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CHAPTER 2

Size and Relative Importance of Manufacturers' Inventories

Since this study is concerned mainly with manufacturers' inventories it is important at the outset to establish how large a portion of total inventories manufacturers hold. Table 3 presents two sets of estimates of inventories in the principal divisions of the economy. I have modified both sets and, to preserve comparability with estimates for manufacturing used elsewhere in this volume, substituted Kuznets' estimates for manufacturing for those prepared by Wendell D. Hance for the Department of Commerce.[1] Both estimates are based upon the same data, use similar methods to account for stocks held by unincorporated firms, and yield essentially similar results.

To facilitate comparison, the period 1928-33, in which the Kuznets and Commerce data overlap, is shown on both sides of the table. In two categories, Trade and Other, Kuznets' estimate is higher. The total discrepancy is $2.5 billion or about 10 percent of aggregate inventories. The lack of agreement arises from a large number of detailed differences in the procedures. For our purposes it suffices to note that since the Department of Commerce estimates of total inventories are lower the share of manufacturing is about 4 percentage points or 10 percent higher than in Kuznets' estimates in the period of overlap.

Apparently, manufacturing industries were, by a small margin,

[1] Kuznets has prepared estimates also for all industrial categories for years after 1933. These have not been published, although estimates of net annual changes in inventories derived from them, after correction for changes in prices, appear in his *National Product since 1869* as well as in this volume. With certain exceptions, however, I do not here rely on Kuznets' data after 1928 because Department of Commerce estimates are based upon more recent and complete information.

the leading holders of commodity stocks. Their value averaged somewhat less than $13 billion in 1918-27 and about $11 billion thereafter. The value of stocks held by other industrial divisions appears to have fallen further, for the share of manufacturers' inventories rises slightly over the whole period. In Kuznets' estimates the average share of manufacturing was about 38 percent of total inventories in 1918-27, and a little over 40 percent in 1928-33. In the Commerce figures it was 44.5 percent in 1928-33, and just under 46 percent in 1934-39. The changes from period to period are not large, however, in view of the rather long periods covered. The total rise from the early to the late years of the interwar period does not appear to have exceeded 4 percentage points. It seems

TABLE 3
Value of Inventories Held by Major Industrial Divisions, 1918-1939

(Dollar figures are averages of year end figures in billions at current book values. Percentage figures represent proportion of each category in total.)

	KUZNETS' ESTIMATES MODIFIED BY NBER[a]						COMMERCE DEPT. ESTIMATES MODIFIED BY NBER[b]					
	1918-1933		1918-1927		1928-1933		1928-1939		1928-1933		1934-1939	
	$	%	$	%	$	%	$	%	$	%	$	%
1) Mfg.	12.1	39.0	12.7	38.0	11.0	40.4	11.0	45.3	11.0	44.5	11.6	45.8
2) Mining	.7	2.3	.8	2.4	.5	1.8	.4	1.6	.5	2.0	.4	1.7
3) Trade	11.5	37.1	12.4	37.1	10.1	37.1	8.3	34.2	8.4	34.0	8.3	34.6
4) Transp.	.9	2.9	.9	2.7	.9	3.3	.8	3.3	.9	3.6	.7	2.9
5) Agr.	3.9	12.6	4.6	13.8	2.9	10.7	3.0	12.3	2.9	11.7	3.0	12.5
6) Other	1.9	6.1	2.0	6.0	1.8	6.6	.8	3.3	1.0	4.0	.6	2.5
7) Total	31.0	100.0	33.4	100.0	27.2	100.0	24.3	100.0	24.7	100.0	24.0	100.0

Except as noted below, estimates cover total inventories in each industrial division.

Line 4. *Transportation and other public utilities*: Corporations only; unincorporated business, however, is negligible.

Line 5, *Agriculture*: Covers only wheat, corn, oats, cattle and calves (except milk cows), hogs, sheep and lambs. Principal crop omitted is cotton; principal livestock omitted is chickens. Other important livestock categories, for example milk cows and horses, are excluded because they are of the nature of durable capital equipment.

Line 6. *Other*

Construction: Kuznets' data involve duplication with other industrial divisions to the extent that building materials are held by enterprises outside the construction industry in order to carry on construction on force account.

Service: Kuznets' data cover corporations only. For 1928-39 the Department of Commerce estimates the average inventories of unincorporated firms to be $151 million.

Finance and nature not given: Both Kuznets and the Department of Commerce cover corporations only. The latter excludes stock and bond brokers and dealers.

[a] From *Commodity Flow and Capital Formation*, Table VII-6. Line 5 comprises revised estimates of the same scope as the original figures but incorporates later Department of Agriculture revisions of the underlying data. For details of the procedure see ibid., Part VII.

[b] Prepared by Wendell D. Hance and published in the *Survey of Current Business*, Sept. 1942, p. 18, except for categories noted below:

Manufacturing: Estimates by Kuznets, 1928-36, and by me, 1937-39, were substituted for those prepared by Hance. For a description of the procedures see App. A. These figures differ in only minor respects from Hance's estimates. They are used here to preserve comparability with other data in this volume.

Agriculture: Data comparable in scope with those presented in *Commodity Flow and Capital Formation* are substituted for Hance's estimates which cover only agricultural corporations.

possible to say, therefore, that on Kuznets' calculations manufacturers normally held about 40 percent of all inventories; on the Commerce estimates, about 45 percent.

These estimates are subject to several qualifications. A minor difficulty is that neither estimate of total stocks is quite comprehensive and there is some double counting (see Table 3, notes). The net sum of all the omissions and duplications, however, would hardly increase total inventories as much as 2 percent. It is safe to conclude that they would not reduce the apparent share of manufacturing more than one percentage point.

A more serious difficulty is the vague boundary of the manufacturing division. The central notion suggested by the word is the manipulation of raw materials, as opposed either to their extraction or transportation to the fabricating plant or to the sale and distribution of the fabricated commodity. Every manufacturing concern, however, engages in some activities that are not manufacturing operations thus conceived. Some operations concerned with the assembly of raw materials and supplies and with the sale and distribution of the finished product appear almost always to be connected with the performance of the manufacturing function itself, and a large part of manufacturers' inventories are held in order to facilitate these operations. On the other hand, firms commonly considered to be engaged in mining, transportation, or trade usually perform some manufacturing operations. Mining firms often clean, crush, and concentrate the materials they extract. Trading firms often perform minor manufacturing operations on at least part of the goods they handle. In some cases they own establishments engaged primarily in manufacturing. The line between manufacturing and other industrial divisions is necessarily hazy.

In practice there are two solutions to the problem. One is the device adopted by the Census of Manufactures—to use the establishment as the basic unit of classification.[2] The implicit test for admitting nonmanufacturing activities to the manufacturing

[2] The Bureau of Census describes an establishment as follows: "As a rule the term 'establishment' signifies a single plant or factory. In some cases, however, it refers to two or more plants operated under a common ownership or located in the same city, or in the same State but in different municipalities

sphere is location in the same works or small area where operations are subject to central direction.

The second solution, that used by the Bureau of Internal Revenue in compiling *Statistics of Income,* underlies the estimates of Table 3. The reporting unit is the company or corporate unit. The implicit test for the admission of nonmanufacturing activities to the manufacturing sphere is the corporate charter. Nonmanufacturing activities carried on by a company whose main activity is fabrication are classified with other manufacturing industries whether carried on in a single plant or not; manufacturing activities carried on by a company whose main activity lies outside manufacturing are excluded.

The fuzziness this practice introduces into the industrial classification was, during part of the period, even more important than this statement suggests. From 1921 to 1933 affiliated corporations were permitted to make tax returns on a consolidated basis. Companies whose accounts were consolidated with those of affiliated companies were, of course, classified according to the main activity of the group, not according to their own main activity.[3]

As it happens, the company basis of classification brings a considerably larger volume of inventories within manufacturing than does the establishment basis (see App. A). Nonmanufacturing establishments owned by manufacturing companies are far more important than manufacturing establishments owned by nonmanufacturing companies. At the end of 1936, a date for which we have information on both bases, the adjusted census total of manufacturing inventories was $9.8 billion. Kuznets' estimate was $11.2 billion. A large part of the difference was due to Kuznets' inclusion of distributive establishments owned by manufacturing companies. An additional but smaller portion was accounted for by mining establishments similarly owned, while part of the remainder can be laid to shortages in census coverage.

(Continuation of footnote 2)
or unincorporated places having fewer than 10,000 inhabitants. On the other hand, separate reports are occasionally obtained for different industries carried on in the same plant, in which event a single plant is counted as two or more establishments."

[3] Problems raised by consolidated reports and their effect on the classification of companies are discussed in Appendix A, Section 1B(3).

Kuznets' total obviously includes a larger volume of inventories held to support nonmanufacturing activities strictly conceived than does the census total. It does not follow, however, that the criterion of classification underlying Kuznets' data is less useful than that underlying the census data, for the establishment criterion does not exclude from manufacturing distributive activities and the inventories that support them. It excludes them only if they are carried on in a separate establishment. The rival criterion draws the line at separate ownership, denoted by a distinct corporate charter. Both are arbitrary.

If some nonmanufacturing activities must be included, a more reasonable criterion than either would be to include any such activities as are exclusively or dominantly devoted to supporting the manufacturing activities of a given firm. This is the definition of the scope of manufacturing this study tries to apply. Thus wholesale distribution confined to the products or raw materials of a single firm might well be classified as part of manufacturing. From this point of view, the establishment criterion makes certain that few if any nonmanufacturing activities not confined exclusively to the support of a given company's manufacturing activities are included. But it will exclude many nonmanufacturing activities that on this criterion ought to be included. The ownership criterion manifestly has the opposite virtues and faults.

We are left, therefore, with the impression that the most useful measure of manufacturers' inventories is something under Kuznets' level but something above the census level. If so, we may reduce Kuznets' estimate by, say, half the difference between his and the census figure, that is, by roughly $700 million. In that event the share of manufacturing in the Commerce total would be about 43.5 percent, and the share on Kuznets' calculations about 37.5 percent. A good round number, therefore, to express the relative share of total inventories held by manufacturers in the interwar period is 40 percent. It is with this considerable block of total stocks that this study is concerned.