

This PDF is a selection from an out-of-print volume from the National Bureau of Economic Research

Volume Title: Distribution's Place in the American Economy Since 1869

Volume Author/Editor: Harold Barger

Volume Publisher: NBER

Volume ISBN: 0-87014-057-4

Volume URL: <http://www.nber.org/books/barg55-1>

Publication Date: 1955

Chapter Title: Measures Of The Cost Of Distribution

Chapter Author: Harold Barger

Chapter URL: <http://www.nber.org/chapters/c2697>

Chapter pages in book: (p. 55 - 64)

CHAPTER 4

Measures of the Cost of Distribution

BY "cost of distribution" we mean cost to the final purchaser. For us the cost of distribution is the gross spread, or the difference between the value of commodities leaving the distributive system and their value when they entered the system. We shall be concerned only indirectly with, and shall have little to say about, the costs or expenses of the individual retail or wholesale business as distinguished from its realized gross margin. We think of the "cost of distribution" as equivalent to a distributor's gross margin and including not only his expenses of doing business but also his net profit.

The cost of distribution, in the sense of the gross distributive margin or spread, may be likened to what we call "value added" in manufacturing, i.e. value of product minus value of materials consumed, or retail value minus value of goods entering the distributive system.¹ The spread can be measured in current, or even in constant, dollars; but it is perhaps most graphically expressed as a percentage of the final value of the goods concerned. However, changes have occurred in the character and proportion of output that enters the distributive system, and more than one base is possible against which to measure total distribution cost. Moreover, it is sometimes convenient to include transportation charges from factory to distributor in the cost of distribution. In general that is not our practice here; but for 1929 and prior years, estimates of transportation costs had to be made, and percentages that include such costs are shown in Tables 17 and 18.²

¹ However, the phrase "value added by distribution" as used in this study covers only the distribution of finished goods and construction materials and neglects the distribution of unfinished goods; hence it is less inclusive than might perhaps be supposed. See discussion in Chapter 2 above.

² Goods entering the distribution system (Appendix Table B-4) are valued after charges for transportation from producer to initial distributor (whether wholesale or retail); such charges are not included in wholesale or retail margins nor in value added by distribution. On the other hand, the wholesale margin and value added by wholesalers include cost of delivery from wholesaler to retailer; the retail margin and value added by retailers include cost of delivery to ultimate consumers. We believe that, broadly speaking, these definitions are in accordance with accounting practice throughout the period. Even where the retailer paid freight on goods bought, such freight always was regarded as cost of goods sold and not as

COST OF DISTRIBUTION

From Chapter 6 it will be apparent that the original source material on distributive margins affords a continuous body of data, sparse in early years and gradually increasing in volume as the period advances. To combine these data into an average distribution cost for the economy as a whole, a weighting system is needed, and this may be based either on (1) commodity output or (2) volume of sales. However, since the first federal census of distribution was not taken until 1929, for 1869–1929 we are in any case forced to use the commodity-output method, building up retail sales totals from production data. For 1929, 1939, and 1948, on the other hand, censuses of distribution give us retail sales directly, and the more laborious (and probably less accurate) commodity-output method can be discarded in favor of the volume-of-sales method. The two methods are explained more fully in Chapter 5.

1869–1929: Commodity-Output Method

A summary of distribution cost for 1869–1929 is assembled in Tables 17 and 18. Because the weighting system used is based upon commodity output, it is relatively easy to assemble figures both for consumer goods and for all commodities that pass through retail channels. The difference consists of those producer goods that are retailed: office furniture, business vehicles, tools, farm equipment, and construction materials.

All Commodities Retailed. The first four rows of Table 17 cover the distribution of all commodities sold through retail stores (excepting used cars and other secondhand goods), a retail store being defined as in the census to include bars, restaurants, lumber yards, and automobile and farm-implement dealers, in addition to the more conventional type of store (for further details see Appendix Table B-7). It is evident that a slow but steady rise occurred in the gross distributive spread, as measured by the ratio of value added to retail value: from about 33 per cent of retail value soon after the Civil War to about 37 per cent in 1929. This trend is the combination of a rather sharper rise in the retail margin and a mild decline in the relative contribution of the wholesaler. The row for "value added an expense item (or a component of the gross margin); see, e.g., *New England Grocer*, July 14, 1884, p. 16, and the University of Kentucky records mentioned in Chapter 6. But if the retailer paid the freight, it obviously was not included in the wholesale margin. Suggestions that the separate billing of freight by the wholesaler formerly was commoner than it is today are occasionally found (see, e.g., reminiscences of 1870 in the *Wholesale Grocer News*, August 1926, p. 7). If this was indeed common practice, as it is not today, our figures for wholesale margins and for value added by wholesaling (as defined) are subject to a corresponding upward bias.

MEASURES OF COST

by retailers" does actually represent the average retail margin for the years indicated. On the other hand, it should be noted that the data entitled "value added by wholesalers" understate the wholesale margin as a percentage of wholesale sales because (1) the figures shown are expressed in terms of (ultimate) retail instead of wholesale value and (2) not all commodities pass through wholesale channels (see Chapter 5).

Table 17
MEASURES OF DISTRIBUTION COST, 1869-1929 ^a
(per cent of retail value)

	1869	1879	1889	1899	1909	1919	1929
All commodities retailed: ^b							
Value added by:							
Wholesalers	9.5	9.6	9.6	9.2	8.9	8.5	8.1
Retailers	23.2	24.1	25.1	26.2	27.6	28.0	28.9
Distribution, total	32.7	33.7	34.7	35.4	36.5	36.5	37.0
Freight charges ^c plus value added by distribution	37.7	39.1	38.8	39.8	40.1	39.6	41.7
Consumables retailed:							
Retail value of consumables ^d	88.2	89.9	88.3	89.6	89.6	91.1	89.4
Value added by distribution	32.3	33.6	34.8	35.7	36.8	36.6	36.9
Freight charges ^c plus value added by distribution	37.1	39.2	38.8	39.9	40.3	39.5	41.4

^a Computed from Tables 24 and 25 and data in Appendix B. Data are weighted by retail sales, the latter being estimated from commodity output.

^b Consumables; also office furniture, business vehicles, tools, farm equipment, and construction materials to the extent that these were sold through retail stores. As defined in this study, distribution includes bars and restaurants—enterprises with somewhat high margins that engage in a certain amount of processing. If bars and restaurants are excluded, value added by wholesalers is not changed; but value added by retailers, and by distribution as a whole, as a per cent of retail value, read as follows:

	1869	1879	1889	1899	1909	1919	1929
Value added by retailers	22.0	22.5	23.3	24.2	25.5	26.5	27.5
Value added by distribution	31.5	32.2	33.0	33.5	34.5	35.1	35.6

^c Between producer and initial distributor.

^d Per cent of all commodities.

The rise in distribution cost was slow but steady. Freight charges between producer and initial distributor, on the other hand, seem to show erratic variation, even though based on five-year averages. The reason is that, although freight rates themselves changed only slowly, prices moved up and down; so that, as a percentage of retail value, sizable fluctuations in freight charges occurred. In fact freight charges declined in relation to commodity prices about as fast as

COST OF DISTRIBUTION

distribution cost rose. As a consequence the combined share in the retail dollar of distribution cost and freight charges remained remarkably stable.

Consumable Commodities. Consumables constitute about nine-tenths of all retail sales, and this fraction has varied little over time (Table 17). The cost of distributing those producer goods that are retailed is much the same as for consumer goods, and the margins with and without transportation charges, shown in the last two rows of the table, are practically identical with those for all commodities.

Table 18

THE COST OF DISTRIBUTING CONSUMABLES, 1869-1929^a
(per cent of producers' value)

	1869	1879	1889	1899	1909	1919	1929
Ratio of:							
Consumables retailed to all consumables	72	80	83	85	86	87	87
Value added by distribution to:							
Consumables retailed	51	55	57	59	62	61	63
All consumables	37	44	47	51	53	53	55
Freight charges ^b plus value added by distribution to:							
Consumables retailed	59	64	64	66	68	65	71
All consumables	43	51	53	57	58	57	62

^a Computed from Tables 24 and 25 and data in Appendix B. In this table "consumables retailed" and "all consumables" are measured in producers' prices before freight charges; hence it shows much of the "margin" data (i.e. per cent of retail) of Table 17 in "markup" form (i.e. as per cent of cost). "Consumables" includes office furniture, business vehicles, tools, farm equipment, and construction materials to the extent that these were sold through retail stores.

^b Between producer and initial distributor.

We saw in Chapter 2 that the resources devoted to distribution, and its aggregate cost, are greatly influenced by the varying degree to which commodities enter distribution channels. We saw earlier that the fraction of all finished goods and construction materials that is distributed by retailers rose from maybe 70 per cent or less at the opening of our period to 77 per cent in 1929 and 80 per cent in 1939 (Table 10). In Table 18 we have computed the same fraction for consumable commodities (a more restricted category than finished goods) and find that it rose even more rapidly—from 72 per cent in 1869 to 87 per cent in 1929.³ This trend reflects

³ The figure for 1869 was probably less than 72 per cent, and the rise in the percentage more rapid than is suggested by the table. The reason is that our calculation was made by commodity groups, and we used a lower percentage in earlier

MEASURES OF COST

the urbanization of the United States, the transfer of function from the household to the factory, and the diminished dependence on local supplies—for instance, the purchase of factory-made dairy products from a storekeeper instead of their fabrication on the farm for home consumption or distribution by the farmer.⁴

The rise in the proportion of output passing through the distribution system implies a certain ambiguity in our concept of distribution cost. The percentages already given in Table 17—our basic measures—refer only to that part of output which is distributed. They compare distributive spread with retail value *for those goods which pass through the system*. But if we take a wider view, and look at all consumables as having a potential need for distribution, we can think of those which do not pass through the system as having a zero distribution cost. If these are averaged in, we can compute a new set of percentages which compare the distribution cost of consumables with the entire output of consumables. The numerator is as before, but the denominator has been broadened.

Table 18 is necessarily based on value at the point of production of the completed commodity rather than on retail value. With this change, the figures for “consumables retailed” are identical with our basic measures already given in Table 17. But for comparison, in the rows designated “all consumables,” we have related distribution cost to the entire output of consumables. That is to say, we have included farm products consumed on farms where produced, or sold locally by the farmer, and have assigned to such products zero margins for transportation and distribution. As a consequence the figures reflect the increasing fraction of goods passing through the distribution system in the form of an upward trend in distribution cost. The rise in distribution cost so measured is caused not by a greater expense in handling a given item, but by a change in the locus of production or in the community’s living habits that has enlarged the volume of goods requiring the services of a distributor.

These considerations explain why the percentages for “all consumables” in Table 18 are lower, but also rise more rapidly, than the basic series for “consumables retailed.” They indicate that the concept of distribution cost—even in the sense used here of “margin” or “spread”—is not a simple one. Different measures may suit different ends.

years than in 1929 only when we had definite evidence (Appendix Table B-2). For many commodities, for lack of evidence, we used the 1929 percentage throughout, although in earlier years it surely was lower in these cases also.

⁴ A farmer (or other producer) who sells at retail is not counted by us as a retailer, and his products are not considered to enter the distribution system.

COST OF DISTRIBUTION

1929-1948: Volume-of-Sales Method

In Table 19 the story is carried forward from 1929 to 1948. For these years the census of distribution furnishes us with retail sales for weighting purposes, and we no longer need to build up the figures from commodity output. On the other hand, the fact that we make no commodity estimates for 1939 and 1948 means that we cannot offer separate estimates for the cost of distributing consumables. It should be emphasized that the two estimates for the overlapping year 1929 use identically the same margin data (Chapter 6) and differ (value added is given as 37.0 per cent of retail value in Table 17, 36.6 per cent in Table 19) only because commodity-output weights are used in the one case, volume-of-sales weights in the other. Conceptually, a single result should emerge, but in practice the data used in weighting come from different sources and the calculations cannot be exactly reconciled.

Table 19

MEASURES OF DISTRIBUTION COST, 1929-1948 ^a
(per cent of retail value)

	1929	1939	1948
All commodities retailed: ^b			
Value added by:			
Wholesalers	8.0	7.6	7.7
Retailers	28.6	29.7	29.7
Distribution, total	36.6	37.3	37.4

^a Computed from data in Appendix B. Data are weighted by retail sales from the census of distribution. Years are those in which such a census was taken.

^b Consumables; also office furniture, business vehicles, tools, farm equipment, and construction materials to the extent that these were sold through retail stores. No segregation of consumables from producer goods can be made when (as here) the volume-of-sales method is used. As defined in this study, distribution includes bars and restaurants—enterprises with somewhat high margins that engage in a certain amount of processing. If bars and restaurants are excluded, value added by wholesalers is not changed; but value added by retailers, and by distribution as a whole, as a per cent of retail value, read as follows:

	1929	1939	1948
Value added by retailers	26.6	26.6	26.6
Value added by distribution	35.0	34.7	34.6

The indications in Table 19 are that the slow rise of value added as a percentage of retail value in Table 17, most of which occurred before 1909, had about run its course by 1929; any further rise between 1929 and 1948, if it occurred, was inappreciable.

Has Distribution Cost Increased?

In the course of the fieldwork upon which the study is based, we had opportunity to sample opinion upon this question. At a time when the preceding results were not yet available, a canvass of senior retail executives with long memories, in New York City and Boston, yielded opinions about equally divided between those who thought margins were about the same as prior to World War I and those who believed margins formerly were lower than in recent years. For some time the latter impression has received support from the only continuous published series which stretches back, that of Macy's, whose gross margin apparently rose from about 20 per cent of net sales in the early 1870's to over 30 per cent in 1920.⁵ It is perhaps significant that long series of operating data for a handful of other New York stores, which were placed at our disposal on a confidential basis, also uniformly disclosed an upward trend in gross margin after all possible adjustments for comparability had been made. None of these extended as far back as the Macy material. The belief that retail margins formerly were lower, and by inference over-all costs of distribution as well, has also been expressed by others.⁶

It is pretty generally realized that the rise in, say, department store margins is not, in itself, convincing evidence of dearer distribution but has to be taken in conjunction with other trends, e.g. the rise of direct buying and the gradual elimination of the wholesaler as a source of supply for certain types of retailer. Undoubtedly some retail merchants have absorbed the wholesaling function, at least in part; to this extent higher retail margins do not necessarily reflect higher costs of distribution when the whole story is told. Again, it was generally admitted by store officials in conversation that department stores are not representative of retailing in general, and that even if some types of merchandising required higher margins than formerly, the undoubted decline in grocery margins (for instance) due to the revolution in food merchandising since about 1910 must have worked in the opposite direction. However, the

⁵ Ralph M. Hower, *History of Macy's of New York 1858-1919*, Harvard University Press, 1943, pp. 390-391. The word "apparently" is used because if suitable adjustment is made for leased departments in early years, the figure is found to be somewhat above 20 per cent, and the contrast between then and now is less striking, although still substantial.

⁶ See note by Oswald Knauth at the front of Simon Kuznets, *National Product since 1869*, National Bureau of Economic Research, 1946; F. T. Hypps, "The Department Store," *Annals of the American Academy of Political Science*, September 1937; Twentieth Century Fund, *Does Distribution Cost Too Much?* 1939, pp. 123-124.

COST OF DISTRIBUTION

course of events in individual types of merchandising will be reviewed in Chapters 6 and 7 and need not detain us here.

If by distribution cost is meant the share of the consumer's dollar absorbed by the distributive process as we have defined it, then our data indicate that distribution cost has in fact increased during the decades since the Civil War.⁷ It has increased rather slowly—not nearly as rapidly as might be surmised from a glance at the Macy figures mentioned above. Moreover, the rise in the cost of distribution has been offset in part, if not entirely, by a decline in freight charges (Table 17).

Yet the measurements we have given, even if we assume they are accurate, are not the only way of looking at distribution cost. In the first place, as we saw in Chapter 3, man-hours per unit of net output (i.e. service performed) undoubtedly declined—and man-hours per unit is a perfectly proper measure of distribution cost. Admittedly the statistical record does not suggest that the decline was as rapid as in manufacturing, say, or transportation. But, as we saw in Chapter 2, the net output, i.e. the true service performed, by distribution is hard to measure and such measures as that offered in this book (Table 10) may well be biased downward.

In the second place, our measures are subject to qualifications of a different order. It is plain that the *function* of distribution is not by any means coextensive with the *industry* whose net output (or value added) we have used here to measure distribution cost. In particular, a substantial part of the activities of manufacturers and other producers is devoted to advertising, selling, stock-keeping, breaking bulk, and other merchandising activities. We have seen that packaging, originally considered a distributive function, has been taken over by the manufacturer. How must our story be modified to take account of the divergence between the function and the industry?

Manufacturers' selling costs of 15 to 20 per cent of sales, and higher, have commonly been reported, and many of the higher percentages undoubtedly rule in the consumer goods field where national advertisers are to be found. Yet it should not be thought that we have omitted all, or even a major part, of this activity. For, in following the definitions of the Bureau of the Census, manufacturers' sales branches are treated as wholesalers, and their "value added" is included in our data. In principle, at least, the "producer's value" of goods means their value at the factory, and the increment due to

⁷ It would be nice if we could check this result by comparing retail with *producers'* prices for selected commodities, but no data are available for such a test. A comparison of retail with *wholesale* prices, for food and furniture (the only ones available), suggested a somewhat more rapid rise in distribution cost than we report for food and furniture stores.

MEASURES OF COST

the cost of sales branches is part of value added by distribution in our sense. On the other hand, the sales activities of "central administrative offices" in the manufacturing field, and especially the cost of national advertising by manufacturers of consumer goods, is included in production cost and not in the cost of distribution, so far as our figures go. Furthermore, the merchandising activities of producers or distributors of unfinished goods are also included here in the production, and not in the distribution, cost of finished commodities. To this extent the percentages of Table 17 and 19 understate the full costs of distribution in the economy as a whole—especially when we mean by "distribution" a function rather than an industrial segment.⁸

Some (but not all) merchandising functions performed by manufacturers with respect to finished (and especially consumer) goods evidently are omitted from our estimate of value added by distribution and are included instead in value added by manufacture. Even more interesting than the precise magnitude of these costs would be information as to their behavior through time. Is it likely that these omitted costs have paralleled our own estimates of distribution cost or have become more or less important? If the chief cost omitted by us should be national advertising, we may hazard the guess that it has grown relatively more important during our period. In which case, it would appear that the percentage figures for distribution cost in Tables 17 and 19 are biased downward.

Distribution Cost and National Product

The history of distribution cost is interesting for its own sake; and, as we saw in Chapter 3, it throws an undoubted, if somewhat indistinct, light upon relative trends in labor productivity. Still another use is to aid in the projection of estimates of national income or product back into the past. The decade estimates published by Simon Kuznets⁹ have rested upon the hitherto somewhat insecure assumption that transportation and distribution costs of consumables have not varied since the Civil War.

In fact the assumption is only roughly fulfilled. Distribution cost rose slowly, but freight charges declined; and the ratio of distribution cost plus freight charges to producers' value scarcely rose at all

⁸ Probably these matters go only a small part of the way to explain the difference between our estimate of 42 per cent of the retail value of all finished goods in 1929 (Table 17) and the Twentieth Century Fund figure of 59 per cent (*Does Distribution Cost Too Much?* pp. 117-119) for distribution cost including transportation. Thus in addition to the matters indicated, the Fund regards the transportation charges of unfinished as well as finished goods as an expense of distribution.

⁹ *Op.cit.*, p. 63.

COST OF DISTRIBUTION

(Table 18, figures for "consumables retailed"). More important, of all consumables the fraction that entered the distribution system—and so became subject to distribution cost—rose rather sharply. Averaging adjacent census years, the appropriate markup to apply to consumables in producers' values was 47 per cent in 1869–1879 and 59 per cent in 1919–1929 (Table 18, last line). Since Kuznets estimates services on the basis of commodities, this argues a 7 to 8 per cent overstatement of consumer expenditures in 1869–1879 (relative to 1919–1929), and a somewhat smaller overstatement of gross national product for early years.¹⁰

¹⁰ If the scope of revision of long-range estimates of national product is broadened, the downward bias disclosed in the text might possibly be offset, or more than offset, by an upward bias due to the undercoverage of early censuses and the omission of some items (e.g. firewood) whose importance has diminished.