

capacity and stocks, on the other side. It would enable American business, in my judgment, to steer clear of some of the worst pitfalls into which we have fallen in the last few years.

Appendix

The condensed description which follows of the steps taken in preparing the estimates here given may be useful in forming an opinion of their reliability.

1. *Selection of Years for Study.* Since a major purpose was to look for indications of trends over a term of years, it seemed advisable to compare pre-war with post-war purchases and to omit the abnormal years during and immediately following the war. On the whole, 1909, 1914, 1923 and 1929 seemed most suitable. It may be objected, with some reason, that the two post-war years were characterized by unusual activity and 'free spending'; but an offsetting consideration is the fact that because both were prosperous years, a comparison between them should indicate recent trends relatively undistorted by minor fluctuations.

2. *Classifying Producers' Values in Comparable Groups.* During the twenty-year term of the study changes in conditions (for example, removing the manufacture of alcoholic drinks from a legal to an illegal status) and changes in census classifications have combined to make necessary considerable regrouping in order to get comparable figures. Some estimating has been required also in order to bring the deductions for exports and additions for imports into line with census groupings.

3. *Making Percentage Allocations of the Products in Each Group to Consumers', Producers' and Construction Goods.* The entire output of some of the groups clearly belonged in only one of these three general classes. The destinations of the products of certain other groups—including some of the most important, such as iron and steel, coal and farm products—have been traced with sufficient accuracy to permit allocating their output with considerable confidence. Most of the remaining groups on careful examination leave only small margins for guesswork. The degree of probable error in the totals is indicated by a difference of less than 5 per cent between an estimate made under the direction of Mr. Edward R. Dewey, Assistant to the Director, U. S. Bureau of Foreign and Domestic Commerce, of the value at point of production of products entering into household consumption and the corresponding estimate independently made for the present study.¹⁴

4. *Assigning to Each Group of Consumers' Goods the Percentage Most Fairly Representative of the Entire Spread between Producers' Values and Retail-Selling Values.* Here, again, ample data as to costs and profits of wholesalers and retailers could be had for many groups. For other groups the problem was complicated by the inclusion under one head of a variety of articles distributed through several channels. Though it would be out of the question to expect accuracy in detail, it is believed that the likelihood of gross miscalculations

¹⁴Mr. Dewey's original estimate appeared in *Domestic Commerce*, July 30, 1931. The percentage of discrepancy here stated takes into consideration certain specific items included in Mr. Dewey's figures but excluded from ours.

of mark-ups and other distribution charges is small. An especial effort was made to ascertain what changes in customary mark-ups have been introduced during the past twenty years; and such changes when discovered have been taken into account. So far as could be learned, however, these changes were much slighter than have sometimes been assumed.

5. *Calculating the Retail Value of the Percentage of Each Commodity Group Allocated to Consumers' Goods.* Thereafter such revisions and adjustments were made as seemed called for after comparisons with any other estimates available.

6. *Reclassifying the Commodity Groups to Bring Them into Closer Conformity with Merchandising Practice and to Facilitate Later Comparison with Census Figures.* For convenience the classification of retail sales of commodities employed in the trial Census of Distribution in 1926 was adopted for our regrouping.

It is evident that the possibilities for minor errors of judgment in the procedure just described are numerous; in fact, so numerous and so much subject to blind chance as to justify hopeful reliance on the saving grace of the principle of distribution of errors.

A more serious possibility, since there is no hope of its being offset, is inherent in the unavoidable assumption that the output of consumers' goods in any one year measures approximately the retail sales of such goods in the same year. This assumption would be close enough to the truth for practical purposes if stocks at the beginning and at the end of the year were nearly equal. In 1929, for instance, the U. S. Department of Commerce index of stocks of a variety of manufactured goods stood at 122 at the beginning and 119 at the end, certainly not a very big change. The index figure for foodstuffs, however, was 97 at the beginning and 110 at the end.¹⁵ It is common knowledge that retailers' inventories at the end of 1929 were generally above normal.

On the other hand, it must be observed that both makers' stocks and trade stocks of consumers' goods are customarily kept in much closer relationship to current demand than are raw materials and other producers' goods; also, that stocks of consumers' goods are likely to be low at the year-end. Consequently, the discrepancies between output and retail sales in any one year would probably affect markedly only a few of the commodity groups.

One other point worth mentioning is the fact that our percentages of allocation and of mark-up have been designedly held uniform for all the years studied, except in the relatively small number of instances in which modifications were clearly called for. It follows that whatever errors of judgment have been made are a constant quantity and do not, therefore, wholly invalidate conclusions as to underlying trends.

Our first estimates were worked out for the year 1929 and were then revised in the light of the Census of Distribution figures. They gave us a total volume of retail sales of consumers' goods of approximately \$48,600,000,000. Included in this total is a guess—obviously it can be nothing more—that bootleg sales of alcoholic liquors in that year were \$2,000,000,000. Putting this item to one side for the moment,

¹⁵Index figures from *Survey of Current Business*, Annual Supplement, 1931.

we have left 46.60 billions of consumers' goods which enjoy a legal status entitling them to be accorded recognition in governmental statistics.

At first glance, this figure may appear seriously out of line with the grand total of retail sales announced by the Census Bureau, which approximated \$53,000,000,000. But these two figures are not comparable. The following adjustments are called for:

CENSUS TOTAL (in millions of dollars).....	53,000
(Of which 3,000 consists of retail sales through other channels than retail stores).....	
Deduct sales of hotel dining rooms and sales of laundries and dyeing and cleaning establishments, as being more properly treated as services rather than as commodities.....	1,000
	52,000
Add allowance for retail sales not covered in Census.....	2,000
REVISED TOTAL of retail sales, excluding alcoholic beverages.....	54,000
Deduct (percentages of retail-store sales):	
Producers' and construction goods sold at retail (12 per cent).....	6,000
Repair and storage services not included in retail prices of commodities (2 per cent).....	1,000
Trade-ins and other goods received from customers (3 per cent).....	1,500
	8,500
NET SALES OF CONSUMERS' GOODS AT RETAIL.....	45,500

The resultant of these adjustments is about \$1,100,000,000 below our corresponding figure. This discrepancy may probably be accounted for in part by the excess of retailers' carry-over at the end of 1929 over their carry-over at the end of 1928. Making an allowance for this factor, the two figures are close enough to justify considerable faith in the approximate correctness of the allocations and mark-ups used in making the estimate. However, the adjustments require further explanation.

Omissions. One item included in our figure but only partly covered by the Census of Distribution consists of retail sales of milk (in fluid form) which we calculate to be approximately \$1,400,000,000. The United States Summary of Retail Distribution shows sales by milk dealers of \$223,000,000; and explains in a footnote: "This classification is incomplete due to the obvious difficulty in locating milk dealers. Steps are now being taken to correct this condition." A large but unknown amount of milk is distributed through dairy-product stores, groceries and delicatessen stores. We can do no more than hazard a guess that the volume of milk sales omitted from the Census' total is considerably more than the \$200,000,000 estimated by the Census Bureau. Other dairy and farm products, also, are customarily sold, to a large, aggregate volume, directly to consumers by farmers or through market and roadside stands; and a great part of this large trade certainly escaped the census-takers. Peddlers' sales, also, are omitted; inasmuch as the Census of Occupations for 1920 (the 1930 figure is not yet issued) shows over 50,000 "hucksters and peddlers" it seems plausible that their total sales in 1929 must have run into some hundreds of millions. Another item, not yet announced by the Census of Wholesale Distribution but one which may safely be assumed to be large, consists of sales at retail made by wholesale establishments. However, this item is thought by the Census Bureau to be approximately offset by the incidental wholesale business of establishments classi-

fied as retailers; for this reason it has been disregarded in this estimate of omitted retail sales. The retail values of subscriptions and sales of newspapers and periodicals, of books and pamphlets, and of stationery sold to consumers are calculated in our estimate to be about \$1,650,000,000. These commodities are represented in the Census of Retail Distribution summary mainly by \$240,000,000 of sales through book stores and news dealers. If we add to the foregoing the hundreds of millions of direct sales to consumers through house-to-house canvassers; and on top of all, the inevitable oversights and failures to obtain data attendant upon a first canvass of so intricate and immense a field, it would appear that two billions is a very moderate estimate of retail sales unrecorded in last year's census.

Producers' and Construction Goods Sold Through Retail Stores. Detailed analyses of the figures for sales of commodities supplied by the preliminary Census of Distribution of 1926 (in eleven representative cities) and of corresponding figures recently issued for the City of Washington, reveal that in both cases about 11 per cent of sales of retail stores consist of producers' and construction goods. Making allowance for the high probability of such sales forming a larger proportion of retail volume in farming communities, we have arbitrarily used 12 per cent for the present purpose. This percentage remains to be checked against forthcoming census publications of similar breakdowns for other territories. However, it seems reasonable.¹⁶

Repair and storage services consist chiefly of operations in garages and other automobile establishments, augmented by repairs of furniture, household appliances, jewelry, radios, and so on, which are separately billed and not, therefore, included in the retail mark-ups on commodities. The percentage has been calculated from records supplied in the Census "Analysis of Commodity Breakdown" for the City of Washington.

Sales of trade-ins play an especially large part in automobile retailing. The number of used cars accepted in trade by automobile dealers (including trade-ins on an increasing proportion of used car sales) was rapidly growing in the years prior to 1929, as may be seen from the following table extracted from a release of the National Association of Finance Companies:

	Used Cars Sold	Ratio of Used to New Sales
1922	1,685,588	68.9%
1923	2,594,557	68.4%
1924	3,025,259	91.2%
1925	3,791,740	98.8%
1926	3,563,482	89.4%
1927	3,552,731	118.5%
1928	4,426,621	117.0%
1929	5,601,200	121.4%

At an average selling price of, say, \$225 the total volume of business in used cars in 1929 would have been slightly over \$1,250,000,000, equivalent to a little more than 20 per cent of

¹⁶The report of the Federal Trade Commission on "National Wealth and Income," issued in 1926, estimates retail sales in 1923 of articles "for other than personal consumption" at \$5,900,000,000. If we apply to our retail values of consumers' goods in 1923 the percentages above used in adjusting the Census of Distribution figures, we get an estimate for retail sales of producers' and construction goods in 1923 of \$5,600,000,000. The two estimates appear to be in close agreement.