked decline in the totals in current prices. But it is these three industries that have the lowest score for rises during expansions (col. 1). Similarly, among the industries whose scores for contractions are algebraically greater than — 5 or — 3 there are many whose shares in national income, as shown in the preceding section, rose markedly over the period: food and tobacco, printing, chemicals, electric light and power, manufactured gas, pipe lines, telephones, total finance, banking, real estate, the direct service industries, government. Because of this effect of longer term movements on conformity to either expansions or contractions, the 'purest' indicator of behavior during business cycles is the score for the direction of the differential movement: a long term movement would affect approximately equally changes during an expansion and the following contraction, and should, therefore, have little effect on the difference.

When the effects of long term changes during expansions and contractions are reduced the income totals conform better (col. 5). Of the 35 entries in columns 1, 3, and 5 respectively, there are 24 maximum entries in column 1, only 11 in column 3, and 25 in column 5. Of the ten industries whose score in column 5 is algebraically greater than — 5, four are finance and its three subdivisions, industries that are either not too responsive to business cycles (such as insurance) or are susceptible to cycles different in timing from those characterizing general business conditions (real estate). Of the other six exceptions, four are purely consumer goods industries: anthracite coal, food and tobacco, textiles and leather, manufactured gas. On the other hand, industries that conform most consistently during expansion, contraction, and the full cycle (i.e., + 5 in

col. 1, — 5 in col. 3, and — 5 in col. 5) are chiefly those concerned with the production or transportation of industrial raw materials or durable goods—total mining, metal mining, oil and gas, total manufacturing, construction materials and furniture, metal manufacturing, and steam railroads.

While the entries in columns 1, 3, and 5 reveal the movement of the totals, they do not indicate whether some industries rise more or less than others during expansions; whether they decline more or less than others during contractions; or whether their differential movements are greater than those of others. Such differences in amplitude of conforming fluctuations could be ascertained by directly computing for each income series its changes in terms of the average value for the reference cycle: the change from trough to peak dates, from peak to trough dates, and the change in the rate of movement from expansion to contraction. However, since we already had percentage distributions of the countrywide totals by industrial branches, we approximated the differential amplitude of conforming fluctuations without going through the laborious direct computations.

Given a percentage distribution of an income total by industrial source, we can study the movements of the *percentages* during expansions, contractions, and full cycles. If the *percentage* share of an industry in national income increases during an expansion, the relative increase in net income originating in it is greater than the relative increase in national income (or decline in the former less than the decline in the latter). If the *percentage* share decreases, the underlying total increases less or decreases more, relatively, than the countrywide total to which the percentage is related. Knowing from columns 1, 3, and 5 in Table 17 that national income increases during each expansion, decreases during four of the five contractions, and that its differential movement is negative in each cycle, we also know how to interpret the movements in the percentage shares in this total. But whatever the movement of the countrywide total to which the percentage shares are related,

an *increase* in the percentage share of an industry during expansions means that the total originating in it is more responsive to cyclical expansions than the countrywide total of all industries and we describe it below as a conforming movement or fluctuation of wider amplitude than in the countrywide total; that a *decrease* in the percentage share of an industry during contractions means greater responsiveness to cyclical contractions, i.e., a conforming movement of wider amplitude than in the countrywide total; and that a negative differential movement (as compared with the countrywide total) means greater responsiveness of the percentage share of a given industry to the change in the rate of activity that is associated with a complete business cycle.[8]

We therefore scored the movements of the percentage shares of various industries during expansions, contractions, and full cycles in a fashion exactly analogous to that used to record the movements of the totals (Table 17, col. 2, 4, and 6).

The entries in columns 2 and 4, for expansions and contractions, are affected by longer term changes, in this case in the percentage shares rather than in the totals themselves. When such changes are pronounced, it is the differential movement that reveals most clearly behavior during business cycles (col. 6). The industries in whose net incomes conforming fluctua-

[8] It must be emphasized that changes in percentage shares are used here to study only greater or less responsiveness to business cycles. A statement that an income flow X exhibits conforming movements of a wider amplitude than income flow Y does not mean, therefore, that the cyclical fluctuations characterizing X are of wider amplitude than those in Y. It means only that during reference cycle phases for which a rise in the rate of economic activity is assumed, the change in X is algebraically greater than in Y (although this change itself may be either a rise or decline); and that during reference cycle phases or swings for which a decline in the rate of economic activity is assumed, the change in X is algebraically smaller than in Y. This meaning of the expression 'conforming movements' or 'fluctuations' and of their amplitude must be kept in mind in the discussion here and in Chapter 6.

However, since most income totals show fairly high positive conformity to business cycles, a conforming movement during reference expansions does denote a rise in most cases; and during contractions or in the differential movement over the whole cycle, it frequently does denote a decline.

tions are consistently of wider amplitude than in national income are total mining, metal mining, oil and gas, 'other' mining, total manufacturing, construction materials and furniture, paper, metal manufacturing, and chemicals—a list that includes most of the industries known to reflect business cycles most sensitively because of their concern with industrial materials and durable products. The industries in whose net incomes conforming fluctuations are consistently of narrower amplitude than in national income are anthracite coal, food and tobacco, textiles and leather, printing, total transportation and public utilities, electric light and power, manufactured gas, street railways, pipe lines, telephones, telegraph, trade, finance and its various subdivisions, direct service industries, and government. The list includes consumer goods industries and industries the character of whose very organization makes their incomes less sensitive to business cycles.

Table 17 presents the full set of measures for the industrial components and percentage shares of national income only. We now consider changes during business cycles in the industrial components and percentage shares of other countrywide income totals, such as aggregate payments, wages and salaries, and entrepreneurial net income, emphasizing the behavior of income totals in their origin in the various industries, and deferring analysis of the cyclical behavior of various types of income to Chapter 6.

A IN INCOME TOTALS

Totals of income originating in the various industries (Table 17, col. 1, 3, and 5) moved in consistent conformity with business cycles: a preponderant number of entries were + 3 or + 5 for expansion, — 3 or — 5 for the differential movement. The same conformity is largely true of business savings, payments to individuals, wages and salaries, and other income types.

Since we cannot attribute much significance to the difference between + 5 and + 3 or — 5 and — 3, we classified the two positive entries as expressing conformity of movement during

TABLE 18

Industrial Divisions and Types of Income whose Totals Fail to Conform to Business Cycles, 1919–1938

NET INCOME (1)	CORP. & GOV. SAVINGS (2)	TOTAL PAY. TO INDIVIDUALS EXCL. ENTREP. SAVINGS (3)	WAGES & SALARIES (4)	ENTREPRENEURIAL NET INCOME (5)	DIVIDENDS (6)	INTEREST (7)	PROPERTY INCOME INCL. RENT (8)
FAIL TO RISE DURING EXPANSIONS							
Anth. coal	Text. & leather	Anth. coal	Anth. coal	Manufacturing	Agriculture	Agriculture	Agriculture
Text. & leather	Misc. & rubber	Street rwy.	Street rwy.	Food & tobacco	Anth. coal	Mining	Anth. coal
Street rwy.	Construction	Fed. gov.	Fed. gov.	Text. & leather	Transp. & other	Anth. coal	Transp. & other
	Street rwy.			Misc. & rubber	pub. util.	Bit. coal	pub. util.
	Trade			Construction	Mfd. gas	Metal	Mfd. gas
	Finance			Elec. lt. & power	Pipe lines	Manufacturing	Steam rr.
	Banking			Trade	Telephone	Food & tob.	Street rwy.
	Insurance				Telegraph	Text. & leather	Pipe lines
	Real estate					Paper	Telegraph
	Service					Printing	Finance
						Chemical	Insurance
						Misc. & rubber	Real estate
						Construction	Fed. gov.
						Mfd. gas	
						Steam rr.	
						Street rwy.	
						Water transp.	
						Pipe lines	
						Telephone	
						Trade	
						Insurance	
						Service	
						Fed. gov.	

FAIL TO DECLINE DURING CONTRACTIONS

- Food & tobacco
- Printing
- Chemical
- Elec. lt. & power
- Mfd. gas
- Pipe lines
- Telephone
- Finance
  - Banking
  - Insurance
  - Real estate
- Service
- Government
- Miscellaneous

- Bit. coal
- Food & tobacco
- Construction
- Mfd. gas
- Street rwy.
- Finance
  - Banking
  - Real estate
- Service
- Government

- Anth. coal
- Printing
- Transp. & other pub. util.
  - Elec. lt. & power
  - Mfd. gas
  - Pipe lines
  - Telephone
- Finance
  - Real estate
- Service
- Government
  - Federal
  - State
  - County
  - City
- Miscellaneous

- Anth. coal
- Printing
- Elec. lt. & power
- Mfd. gas
- Telephone
- Finance
  - Banking
  - Insurance
  - Real estate
- Service
  - Professional
  - Personal
  - Domestic
  - Misc.
- Government
  - Federal
  - State
  - County
  - City
- Miscellaneous

- Oil & gas
- Construction
- Finance
  - Insurance
- Service
  - Professional
- Miscellaneous

- Agriculture
- Anth. coal
- Other mining
- Food & tob.
- Printing
- Metal mfg.
- Construction
- Transp. & other pub. util.
  - Elec. lt. & power
  - Mfd. gas
  - Steam rr.
  - Pipe lines
  - Telephone
  - Telegraph
- Trade
- Finance
  - Banking
  - Insurance
- Service
- Miscellaneous

- Mining
  - Anth. coal
  - Bit. coal
  - Metal
  - Oil & gas
  - Other
- Manufacturing
  - Food & tob.
  - Text. & leather
  - Constr. mat. & furn.
  - Paper
  - Printing
  - Metal
  - Chemical
  - Misc. & rubber
- Construction
- Transp. & other pub. util.
  - Elec. lt. & power
  - Mfd. gas
  - Steam rr.
  - Water transp.
  - Pipe lines
  - Telephone
  - Telegraph
- Trade
- Finance
  - Real estate
- Service
- Government
  - State
  - County
  - City
- Miscellaneous

- Agriculture
- Anth. coal
- Other mining
- Food & tobacco
- Printing
- Metal mfg.
- Construction
- Transp. & other pub. util.
  - Elec. lt. & power
  - Mfd. gas
  - Steam rr.
  - Pipe lines
  - Telephone
  - Telegraph
- Trade
- Finance
  - Banking
  - Insurance
  - Real estate
- Service
- Government
  - State
  - County
  - City
- Miscellaneous

TABLE 18 (concl.)

NET INCOME (1)	CORP. & GOV. SAVINGS (2)	TOTAL PAY. TO INDIVIDUALS EXCL. ENTREP. SAVINGS (3)	WAGES & SALARIES (4)	ENTREPRENEURIAL NET INCOME (5)	DIVIDENDS (6)	INTEREST (7)	PROPERTY INCOME INCL. RENT (8)
RATE OF MOVEMENT FAILS TO DECLINE FROM EXPANSION TO CONTRACTION							
Finance	Text. & leather	Anth. coal	Anth. coal	Text. & leather	Agriculture	Agriculture	Anth. coal
Banking	Mfd. gas	Mfd. gas	Telephone		Anth. coal	Mining	Food & tobacco
Insurance	Telegraph	Pipe lines	Finance		Construction	Anth. coal	Construction
Real estate	Finance	Telephone	Banking		Transp. & other pub. util.	Bit. coal	Transp. & other pub. util.
	Banking	Finance	Real estate		Elec. lt. & power	Metal	Elec. lt. & power
	Insurance	Banking	Prof. service		Mfd. gas	Manufacturing	Mfd. gas
	Real estate	Real estate	Misc. service		Steam rr.	Food & tob.	Steam rr.
		Government	Government		Pipe lines	Text. & leather	Street rwy.
		Federal	Federal		Telephone	Constr. mat. & furn.	Pipe lines
		State	State		Banking	Printing	Telephone
		County	County		Insurance	Metal	Telegraph
		City	City		Miscellaneous	Chemical	Finance
						Misc. & rubber	Banking
						Construction	Insurance
						Transp. & other pub. util.	Real estate
						Elec. lt. & power	Fed. gov.
						Mfd. gas	State
						Steam rr.	County
						Street rwy.	City
						Water transp.	Miscellaneous
						Pipe lines	
						Telephone	
						Telegraph	

INTEREST (concl.) (7)

Trade
Finance
Insurance
Real estate
Service
Fed. gov.
State
County
City
Miscellaneous

expansions, the two negative entries as expressing conformity during contractions and conformity to the expected change in the differential movement. Applying this criterion to the scores established for various type of income totals originating in the different industries, we find that in the overwhelming majority they conform. We therefore present in Table 18 the industries in which they do not conform. A score of less than + 3 for expansion, or algebraically greater than — 3 for contraction and for the differential movement indicates lack of conformity.

Anthracite coal, textiles and leather, and street railways are conspicuous in that several of the type of income totals originating in them fail to conform during expansions. For other industries in the table, only one or two income types are listed, but even these industries, such as the federal government, agriculture, and finance, belong to the group that does not reflect sensitively fluctuations in general business activity.

The type of income totals of more industries fail to conform consistently to contractions, partly because of their upward trend in several industries, partly because of the relative brevity of most expansions during the period (of the five expansions, four last just one year when dated on an annual basis). But the list is again dominated by consumer goods industries, such public utilities as are insensitive to transient changes in business conditions, and government.

Among the industries whose type of income totals fail to conform in differential movement most consistently are anthracite coal, manufactured gas, telephones, construction, finance and its three subdivisions, and government.

Table 18 is by major and minor industrial divisions, not by the categories of Classifications A and C. Even so, it includes relatively few industries. Indeed, the more important evidence it provides is not the specific industries whose type of income totals fail to conform to business cycles, but rather the brevity of the list. For comprehensive totals such as net income, total payments, wages and salaries, entrepreneurial net income, and some of the narrower but sensitive income types such as cor-

porate savings and dividends, the industries failing to follow consistently cyclical swings in general business activity are few. For interest alone, a type relatively insensitive to business cycles, is the list of industries failing to conform long.

For the categories of the broader industrial classifications it is practicable to go further and present the actual measures of the direction of movement of the income totals during expansions, contractions, and full cycles (Table 19). We include Classification B, since the apportionment of the mixed group would not greatly affect the short term cyclical changes in the totals for the non-durable and durable groups whereas differences in the cyclical behavior of these two groups are prominent.

There is a general tendency toward high conformity, the entries for expansions being preponderantly either + 5 or + 3; for contractions, either — 5 or — 3; and for the differential movement, either — 5 or — 3. The differences in the scores among the various groups also are as we would expect, especially if we take into account the long term changes that characterize the income totals in the various industrial categories. Thus the score for the commodity producing group during expansions is in general higher than those for the commodity transporting and distributing group and for the service industries. Since this is true under conditions of smaller increase or greater decline over the period in the income totals originating in the commodity producing industries their closer conformity during expansions is all the more significant. Similarly, during contractions commodity producing industries have a more consistently negative score, which may partly be due to the lower rate of their movement over the period. In the most telling comparison, that for the differential movement, commodity producing industries have the highest conformity in accordance with expectations based on general knowledge.

In Classification B durable product industries conform better than non-durable industries during contractions and dur-

TABLE 19

Direction of Movement during Business Cycles in Income Totals Originating in Broad Industrial Divisions, 1919–1938

	NET INCOME (1)	CORP. & GOV. SAVINGS (2)	TOTAL PAY. TO INDIVIDUALS EXCL. ENTREP. SAVINGS (3)	WAGES & SALARIES (4)	ENTREP. NET INCOME (5)	DIVIDENDS (6)	INTEREST (7)	PROP. INCOME INCL. RENT (8)
EXPANSION								
Classification A By Character of Productive Function								
Commodity producing	+5	+3	+5	+5	+3	+5	+3	+5
Commodity transp. & distr.	+3	+3	+5	+5	+1	+3	+1	+3
Services	+5	+3	+5	+5	+3	+3	+3	+3
Classification B By Durability of Product								
Non-durable	+3	+3	+5	+5	+3	+5	+3	+5
Durable	+5	+3	+5	+5	+1	+5	+1	+5
Classification C By Type of Business Organization								
With large proportion of individual firms	+3	−1	+5	+5	+3	+5	+3	+3
Private corp.	+5	+3	+5	+5	+3	+5	−1	+5
Semi-public corp.	+5	+3	+5	+5	+5	+1	+1	+3
Public	+5	+3	+5	+3			+5	+5
Total	+5	+5	+5	+5	+3	+5	+3	+5
CONTRACTION								
Classification A By Character of Productive Function								
Commodity producing	−5	−5	−5	−5	−3	−3	+3	−3
Commodity transp. & distr.	−5	−5	−3	−5	−3	−1	+3	−1
Services	−1	−1	+3	+1	−1	+1	+1	+1
Classification B By Durability of Product								
Non-durable	−1	−5	−1	−1	−3	−3	+1	+1
Durable	−5	−5	−5	−5	−3	−1	−1	−1
Classification C By Type of Business Organization								
With large proportion of individual firms	−3	−3	−1	−1	−3	−1	+1	+1
Private corp.	−5	−5	−5	−5	−5	−3	+1	−3
Semi-public corp.	−1	−5	−1	−1	−1	−1	+3	+1
Public	+1	−1	+5	+5			+1	+1
Total	−3	−5	−1	−3	−3	−3	+1	+1
DIFFERENTIAL MOVEMENT								
Classification A By Character of Productive Function								
Commodity producing	−5	−5	−5	−5	−5	−5	+3	−5
Commodity transp. & distr.	−5	−3	−5	−5	−3	−3	+1	−1
Services	−5	−5	−3	−1	−5	−3	−1	−3
Classification B By Durability of Product								
Non-durable	−5	−3	−3	−3	−5	−5	+1	−3
Durable	−5	−5	−5	−5	−5	−5	−1	−5
Classification C By Type of Business Organization								
With large proportion of individual firms	−5	−3	−5	−5	−5	−5	+1	−1
Private corp.	−5	−5	−5	−5	−5	−5	+3	−5
Semi-public corp.	−5	−3	−5	−5	−3	−1	+3	−1
Public	−5	−5	+3	+3			−3	−3
Total	−5	−5	−5	−5	−5	−5	+1	−3

ing the complete cycle; but there is no evidence of their more consistent conformity during expansions.

In Classification C government naturally conforms least consistently to cyclical changes. Of the other three groups, industries in which private corporations predominate (mining and manufacturing) conform most consistently; there seem to be no significant differences in conformity between industries in which unincorporated firms are still numerous and those in which semi-public corporations predominate.

Because of the generally high conformity of the totals and the crudity of the measures, merely the most striking instances of failure to rise and decline in unison with the rate of general economic activity are revealed by the consistency with which the *totals* conform. To detect the industries whose incomes rise or decline in conformity with business cycles at a more or less rapid rate than the countrywide income totals we must study the percentage shares.

B IN PERCENTAGE SHARES OF VARIOUS INDUSTRIES

How shares of various industries in national income change during business cycles has already been discussed in connection with Table 17. We now consider their shares in other countrywide income totals (Table 20). For the sake of brevity, Table 20 is confined to measuring the consistency of the differential movement in the shares of industries in such countrywide totals as themselves conform adequately to business cycles during the entire period. It was observed in Table 19 that national income, aggregate payments, wages and salaries, entrepreneurial net income, and dividends all conform perfectly in their differential movements, whereas property income including rent has a score of — 3. Hence any departure from conformity in all except the last column of Table 20, i.e., any score that is algebraically greater than — 5, indicates that the component in question failed in at least one business cycle to decline from expansion to contraction as much as the total for all industries in the country. Similarly, an entry algebraically

TABLE 20

Direction of Differential Movement during Business Cycles in Percentage Shares of Industrial Divisions in Countrywide Income Totals, 1919–1938

	NATIONAL INCOME	AGG. PAY. TO INDIVIDUALS	WAGES & SALARIES	ENTREP. NET INCOME	DIVIDENDS	PROP. INCOME INCL. RENT
	(1)	(2)	(3)	(4)	(5)	(6)
Agriculture	+1	+3	−1	−1	+3	+3
Mining	−5	−5	−5	−5	−1	−5
Anthracite coal	+3	+3	+3	−4	+1	+3
Bituminous coal	−3	−3	−3	−5	+1	−5
Metal	−5	−5	−5	−3	−1	−3
Oil & gas	−5	−5	−3	−5	+1	−3
Other	−5	−5	−3	−5	+3	−5
Manufacturing	−5	−5	−3	−3	−5	−5
Food & tobacco	+3	+5	+5	−1	+3	+1
Text. & leather	+1	−3	−1	−1	−1	−3
Constr. mat. & furn.	−5	−5	−5	−5	−5	−5
Paper	−5	−5	−3	−5	−1	−3
Printing	+5	+1	+5	−1	−1	−3
Metal	−5	−5	−5	−5	−3	−3
Chemical	−5	−5	−5	−5	+1	−5
Misc. & rubber	−3	−5	−3	−3	−3	−5
Construction	−3	−5	−5	−1	−1	−3
Transp. & other pub. util.	+1	+3	+3	−5	+5	+5
Elec. light & power	+5	+5	+3	+5	+3	+1
Mfd. gas	+3	+5	+5		+5	+3
Steam rr.	−1	−1	−1		+1	+3
Street rwy.	+5	+5	+5		+3	+3
Water transp.	−1	−1	+1	−5	−3	−3
Pipe lines	+1	+3	+3		+3	+3
Telephone	+5	+5	+5		+5	+3
Telegraph	+2	−3	+1		+1	+1
Trade	+1	+3	+3	+3	+1	−3
Finance	+5	+3	+5	+5	−1	+3
Banking	+3	+5	+5		+5	+3
Insurance	+5	+5	+5	+5	+1	+1
Real estate	+5	+3	+3		−3	+3
Service	+3	+5	+5	+3	−1	−1
Professional			+5	+1		
Personal			+5	+3		
Domestic			+1			
Misc.			+1	+3		
Government	+3	+5	+5			−1
Federal		+5	+5			−1
State		+5	+5			+1
County		+5	+5			+3
City		+5	+5			+3
Miscellaneous	+1	+5	+3	+3	+3	+3

greater than -5 in the last column means that the income total in question failed in at least one business cycle to decline as much as (or rose more than) total property income. Relative intensity of change during business cycles is thus gauged in Table 20 by the negative score: the smaller the score (algebraically) the wider the amplitude of conforming fluctuations recorded for income flows in a given industry during business cycles, *wider in comparison with other industry entries in the same column.*

Keeping in mind that comparisons of scores among industries should be within rather than among columns, i.e., vertically among the rows, we group the industries according to the amplitude of their conforming fluctuations during business cycles: wide (score -5 or -3), narrow (score $+5$ or $+3$), or an amplitude not significantly different from those for the respective countrywide income totals (scores from -2 to $+2$). We first use as a basis of classification the entries for national income and aggregate payments (excluding all savings of enterprises); then the two large components of national income: wages and salaries and property income. In the first classification we place an industry among those showing wide amplitude if the score for its share in national income or aggregate payments does not rise above -3 (algebraically); in the second classification, if the score for its share in wages and salaries or property income is either -5 or -3; and likewise for the placing of industries in the narrow amplitude or intermediate groups.

The two groupings are similar. In general, industries whose incomes display conforming fluctuations of widest amplitude during business cycles are extractive, manufacturing, or construction, industries concerned with the production of industrial raw materials and durable commodities. Among the industries whose incomes fluctuate more than the countrywide totals, there is not one from other than the commodity producing category. On the other hand, industries whose incomes are distinctly less variable in conformity with business cycles

Classification of Industries by the Movement of Their Shares in Countrywide Income Totals

AMPLITUDE OF CONFORMING FLUCTUATIONS DURING BUSINESS CYCLES

WIDER THAN FOR THE COUNTRYWIDE TOTAL	NARROWER THAN FOR THE COUNTRYWIDE TOTAL	INTERMEDIATE

IN NATIONAL INCOME AND/OR AGGREGATE PAYMENTS (EXCLUDING SUBDIVISIONS OF GOVERNMENT)

Mining	Anthracite coal	Agriculture
Bituminous coal	Food & tobacco	Text. & leather
Metal		Printing
Oil & gas	Elec. light & power	
Other	Mfd. gas	Transp. & other pub. util.
Manufacturing	Street rwy.	Steam rr.
Constr. mat. & furn.	Telephone	Water transp.
Paper	Finance	Pipe lines
Metal	Banking	Telegraph
Chemical	Insurance	Trade
Misc. & rubber	Real estate	Miscellaneous
Construction	Service	
	Government	

IN WAGES AND SALARIES AND PROPERTY INCOME INCLUDING RENT (INCLUDING SUBDIVISIONS OF GOVERNMENT)

Mining	Anthracite coal	Agriculture
Bituminous coal	Transp. & other pub. util.	Food & tobacco
Metal	Mfd. gas	Text. & leather
Oil & gas	Street rwy.	Printing
Other	Pipe lines	Elec. light & power
Manufacturing	Telephone	Steam rr.
Constr. mat. & furn.	Finance	Water transp.
Paper	Banking	Telegraph
Metal	Real estate	Trade
Chemical	County gov.	Insurance
Misc. & rubber	City incl. pub. educ.	Service
Construction	Misc.	Government
		Federal
		State

than the countrywide totals are largely consumer goods industries producing non-durable goods; or private or public service industries. The group with intermediate amplitude of conforming fluctuations comprises industries concerned with both producer and consumer goods, such as printing, trade, steam railroads, and water transportation; and industries whose incomes while having cycles of their own, do not fluctuate in close conformity to cycles in general business conditions (agriculture).

The differential movements established for the major and minor industrial divisions in Table 20 determine the differences in variability among the categories of Classifications A, B, and C. In Table 21 these differences are measured directly, as are also the movements during expansions and contractions. The greater variability in conformity with business cycles of income flows from commodity producing industries stands out clearly. They rise more than those from other industries during expansions; decline more than those from other industries during contractions; and of course their differential movement is greater. The only exception is their share in entrepreneurial net income during expansions, possibly because of the non-conforming movement in farmers' net income. The shares of the commodity transporting and distributing industries in the various income types vary more in conformity with business cycles than do those of the service industries.

An even greater contrast in amplitude of conforming movement during business cycles is presented by the non-durable and durable goods industries. The latter uniformly rise more than the countrywide totals during expansions, uniformly decline more during contractions, and their differential movement is greater. The non-durable goods industries rise less during expansions than the countrywide totals, decline less during contractions, and their differential movement is smaller. But this narrower amplitude of fluctuation in income flows from non-durable goods industries is not so consistent as the wider amplitude of conforming fluctuations in the durable.

TABLE 21

Direction of Movement during Business Cycles in Percentage Shares of Broad Industrial Divisions in Countrywide Income Totals, 1919–1938

	NATIONAL INCOME (1)	AGG. PAY. TO INDIVIDUALS (2)	WAGES & SALARIES (3)	ENTREP. NET INCOME (4)	DIVIDENDS (5)	PROP. INCOME INCL. RENT (6)
EXPANSION						
Classification A By Character of Productive Function						
Commodity producing	+3	+3	+1	−3	+5	+5
Commodity transp. & distr.	−3	−1	−3	−3	−3	−1
Services	−3	−3	−1	+1	+1	−3
Classification B By Durability of Product						
Non-durable	−5	−5	−3	+1	+1	−3
Durable	+5	+5	+5	+1	+5	+5
Classification C By Type of Business Organization						
With large proportion of individual firms	−5	−3	+3	0	+3	−5
Private corp.	+5	+5	+3	−1	+3	+5
Semi-public corp.	+1	−1	−3	+1	−5	+1
Public	−1	−3	−1			−1
CONTRACTION						
Classification A By Character of Productive Function						
Commodity producing	−5	−5	−5	−1	−5	−3
Commodity transp. & distr.	−1	−1	+1	−1	+1	−1
Services	+5	+5	+5	+3	+3	+3
Classification B By Durability of Product						
Non-durable	+5	+3	+5	+1	−1	+1
Durable	−5	−5	−5	−1	−1	−3
Classification C By Type of Business Organization						
With large proportion of individual firms	+5	+3	+3	+5	−1	+1
Private corp.	−5	−5	−5	−5	−5	−5
Semi-public corp.	+5	+5	+3	+5	+5	+5
Public	+5	+5	+5			+1
DIFFERENTIAL MOVEMENT						
Classification A By Character of Productive Function						
Commodity producing	−5	−5	−5	−1	−5	−5
Commodity transp. & distr.	+1	+1	+1	+3	+5	+3
Services	+5	+5	+5	+3	+3	+5
Classification B By Durability of Product						
Non-durable	+5	+5	+5	−3	−1	+5
Durable	−5	−5	−5	−3	−3	−5
Classification C By Type of Business Organization						
With large proportion of individual firms	+5	+5	+1	+5	+1	+3
Private corp.	−5	−5	−5	−5	−5	−5
Semi-public corp.	+5	+3	+3	+5	+5	+5
Public	+3	+5	+5			−1

The public category is distinguished by the failure of its income flow to respond to business cycles with as wide an amplitude as the countrywide totals. Industries in which private corporations predominate are at the other extreme: the income flows from them fluctuate in conformity with business cycles much more than the countrywide totals. Income flows from the other two groups in Classification C, industries in which unincorporated firms are still numerous and semi-public industries, tend to increase less than the countrywide totals during expansions, decrease less during contractions, and have a smaller differential movement. No significant differences in the amplitude of conforming movements during business cycles between the two groups can be observed on the basis of Table 21.

5 Summary

All statements below concerning the industrial distribution of income are for totals in current prices.

a) From 1919 to 1938 commodity producing industries accounted on the average for two-fifths of national income, aggregate payments, and wages and salaries, a somewhat larger share of entrepreneurial income, and a smaller share of property income. Industries concerned with commodity transporting and distributing accounted for one-fifth of national income and aggregate payments, a somewhat larger share of wages and salaries, and a smaller share of entrepreneurial and property income. The service industries accounted for the remaining two-fifths of national income and aggregate payments, a somewhat larger share of property income, and smaller shares of wages and salaries and of entrepreneurial income.

b) Industries that could be directly classified as producing preponderantly durable goods accounted on the average for 14 per cent of national income and of aggregate payments, a larger share of wages and salaries, for only 3 to 4 per cent of entrepreneurial income, and for 8 per cent of property income (including rent). Industries that could be directly classified as producing non-durable goods accounted for 43 to 44 per cent

of national income and of aggregate payments, a somewhat smaller share of wages and salaries, a much larger share of entrepreneurial income, and a somewhat larger share of property income. With the addition of durable products from the mixed group, industries producing durable goods would perhaps account for not much more than one-fifth of national income or aggregate payments.

c) Industries in which unincorporated firms are still numerous accounted on the average for over half of national income and aggregate payments; those in which private corporations predominate, for 23 per cent, those in which semi-public corporations predominate, for 13 per cent, and government, for 11 to 12 per cent. The shares of these broad groups in the component income totals vary somewhat, but the distributions of wages and salaries and of property income tend to be roughly similar to those of national income and aggregate payments.

d) The industries whose shares in national income, aggregate payments, and *all* the component income totals declined over the period are anthracite coal, bituminous coal, textiles and leather, miscellaneous and rubber manufacturing, steam railroads, Pullman, and express, and street railways. The industries whose shares in *all* the comprehensive and component income totals rose are electric light and power, pipe lines, state, county, and city divisions of the government. In all other industries a rise or decline of shares in some countrywide income totals was accompanied by a decline or rise of shares in other totals. But if only national income and aggregate payments are considered, a significant decline occurred in the shares of the following industries (in addition to those listed above): agriculture, total mining, metal mining, 'other' mining, total manufacturing, construction materials and furniture, metal manufacturing, contract construction, water transportation, total finance, and real estate. The industries (in addition to those listed above) whose shares in national income and aggregate payments rose significantly are manufactured gas, tele-

phones, insurance, total service, total government (and all its subdivisions), and miscellaneous.

e) The shares of commodity producing industries in national income, aggregate payments, and some important component income totals decreased over the period, 1919–1938, as did those of commodity transporting and distributing industries, although not so much. The shares of service industries increased. The share of commodity producing industries in aggregate payments excluding entrepreneurial savings decreased also from 1909–18 to 1919–28, although not so markedly as from 1919–28 to 1929–38; that of commodity transporting and distributing industries increased from the first to the second decade, and decreased only from the second to the third; and that of service industries increased from 1909–18 to 1919–28, although not so markedly as from 1919–28 to 1929–38.

f) In national income, aggregate payments, and some component totals the shares of the two groups in Classification C in which unincorporated firms or private corporations predominate declined during the two recent decades; those of semi-public industries did not change significantly; and those of public industries rose markedly. In aggregate payments excluding entrepreneurial savings the decline in the share of industries with many unincorporated firms and the rise in the share of public industries characterized also the change from 1909–18 to 1919–28; but the shares of the other two groups (private and semi-public corporations) did not move consistently.

g) The divergence in movement among shares of one industry in countrywide income type totals arises from changes in the relative importance of the income types within industries and of total net income originating in the different industries. For most industries or industrial groups a decrease or increase in their shares in national income or in aggregate payments cannot be interpreted as a decrease or increase in their shares in each component—wages and salaries, entrepreneurial income, dividends, and interest.

h) Total net income and the income type totals originating

in the different industries fluctuate, on the whole, in close conformity with business cycles. The industries whose income type totals fail significantly to conform are anthracite coal, manufactured gas, telephones, contract construction, total finance and its subdivisions, and government. These are industries producing consumer goods, or so organized as to be unresponsive to transient changes in economic conditions, or having cycles of their own. The list of industries failing significantly to conform is longest for the industrial distribution of interest, a countrywide total itself insensitive to business cycles.

i) Income totals of various types originating in the broader industrial groups conform well to business cycles, showing the expected differences in degree. Incomes originating in the commodity producing group fluctuate in greater conformity than those originating in either the commodity transporting and distributing or service group; incomes originating in durable goods industries, than those originating in non-durable; incomes originating in industries in which private corporations predominate, than those originating in the other industry groups in Classification C.

j) Incomes originating in various industries differ greatly in the amplitude of their conforming fluctuations during business cycles. Wide amplitudes of conforming fluctuations characterize such commodity producing industries as are concerned with industrial raw materials and durable products (total mining, bituminous coal, metal mining, oil and gas, 'other' mining, total manufacturing, construction materials and furniture, metal manufacturing, chemicals, miscellaneous and rubber manufacturing, contract construction). Narrow amplitudes characterize industries concerned exclusively with consumer goods of the non-durable type or the more rigidly organized industries unresponsive to business cycles (anthracite coal, food and tobacco, electric light and power, manufactured gas, total finance and its subdivisions, government and some of its subdivisions). In the group with intermediate amplitudes of

conforming fluctuations are agriculture, steam railroads, trade, and telegraph, industries concerned with both consumer and producer goods or having cycles of their own.

k) Differences in amplitude of conforming fluctuations during business cycles appear again among incomes originating in the broad industrial groups. Incomes originating in commodity producing industries have much wider amplitudes than those originating in either the commodity transporting and distributing or service group. Incomes originating in durable goods industries have an even greater excess of amplitude over those originating in non-durable. Finally, incomes originating in industries in which private corporations predominate fluctuate in conformity with business cycles with a wider amplitude than incomes originating in any other group in Classification C.