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## CHAPTER 7

### Measures of Spread by Kind of Outlet

ALTHOUGH they form the necessary raw material for any study of distribution cost, the results of the preceding chapter are of limited interest until retail and wholesale margins are combined. However, we cannot combine the data of Tables 24 and 25 (Chapter 6) until we know what proportion of the flow to any kind of retail outlet passes through wholesale channels, and so is subject to wholesale markup, and what proportion flows directly from producer to retailer, and so is subject to retail markup only. The information necessary to answer this question was originally worked up on a commodity basis, as shown in successive sections of Appendix Table B-5. The proportions for all commodities (measured in producers' values after transportation costs) distributed by any given kind of retail outlet are shown in the final or summary section of the table. By combining the results of Tables 24 and 25 and Appendix Table B-5, we reach the measures of distributive spread (i.e. value added by distribution, or combined retail-wholesale margin) for each kind of retail outlet shown in Table 26.

Except in the case of restaurants, differences between Tables 24 and 26 are due solely to the inclusion of value added by wholesaling. In the case of restaurants we have also included tips. For this item in 1929, 1939, and 1948 we have estimates by the Department of Commerce.<sup>1</sup> Apparently, at the opening of our period, tipping in restaurants was almost unknown. Special personal service, such as the preparation of some rare dish, might be rewarded;<sup>2</sup> yet we read that "it is not necessary to fee porters and waiters in the States, as it is in Europe, but the practice has some slight and irregular observance. The traveller is free to do as he pleases in the matter. Nothing of the kind is ever demanded."<sup>3</sup> But the European practice was contagious: soon after 1900 a different note is sounded. In 1904,

<sup>1</sup> *Survey of Current Business*, National Income Table 30.

<sup>2</sup> *Appleton's Illustrated Handbook of American Travel*, 1857, p. 8.

<sup>3</sup> *Ibid.*, "Northern and Eastern Tour," 1871, p. iv.

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Table 26

**DISTRIBUTIVE SPREAD BY KIND OF RETAIL OUTLET, 1869-1947<sup>a</sup>**  
(per cent of retail value)

|   | 1869 | 1879 | 1889 | 1899              | 1909 | 1919 | 1929         | 1939 | 1947 |
|---|------|------|------|-------------------|------|------|--------------|------|------|
| Grocery, independent                          | 27.3 | 27.7 | 27.7 | 28.3              | 28.7 | 29.7 | 30.1         | 29.7 | 28.8 |
| Grocery, chain                                | ...  | ...  | ...  | 19.0              | 18.9 | 20.7 | 21.5         | 21.1 | 20.5 |
| Milk  | 52.0 | 52.0 | 52.0 | 52.0              | 52.0 | 52.0 | 52.0         | 52.0 | 52.0 |
| Meat  | 33.8 | 33.9 | 34.0 | 34.0              | 33.2 | 32.7 | 32.0         | 29.0 | 26.0 |
| Candy   | 50.0 | 50.0 | 50.0 | 50.0              | 50.0 | 46.9 | 45.6         | 44.7 | 44.8 |
| Country general                               | 29.7 | 29.8 | 30.4 | 30.7              | 31.4 | 31.8 | 31.2         | 31.0 | 31.0 |
| Department                                    | ...  | ...  | ...  | 29.4              | 32.2 | 35.6 | 36.6         | 39.4 | 38.7 |
| Mail order                                    | ...  | ...  | ...  | 24.4              | 25.0 | 25.6 | 26.2         | 27.4 | 28.0 |
| Dry goods                                     | 31.5 | 32.5 | 33.3 | 36.7              | 42.2 | 44.9 | 43.6         | 43.6 | 43.6 |
| Variety                                       | ...  | ...  | ...  | 31                | 33.3 | 34.7 | 34.7         | 34.6 | 36.0 |
| Apparel                                       | 29.3 | 30.9 | 32.6 | 34.4              | 35.9 | 37.6 | 39.2         | 39.3 | 40.9 |
| Shoes, independent                            | 27.3 | 29.0 | 30.4 | 33.5              | 36.0 | 37.6 | 39.0         | 41.6 | 43.3 |
| Shoes, chain                                  | ...  | ...  | ...  | 33.5              | 33.5 | 32.0 | 30.5         | 28.9 | 27.6 |
| Furniture, independent                        | 37.3 | 38.1 | 38.4 | 39.0              | 39.3 | 46.4 | 49.5         | 46.1 | 44.9 |
| Furniture, chain                              | ...  | ...  | ...  | 44.0              | 44.0 | 44.0 | 44.0         | 44.0 | 44.0 |
| Household appliances                          | 47.5 | 46.3 | 47.4 | 46.2              | 46.6 | 46.5 | 46.8         | 46.8 | 46.8 |
| Vehicles                                      | 26.8 | 27.4 | 27.6 | 27.7              | 28.2 | 28.4 | 28.0         | 29.4 | 29.4 |
| Automobile accessories                        | ...  | ...  | ...  | 36.4              | 41.4 | 39.5 | 42.1         | 42.2 | 41.8 |
| Filling stations                              | ...  | ...  | ...  | 25.0              | 23.3 | 24.2 | 27.3         | 29.2 | 29.1 |
| Coal and lumber                               | 19.6 | 20.8 | 22.7 | 23.4              | 26.2 | 28.7 | 31.9         | 33.9 | 35.2 |
| Hardware                                      | 40.7 | 40.6 | 39.3 | 38.0              | 40.0 | 42.4 | 44.1         | 45.9 | 46.8 |
| Farm implements                               | 32.4 | 32.5 | 30.8 | 30.1              | 30.1 | 30.6 | 31.9         | 34.4 | 35.5 |
| Restaurants <sup>b</sup>                      | 60.0 | 59.7 | 59.7 | 59.6              | 60.0 | 60.7 | 62.9         | 65.1 | 66.5 |
| Bars  | 55.2 | 55.2 | 55.2 | 55.2              | 55.2 | 55.2 | ...          | 52.7 | 52.7 |
| Drugs   | 39.8 | 41.6 | 44.2 | 46.7              | 49.4 | 51.1 | 49.6         | 47.6 | 48.0 |
| Liquor  | 46.5 | 46.3 | 45.9 | 46.0              | 46.2 | 46.1 | ...          | 37.0 | 37.1 |
| Books and stationery                          | 36.5 | 35.6 | 36.0 | 37.8              | 39.2 | 42.1 | 44.2         | 46.2 | 46.3 |
| Cigars  | 34.8 | 37.2 | 35.6 | 31.7              | 34.2 | 33.7 | 32.5         | 30.8 | 30.5 |
| Jewelry                                       | 46.9 | 46.3 | 46.4 | 46.5              | 48.2 | 51.7 | 55.2         | 54.1 | 52.9 |
| Cameras, luggage, toys,<br>and sporting goods | 43.8 | 46.7 | 43.3 | 46.3              | 46.1 | 46.0 | 47.2         | 46.3 | 45.8 |
| Musical instruments                           | ...  | ...  | ...  | same as furniture |      |      |              |      |      |
| All groups <sup>c</sup>                       | 32.7 | 33.7 | 34.7 | 35.4              | 36.5 | 36.5 | 37.0<br>36.6 | 37.3 | 37.4 |

... = not applicable.

<sup>a</sup> Computed from Tables 24 and 25 and Appendix Tables B-4 and B-5. Figures in this table represent combined retail and wholesale margin (where applicable), i.e. value added by distribution.

<sup>b</sup> Including tips.

<sup>c</sup> First figure for 1929 is comparable with earlier years, second figure with later years. Difference is due entirely to variation in weights used in averaging: see discussion in text and Appendix B, especially Table B-6.

Baedeker reports that "tipping the waiter is, perhaps, not so general as in Europe, but it is usually found serviceable when several meals are taken at the same place."<sup>4</sup> Thereafter, demoralization was rapid

<sup>4</sup> Karl Baedeker, *The United States, with Excursions to Mexico, Cuba, Porto Rico and Alaska*, Leipzig, 1909, p. xxv. The statement is repeated from the 1904 edition.

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and complete. By 1913 one traveler, who on a previous trip in 1900 found tipping unknown, now complains bitterly of the situation;<sup>5</sup> another remarks how quickly the practice has become popular.<sup>6</sup> We have therefore assumed that through 1899, tips could be neglected; and that between then and 1929 (when the Department of Commerce puts the item at about 3 per cent of restaurant sales) its importance grew in a straight line.

In a few cases where we know that substantially the whole (and we have assumed that the whole) of retailers' purchases are made direct from producers and not through a wholesaler, figures in Table 26 are the same as in Table 24. Such are mail-order and variety stores, and shoe and furniture chains. A newcomer, the retailer of milk, did not feature in Table 24 because the retail margin cannot be expressed separately.

Many other contrasts will be noticed. Retail margins for chain and independent groceries are almost the same (Table 24); but when wholesaling is included, distribution through independents is found to have a much higher total spread (Table 26): of course independents also furnish more service. In Table 24 the department store, which grew out of the dry-goods store and began life with the same margin, had by the end of our period a far higher margin than the dry-goods store. Yet Table 26 shows that, because of the much smaller dependence of the department store upon the wholesaler, the distribution system actually added a smaller value to goods sold through department stores than to goods retailed by dry-goods merchants. In sum, data in Table 26 are equal to, or higher than, data in Table 24; and the difference is large where retailers buy much from wholesalers and where the wholesale margin is substantial, and vice versa.

### *The Dispersion of Costs*

No doubt some retail margins in Table 24 are higher than they would be if the retailers concerned had bought more from wholesalers. Direct buying from producers, that is to say, involves some assumption of wholesale functions and some additional expense. This can be most readily documented in the case of department stores, many of which participate in cooperative buying organizations,<sup>7</sup> which they would not have to do if they bought from jobbers.

<sup>5</sup> Mrs. Alec Tweedie, *America As I Saw It*, Macmillan, 1913, p. 332.

<sup>6</sup> J. Nelson Fraser, *America, Old and New*, London, J. Ouseley Ltd., 1913?, p. 90.

<sup>7</sup> Inquiry in the trade suggests that the expenses of such organizations usually are included in the store's gross margin rather than in the cost of the goods it buys through them.

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That is to say, we can attribute the dispersion shown by Table 24 in part to variations in retailers' buying practices and the extent to which they themselves have assumed wholesale functions. In Table 26, however, this cause of dispersion no longer is present; all costs of buying from the original producer and other expenses involved in the wholesaling function, whether borne by retailer or wholesaler, are uniformly included.

For these reasons we should expect the dispersion of the data to be smaller in Table 26 than in Table 24. The matter can be put to the test. For the year 1939 all categories, except milk dealers, restaurants, and bars, were weighted by retail sales (Appendix Table B-6). The standard deviations were found to be roughly the same, but the mean margin is higher in Table 26 than in Table 24. The coefficients of variation are 0.29 for Table 24 and 0.22 for Table 26; the difference between these figures is about three times its standard error when the latter is computed on the assumption that our classification furnishes us with twenty-six degrees of freedom. We may therefore say that the data are consistent with the hypothesis that some of the dispersion of Table 24 is due to differences in the degree to which retailers in the various categories themselves choose to discharge wholesaling functions or prefer to leave such functions to their suppliers.

The dispersion of the measures of total spread in Table 26, by contrast, is not influenced by the result of this choice. Here all costs incurred for wholesaling are included. For an explanation of the smaller but still substantial dispersion shown by Table 26, we must look elsewhere.

Let us first consider stores where the spread is greatest. Through four kinds of retail outlet, distribution has in recent years contributed as much as one-half of the retail value of goods sold—milk dealers, restaurants, bars, and jewelry stores. These are high-cost forms of distribution for obvious though dissimilar reasons. The first two cases are among those few in which the distributor is expected to process—almost to fabricate—the product he sells. The distribution of milk includes the cost of pasteurization; the restaurant proprietor must prepare the food and sometimes also entertain his guests. The high cost of distributing liquor through bars may also in part result from the provision of entertainment; a more general factor here is, however, the heavy license fee, which becomes part of the retailer's expense and therefore of his gross margin. The relatively recent addition of goods distributed through jewelry stores to the group—in which more than half the retail value is contributed by the distributor—we may attribute partly at least to the growing practice of selling on credit.

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At the other end of the scale we notice that for chain groceries distribution supplied less than one-quarter of the retail value of the goods sold. Here the success in cutting expenses must be attributed in part to a refusal to offer credit, delivery services, and other "frills." For several remaining categories the spread, though higher, was under 30 per cent of retail value: meat markets, mail-order houses, chain shoe stores, vehicle dealers (automobile salesrooms), and filling stations.

### *Trends in Distributive Spread*

Most of the series in Table 26, as in Tables 24 and 25, drift upward; but there are exceptions. The cost of milk distribution has remained rather stable: apparently increased sanitary requirements have been roughly balanced by technical economies. The declines reported for meat markets and cigar stores reflect similar declines in retailers' margins (Table 24), upon which we have already commented in Chapter 6.

The total for all groups in Table 26 is of course the same series as that for value added by distribution as a percentage of retail value already given in Tables 17 and 19 (Chapter 4). It is obtained by averaging all categories shown, using the estimates of retail sales in Appendix Table B-6 as weights. The slowly rising spread for all groups is thus a composite of the movements of the individual series in Table 26. These movements are influenced in turn by the trend of retail margins (Table 24), of wholesale margins (Table 25), and of the relative importance of wholesaling and of different retail outlets (Appendix Table B-5).

With the help of a little algebra, we can partition the change in distributive margin, say between 1869 and 1929, among the four factors mentioned (Table 27). This kind of calculation of course gives an ambiguous answer, for if the change is to equal the sum of its parts, the result will depend upon the order in which the partition is effected. We made two alternative calculations, as indicated in the note to Table 27. They agree in reporting, as one might expect, that the rise in retail margins was the most important factor in expanding the total spread. They both report smaller contributions from the rise in wholesale margins and from an increased amount of wholesaling. The two calculations disagree as to the direction of the influence of shifts among kinds of retail outlet: when the latter are weighted by 1869 margins, the effect of such shifts is positive; weighted by 1929 margins, it is negative.

The finding that the rise in distribution cost was partly due to the increased importance of wholesalers (i.e. to more middlemen) may seem surprising. The percentage of commodities passing through

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wholesale channels (in producers' values including transportation) declined from sixty-nine in 1869 to sixty in 1929 (Table 20, Chapter 5); the remainder, which moved direct to retailers, increased correspondingly. This over-all decline in the importance of wholesaling was entirely due to the rise of retail outlets (chain stores, department stores, and mail-order houses) which purchase (and always did purchase) little or nothing from wholesalers. There was no decline over the period, but on the contrary a small increase, in the extent to which wholesalers supplied the kinds of outlet which have traditionally used them as a source. The over-all importance of wholesaling declined because these outlets enjoyed a declining share of all retail business. Consequently, the finding that the rise in distribution cost is partly associated with an increase of wholesaling involves no inconsistency.

Table 27

PARTITION OF CHANGE IN SPREAD, 1869-1929  
(per cent of producers' value including freight)

|                                     |                                 |                                 |
|-------------------------------------|---------------------------------|---------------------------------|
| Distributive spread:                |                                 |                                 |
| 1869                                |                                 | 48.6                            |
| 1929                                |                                 | 59.7                            |
| Change, 1869-1929                   |                                 | 11.1                            |
|                                     | <i>First</i>                    | <i>Second</i>                   |
|                                     | <i>Calculation</i> <sup>a</sup> | <i>Calculation</i> <sup>b</sup> |
| Change associated with:             |                                 |                                 |
| Change in importance of wholesaling | 0.8                             | 1.7                             |
| Change in wholesale margin          | 1.6                             | 2.4                             |
| Change in retail margin             | 6.3                             | 7.9                             |
| Shift among kinds of retail outlet  | 2.3                             | -0.9                            |

<sup>a</sup> Obtained as follows:

Let  $x$  be the ratio of input into distribution for any kind of retail outlet to total input (measured in producers' prices plus freight),

$w$  be the ratio of wholesale sales to cost of goods to wholesaler,

$r$  be the ratio of retail sales to cost of goods to retailer,

$p$  be the fraction of the retailer's purchases made from wholesalers and  $(1 - p)$  the fraction made direct from producers.

Then, denoting years by suffixes, and summing over all retail outlets, the change in spread is  $\Sigma x_2 r_2 (w_2 p_2 + 1 - p_2) - \Sigma x_1 r_1 (w_1 p_1 + 1 - p_1)$ ;

the part of the change in spread associated with changes in the importance of wholesaling is  $\Sigma x_2 r_2 (w_2 - 1) (p_2 - p_1)$ ;

the part associated with changes in wholesale margins is  $\Sigma x_2 r_2 p_1 (w_2 - w_1)$ ;

the part associated with changes in retail margins is  $\Sigma x_2 (w_1 p_1 + 1 - p_1) (r_2 - r_1)$ ;

and the part associated with shifts among kinds of retail outlets is  $\Sigma r_1 (w_1 p_1 + 1 - p_1) (x_2 - x_1)$ .

<sup>b</sup> Obtained as in note a, by transposing all suffixes.

The calculations underlying Table 27 show that most of the increased dependence on wholesalers was by retailers of coal and lumber (with respect to building materials) and, to a lesser extent, in-

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dependent grocery stores,<sup>8</sup> meat markets, and vehicle dealers. Increased buying from wholesalers by the outlets indicated was partly, but not wholly, compensated by lessened use of wholesalers (i.e. more direct purchases) by apparel and drug stores. For further details the reader is referred to Appendix Table B-5.

### *Summary*

The measures of distributive spread in Table 26 are not to be confused with the retail margins of Table 24. The former are based on the latter but include also proper allowance for the wholesale markup (Table 25) wherever retailers purchased from wholesalers rather than directly from producers. Figures for the distributive spread represent the entire cost of distribution (wholesale plus retail margin) for the goods sold by the retail outlet indicated. A high distributive spread is sometimes, but not always, the result of a large retail margin. In any case it is quite inappropriate to regard the data in Table 26 as an index of the "efficiency" of distribution by some one kind of outlet. We have seen that the highest margins in the table are to be explained by the more complex functions carried out by distributors and that the lowest margin of all (chain groceries) is to be explained partly by the small amount of service dispensed by this type of store. There doubtless is a sense in which the table reflects efficiency of distribution, in addition to more obvious factors such as the amount of service dispensed. But to isolate differences in margins due to efficiency, we would need a measure of efficiency independent of the data in the table. Unfortunately the productivity measures of Part One for distribution as a whole cannot be applied separately to the distribution of goods through individual categories of retail outlet.

In addition to the dispersion of the data, the trends they disclose also called for comment. The movements of the series in Table 26 follow rather closely those established for retail margins in Table 24. This is the more interesting because, as noted in Chapter 4, the common belief, in circulation before this study was initiated, that distribution costs have risen was based upon acquaintance with trends in some few retail margins. The exaggerated character of this belief was due not so much to any failure of retail margins to reflect the trend of distribution costs as a whole, but rather to the much steeper rise in well-publicized department- and specialty-store margins than in retail margins in general.

<sup>8</sup> Of course if chain and independent groceries were combined, they would show a sharp decline between 1869 and 1929 in the fraction of their purchases supplied by wholesalers. But the results of Table 27 are conditioned by the classification of Table 26, in which this combination is not effected.



## APPENDIXES

