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Volume Title: National Product Since 1869

Volume Author/Editor: Simon Kuznets, assisted by Lillian Epstein and Elizabeth Jenks

Volume Publisher: NBER

Volume ISBN: 0-87014-045-0

Volume URL: <http://www.nber.org/books/kuzn46-1>

Publication Date: 1946

Chapter Title: Part III: The Share Of Services In The Flow Of Goods To Consumers

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Chapter URL: <http://www.nber.org/chapters/c5472>

Chapter pages in book: (p. 121 - 182)

PART III

The Share of Services in the Flow
of Goods to Consumers

This Part presents the evidence upon which we based the level of and decade changes in the ratio of consumers' outlay on services to their total outlay. The main body of evidence consisted of sample data on family expenditures before 1914. But the samples were scanty and noncomparable; and had to be adjusted in several ways before they could be linked with the more comprehensive data for recent decades. The discussion below summarizes the general characteristics of the sample data, the procedures by which they were adjusted and combined, and the conclusions. The more detailed aspects of the data and of the adjustments are treated in the Appendixes.

A SHARE OF TOTAL OUTLAY EXPENDED FOR SERVICES, LOW INCOME URBAN CONSUMERS, 1870-1914

1 *Character of the Data*

From *Studies of Family Living in the United States and Other Countries*¹ we selected sources that contained consumer expenditure samples large enough to be representative, similar enough in coverage to warrant comparison, and taken at intervals sufficiently far apart to indicate long term changes in the pattern of consumers' outlay. Little material was found that met all these requirements, and much of that utilized is deficient on one count or another. Almost all the information usable for the purpose of establishing long term changes in the composition of consumers' expenditures is for urban families in low income groups.

a CONSUMER GROUPS COVERED

The samples are not uniform in respect of the income level of the persons canvassed. Many are described merely as 'workingmen's returns' or 'returns from wage earners of the minimum class'. But some returns from persons in somewhat higher income groups are included.

Another source of divergence among the samples is the weighting by occupational or industrial affiliation. We followed two procedures: (1) When the data are not shown by occupational or industrial groups, all complete returns were added and the percentage shares calculated directly from the total, on the

¹ F. M. Williams and C. C. Zimmerman (Department of Agriculture Miscellaneous Publication 223, Washington, D.C., Dec. 1935).

assumption that the sample was so selected as to weight each occupation and industry properly. (2) When data for only selected occupational or industrial groups are shown, per capita absolutes were computed for each. All were assigned equal weights, rather than the weight of the size of the sample as under (1), and combined. The number of returns for the years to be compared and for the occupations combined were usually so disparate that it did not seem justifiable to weight by the size of the sample.

Still another problem of weighting was encountered in combining the 1918 data for sample cities to get averages for a state. The percentage distribution of expenditures varies appreciably from city to city for specific items. Though when total service shares are compared this territorial variation is apparently not large, it seemed desirable to allow for it by weighting each city either by the size of its population or by the population of all cities in the state for which the sample city, by reason of its size, could be considered representative. As these more laborious methods yielded results only slightly different from those obtained by weighting by the size of the sample, they were discarded in favor of the latter.

b DERIVING TOTAL OUTLAY

The total outlay figure from which the percentage shares are calculated is usually the sum of expenditures for each service and commodity reported on returns regarded as complete. Occasionally, the percentage shares are computed from composite or built-up totals—the sum of averages for each type of expenditure. In the first method the persons reporting each item are identical; in the second they are not and each average may be based upon data from a different number of returns. The disparity in number may not be great and the group reporting one type of expenditure may differ only slightly from that reporting another type. For food, clothing, fuel and light, it is doubtful that any serious error is introduced. But for rent and sundries, coverage is commonly less complete. Consequently, averages for them are based upon data from appreciably fewer returns; and in the composite total they are compared with those based upon wider coverage. Whenever used, the composite totals are labeled

and should be regarded with less confidence than the direct totals.

Most of the samples are reported on a yearly basis, but some monthly data are used. They may yield slightly distorted results since they do not allow for seasonal variations in cost of living expenditures. They may also fail to register nonrecurrent expenditures, such as for illness or vacations. No correction for this possible bias could be made.

Since we are interested in the distribution of expenditures rather than in the disposition of income, savings as such are disregarded. To be consistent, we should have excluded also expenditures for life insurance, part of which are savings. But as we had to follow the most common procedure, all items except savings, reported or segregable as such, are included, when reported.

C VARIATIONS IN THE COVERAGE OF COMPONENTS

The several components of consumers' outlay vary in coverage. The extent to which each major item is affected is summarized briefly.

Food: Variations in the composition of this item are probably minor, but there are some. For example, if candy is not regarded as a necessity, it may not appear under any category in a budget study to determine the cost of living. But if total expenditures are shown, those for candy will be included under food, or, if food is regarded in its narrower sense—to keep body and soul together—under sundries.

Clothing: As dry goods are frequently included with clothing, it was assumed that they always are. Quite possibly, however, they are sometimes omitted or are regarded as sundries. In the 1918 data the clothing item includes shoe shines and repairs, and cleaning, pressing, and repairing. Whether these services are similarly classified in the other samples cannot be ascertained.

Rent: The sample data rarely cover returns from home owners. Rent paid is the item most commonly reported. Only occasionally do the corresponding expenditures by home owners—for taxes, repairs, and insurance—appear; but even then coverage of outlays is incomplete. The bias arising from such exclusion of home

owners' expenditures may be negligible, but should be borne in mind.

The composition of rent is variable. It may include heat or light, both or neither.

Fuel and light: To the extent that rent includes heat and light, the percentage of total expenditures spent on commodities is understated.

The 1918 source material indicates that persons living in flats and apartments spend less on fuel and light than persons living in houses. Our samples, including, as they do, few returns from home owners, may show too low a percentage share for fuel and light, especially since during the period under consideration the trend was to flats and apartments.

Sundries: This item (comprising all expenditures other than for food, clothing, rent, fuel and light) is subject to greater variation than any other, because of the diversity in the treatment of its components, and because criteria for necessities and luxuries differ. Even when supposedly all expenditures are reported, its composition depends upon the detail in which the information is requested. Because items not mentioned specifically may be overlooked, a questionnaire calling merely for 'sundries' or 'all other expenses' yields a much lower figure than one that itemizes each type of expense.

d THE PERCENTAGE DISTRIBUTION

When the sample was large, the percentage distributions were accepted as published. Whenever feasible, however, the sample data were reviewed to guard against the inclusion of incomplete returns. Many published estimates rested on returns that did not have entries for all items, e.g., home owners' returns on which the rent category had been left blank, and no compensating entry made for taxes, repairs, insurance, and depreciation. Another item commonly not reported is sundries. It was not easy to determine whether this item was zero or was not reported. If the questionnaire called for only a single entry, a blank was regarded as a failure to report. If sundries were called for in great detail, it was assumed that when some were entered, the omission of others signified no expenditure for them.

e ASSIGNMENT TO COMMODITIES AND SERVICES

Our rating of the various items as services or commodities is necessarily arbitrary because a single category may represent outlays for both; e.g., education may cover expenditures for newspapers, magazines, and books as well as for schooling proper. Since we have little material upon which to allocate this item, and since schooling seems to be reported only rarely, the entire expenditure for education was regarded as a commodity outlay. In the case of medicine and medical attendance, however, the services of the physician were considered as outweighing the outlay on medicine, and the item was rated as a service outlay. For all such 'mixed' categories, the decision favored the type of expenditure regarded as predominant.

Sundries is the only 'mixed' category we attempted to distribute between services and commodities. The procedure is outlined in Appendix A which contains also a description of the 1890/91 and 1918 United States samples that provided the basis for the apportionment. The coverage of sundries being less comprehensive for the early years than for the later, the scope of the 1890/91 sample was assumed more representative of the samples for the years before 1900/01, and that of the 1918 sample more representative of the samples for 1900/01 and subsequent years.

2 *Summary of Evidence*

a PER YEAR CHANGE IN THE TOTAL SERVICE SHARE FOR STATE SAMPLES

A review of the results for the several states (Table III 1) reveals a marked tendency for the total service share to increase over time. Of the 24 entries recording the per year change in the share of services in total consumers' expenditures (col. 3), only 5 are negative, and even the declines in them are smaller, absolutely, than the increases in the 19 positive.

Consistent as the estimates are in indicating a decided uptrend in the proportion of consumers' outlay on services, there is divergence among the samples in the size of the rise. Some averaging process must obviously be resorted to in order to establish the rise that could be considered most representative for low income urban dwellers as a whole.

TABLE III 1

Total Service Share for State Samples, Low Income Urban Consumers
Various Dates, 1870-1914

	YEARS FOR WHICH SAMPLE DATA ARE COMPARED (1)	TOTAL SERVICE SHARE AS % OF TOTAL OUTLAY (2)	PER YEAR CHANGE IN TOTAL SERVICE SHARE (%) (3)
Connecticut	1887/88	16.22	
	1900/01	30.04	+1.063
Illinois	1878/79	28.09	
	1883/84	26.41	-0.336
	1900/01	24.97	
	1914	37.02	+0.893
Kansas	1888/89	31.10	
	1900	31.49	+0.035
	1907	35.34	+0.550
Maine	1890/91	28.46	
	1899/1900	34.21	+0.639
	1900/01	21.79	
	1914	34.47	+0.939
Massachusetts	1870	25.21	
	1883	27.41	+0.169
	1874/75	20.35	
	1901	23.91	+0.134
	1890/91	26.52	
	1900/01	32.46	+0.594
	1914	33.24	+0.058
Missouri	1880	19.63	
	1888/89	23.58	+0.465
	1880	28.15	
	1900/01	33.53	+0.262
Nebraska	1889/90	24.35	
	1912	37.07	+0.565
New Jersey	1877/78	24.46	
	1885/86	23.23	-0.154
	1900/01	30.47	
	1914	35.23	+0.353
Ohio	1878	27.88	
	1885/86	27.14	-0.099
	1900/01	27.65	
	1914	35.30	+0.567
Pennsylvania	1875	24.78	
	1879	24.42	-0.090
	1886/87	28.15	+0.497
	1890/91	34.08	
	1900/01	32.29	-0.179
Wisconsin	1914	33.60	+0.097
	1885	25.06	
	1895	26.51	+0.145
	1900/01	26.83	
	1914	32.42	+0.414

Column 2 is derived from the sample studies summarized in Appendixes A and B.

b MEDIAN AND ARITHMETIC MEAN CHANGES IN THE TOTAL SERVICE SHARE FOR STATE SAMPLES

As the first experiment in averaging, changes were arrayed for each of three periods, 1870-85, 1885-1900/01, 1900/01-14, and the medians determined (Table III 2, line 2). When a change covered years in more than one period, it was included in the period in which the greater number of years lay or in both periods as seemed more appropriate. The cases were too few, however, to yield medians that could be regarded as representative.

TABLE III 2
Medians and Arithmetic Means of Per Year Changes
in Total Service Share, Low Income Urban Consumers
Fifteen-year Periods (percentages)

	1870- 1885	1885- 1900/01	1900/01- 1914
1 No. of items	8	9	9
2 Median	+0.022	+0.262	+0.550
3 Arithmetic mean	+0.073	+0.362	+0.493

Based on Table III 1, col. 3.

Simple arithmetic means of the changes were then computed (Table III 2, line 3). In both median and mean the per year rise is progressively bigger. The small number of items underlying them and the large difference between them led us to consider other methods of summarizing the data.

c MEDIAN TOTAL SERVICE SHARE FOR STATE SAMPLES

The extreme variation in the *changes*, not only from state to state but also for the same state, suggests that pairs of percentage shares for the same state do not warrant temporal comparisons. Even when data are for the same state and when methods of collection are apparently identical from year to year, it is more than possible that differences in coverage or concept appreciably distort the comparisons. In a wide grouping of samples, all for approximately the same period, such differences may partly cancel. Hence there may be more merit in bringing together all percentage shares for a given period regardless of the size, type, or territorial coverage of the sample from which they are com-

TABLE III 3
 Median Total Service Share, Low Income Urban Consumers
 Ten- and Fifteen-year Periods
 (shares as percentages of total expenditures)

	A TEN-YEAR PERIODS			
	1870-1880	1880-1889/90	1889/90-1900/01	1900/01-1914
Approx. midpoint of period	1875	1885	1895	1907
No. of items	7	10	15	20
Median total service share	24.78	26.94	29.89	32.44
Total change in median total service share from preceding period		+2.16	+2.95	+2.55
Per year change		+0.216	+0.295	+0.212
	B FIFTEEN-YEAR PERIODS			
	1870-1885	1885-1887/78	1885-1900/01	1900/01-1914
Approx. midpoint of period		1877/78	1893	1907
No. of items		10	21	20
Median total service share		25.14	27.65	32.44
Total change in median total service share from preceding period			+2.51	+4.79
Per year change			+0.162	+0.342

Based on Table III 1, col. 2, excluding samples covering selected occupations (Illinois for 1878/79 and 1883/84, Maine for 1890/91 and 1899/1900, Massachusetts for 1890/91, and Missouri for 1880 and 1888/89) and including 3 samples (Kansas for 1900/01, Illinois for 1883/84, and Maine for 1890/91) which could not be utilized in estimating the per year changes in that table.

puted (except those for selected occupations),² determining the mean or median, and computing the per year change from one period to the next.

A great advantage of this procedure is that we can calculate the median and mean for each period from many more cases than in averaging *changes*. Reference to Tables III 3 and III 4, which give medians and means of *shares*, indicates that the cases are almost twice as many as in Table III 2. It is mainly for this reason that we averaged shares rather than changes in shares, to get the basis for estimating the movement of the ratio of services to total outlay for the decades before 1914.³

Two groupings were made: one for 10-year, the other for 15-

² The percentage share for mining families in Missouri for 1880, for example, is so much lower than that for the entire sample that it was disregarded, together with the comparable figure for 1888/89.

³ Even with this larger number of cases, we had to include data for the terminal years twice—once as of the beginning of the period, again as of the end of the preceding period.

TABLE III 4

Positional Means^a of Total Service Shares, Low Income Urban Consumers
Ten- and Fifteen-year Periods
(shares as percentages of total expenditures)

	A TEN-YEAR PERIODS			
	1870- 1880	1880- 1889/90	1889/90- 1900/01	1900/01- 1914
Approx. midpoint of period	1875	1885	1895	1907
No. of items	7	10	15	20
Positional mean of total service shares	24.82	26.58	29.19	32.60
Total change in positional mean of total service shares from preceding period		+1.76	+2.61	+3.41
Per year change		+0.176	+0.261	+0.284
	B FIFTEEN-YEAR PERIODS			
	1870- 1885	1870- 1885	1885- 1900/01	1900/01- 1914
Approx. midpoint of period		1877/78	1893	1907
No. of items		10	21	20
Positional mean of total service shares		25.44	27.68	32.60
Total change in positional mean of total service shares from preceding period			+2.24	+4.92
Per year change			+0.145	+0.351

^a Based on the three or four middle items in the array of data utilized in Table III 3.

year periods (Table III 3). In both, the simple medians reveal a continuous upward movement of the total service share in consumer outlay. We eventually discarded the 10-year in favor of the 15-year periods, since the cases in the former were so few as to make for erratic movements of medians and of means. But they have been retained in Tables III 3 and III 4 as evidence that the upward trend of the service share characterizes the full period covered by the sample data.

Since the cases are few, positional means, i.e., arithmetic means of the three or four middle cases, are likely to provide more representative measures of central tendency than medians (Table III 4). The slightness of the difference between these positional means and the medians indicates the 'dense' grouping of items around the median value. In the subsequent analysis positional means rather than medians were used.

d MOVEMENT OF SERVICE SHARE COMPONENTS

So far we have concerned ourselves with the movement of the total service share alone. Lacking in detail though the budget

TABLE III 5
 Components of Total Service Share for State Samples
 Low Income Urban Consumers, Various Dates, 1870-1914

	YEARS (1)	% SHARE OF TOTAL OUTLAY	
		Rent (2)	Other Services (3)
Connecticut	1887/88	12.81	3.41
	1900/01	21.41	8.63
Illinois	1883/84	17.46	9.27
	1900/01	16.20	8.77
	1914	23.37	13.65
Kansas	1888/89	17.84	13.26
	1900	15.50	15.99
	1900/01	16.19	13.70
	1907	16.98	18.36
Maine	1890/91	17.15	10.09
	1900/01	14.89	6.90
	1914	22.89	11.58
Massachusetts	1870	14.67	10.54
	1874/75	16.73	3.62
	1883	21.37	6.04
	1900/01	20.95	11.51
	1901	14.84	9.07
	1914	21.39	11.85
Missouri	1880	17.62	10.53
	1900/01	15.66	17.87
Nebraska	1889/90	21.41	2.94
	1912	22.94	14.13
New Jersey	1877/78	17.89	6.57
	1885/86	17.13	6.10
	1900/01	20.08	10.39
	1914	23.12	12.11
Ohio	1878	17.00	10.88
	1885/86	18.41	8.73
	1900/01	14.11	13.54
	1914	22.29	13.01
Pennsylvania	1875	17.42	7.36
	1879	14.68	9.74
	1886/87	19.11	9.04
	1890/91	24.01	10.07
	1900/01	20.89	11.40
	1914	21.84	11.76
Wisconsin	1885	14.18	10.88
	1895	17.37	9.14
	1900/01	14.31	12.52
	1914	19.98	12.44

From the sources indicated for the total service shares in Table III 1, with the exception of Kansas, 1900/01: from the source indicated for Illinois for that year; Illinois, 1883/84: for 26 occupations rather than the 2 covered in Table III 1; Maine, 1890/91: for 27 occupations rather than the 4 covered in Table III 1.

TABLE III 6

Positional Means^a of Service Shares, Low Income Urban Consumers
Fifteen-year Periods
(shares as percentages of total expenditures)

	1870- 1885 (1)	1885- 1900/01 (2)	1900/01-1914 Preliminary Final ^b (3)	(4)
1 Rent	17.15	17.22	20.48	18.98
2 Other services	9.22	10.18	12.04	11.54
3 Total services (1 + 2)	26.37	27.40	32.52	30.52

^a Based on the three or four middle items in the array of data derived from Table III 5. For the number of items in each period see Table III 4, Part B.

^b The share of rent reduced 1.5 percent and that of other services 0.5 percent.

samples are, two major components—rent and 'other' services—can nevertheless be distinguished. The upward trend characterizing the movement of the total service share is true also of the shares of rent and of other services measured separately (Table III 5).

The reason for analyzing rent and other services separately lies not only in the interest that may attach to the movement of each, but also in the different effect of any possible undercoverage of the basic data on the total service share when measured as a whole and as the sum of rent and of other services. In samples where sundries are understated, such understatement augments the percentage shares of all other items, including rent. Nevertheless, the resulting exaggeration of the share of rent does not offset the overstatement of the total commodity share, in comparison with the total service share. We therefore grouped the rent and the other service shares separately, ascertained the positional mean of each, and added the two (Table III 6, col. 1-3).

As was to be expected, the period most affected is 1870-85, the service share calculated as the sum of the shares of rent and of other services being 26.37 percent as against 25.44 percent derived directly (in Table III 4). During that period sundries tended to be understated because the sample questionnaires were less detailed and stressed necessary cost of living components rather than total consumer expenditures. Clearly, the estimates in Table III 6 are freer from bias than those in Table III 4.

The share of rent changes little from 1870-85 to 1885-1900/01.

From 1885-1900/01 to 1900/01-14, however, it rises decidedly. The share of other services increases considerably from 1870-85 to 1885-1900/01, and even more from 1885-1900/01 to 1900/01-14.

A part of the increase from 1885-1900/01 to 1900/01-14 might be due to overstatement of the service shares in 1914, since the latter were extrapolated from 1918 on the basis of changes in price levels alone; i.e., compensating changes in quantity and quality were not allowed for. Changes in the service shares from 1914 to 1919, as derived from the over-all estimates of consumers' expenditures by W. H. Lough,⁴ and from 1935-39 to June 15, 1942, as evidenced by sample data for wage earners and clerical workers,⁵ indicate that variations in the pattern of consumer expenditure due to changes in both prices and quantity and quality are markedly different from those due to changes in prices alone. To allow for the possible inflationary effect of using 1918 as a base, we reduced the share of rent for 1900/01-14 1.5 percent, that of other services 0.5 percent (Table III 6, col. 4).⁶ With these adjustments, the ratios of Table III 6 are used below to indicate the trend in the share of services in the total outlay of low income urban consumers.

B EXPENDITURE PATTERNS FOR LOW INCOME URBAN CONSUMERS AND FOR ALL URBAN, RURAL NONFARM, AND RURAL FARM CONSUMERS, 1935/36 AND 1941, AND THE RELATION ASSUMED FOR 1870-1914

The few studies of expenditures by consumers other than urban for 1870-1914 are inadequate for our purposes. For 1935/36 and 1941, however, reports by the National Resources Planning Board, the Bureau of Labor Statistics, and the Bureau of Agricultural Economics provide data for rural farm, rural nonfarm, and urban families. For 1922/24, there is additional material for

⁴ *High-Level Consumption* (McGraw-Hill, 1935).

⁵ 'Cost of Living Indexes in Wartime' by F. M. Williams, F. R. Rice, and E. D. Schell, *Journal of the American Statistical Association*, Dec. 1942.

⁶ These adjustments are discussed in more detail in Appendix A.

farm families, collected under the supervision of the Department of Agriculture (see App. D).

1 *Major Differences between the Source Material for the Early and Later Years*

a CONSUMER INCOME GROUP COVERED

Most of the sample urban data for the early years were for families with incomes of \$1,200 or less. The reports for 1935/36 and 1941, however, cover expenditures by families at all income levels. When comparisons were attempted between the early and the later years, income groups up to \$1,500 were selected for the latter as most nearly approximating those up to \$1,200 for the former.

b INCLUSION OF IMPUTED VALUES

In none of the earlier studies used were expenditures in kind or imputed values included. In those for the later years they are of some importance. The farm consumer gets a far greater proportion of his living from his house and farm than the urban consumer, or even the rural nonfarm consumer. Values assigned to housing, food, fuel and ice may be a source of discrepancy in the expenditure patterns for these three groups of consumers.

The reports vary in their coverage of these non-money items, that for 1922/24 showing the imputed value of housing alone; the 1935/36 report covers, in addition, the value of home-produced food for rural nonfarm families, and the value of food, fuel and ice for rural farm families. In the 1941 study the items included in non-money income are still more numerous, comprising in addition to housing, fuel, and food, furnishings and clothing received from a relief agency, or as gifts, or as pay.

c DETAIL OF PRESENTATION

For the urban material for the early years, the so-called 'mixed' categories, such as education, and medical attendance and medicine, were not apportioned between services and commodities, but were assigned the rating that seemed to cover the preponderant portion of the expenditure. For 1935/36, when the source material is detailed, most of these categories can be distributed.

2 Relative Size of the Service Shares for Urban, Rural Nonfarm, and Rural Farm Consumers

The report for 1935/36⁷ is our best guide in determining the relative size of the service shares for low income urban consumers and for all urban, rural nonfarm, and rural farm consumers (Table III 7).

TABLE III 7

Service Shares for Urban, Rural Nonfarm, and Rural Farm Consumers
Income Groups up to \$1,500 and All Income Groups, 1935/36
(shares as percentages of total expenditures)

	Income Groups up to \$1,500 (1)	All Income Groups (2)
A URBAN		
1 Housing	20.63	18.71
2 Other services	11.00	17.35
3 Total services	31.63	36.06
B RURAL NONFARM		
4 Housing	16.19	14.93
5 Other services	12.42	16.40
6 Total services	28.61	31.33
C RURAL FARM		
7 Housing	10.41	12.26
8 Other services	9.32	11.11
9 Total services	19.73	23.37

COLUMN

1 *Family Expenditures in the United States* (National Resources Planning Board, Washington, D. C. 1941), pp. 51-65, 120. Expenditures by families receiving some relief during year excluded.

2 *Ibid.*, pp. 13, 69, 70. Expenditures by families receiving some relief during year included.

See Appendix D for rating of expenditures as service or commodity outlays.

The percentage share expended for housing by all urban consumers is almost 2 percent lower than that expended by urban consumers in the income groups up to \$1,500. For the latter, however, the share for other services is 6 percent less.

The same relation holds, generally, for rural nonfarm consumers, though the differences in level between the shares for the low income groups and for all are less marked; the share for housing is approximately 1 percent lower for all income groups,

⁷ *Family Expenditures in the United States* (National Resources Planning Board, Washington, D. C., 1941).

that for other services, 4 percent higher. When the shares for all rural nonfarm consumers are compared with those for all urban consumers we find that for the latter, the share for housing is about 4 percent higher, the share for other services only 1 percent higher.

The share of expenditure for both housing and other services is about 2 percent higher for all rural farm consumers than for those in the low income groups. The service shares for farm consumers are markedly lower than for urban, however; for housing, 6.5 percent, for other services, about 6 percent.

3 *Changes in the Relative Size of the Service Shares for Urban, Rural Nonfarm, and Rural Farm Consumers*

To estimate long term changes in the service shares for all consumers, we need data that tell us whether the trends for all urban consumers and for all rural consumers were the same as those established for urban families in the low income groups (in Sec. A).

The only material for this purpose is that of the three sample studies mentioned at the beginning of Section B. Unfortunately, the two field studies, for 1935/36 and 1941, differ markedly in coverage, detail, and, most important, in the cyclical characteristics of their periods—1941 was a year of conspicuous cyclical expansion and 1935/36 a much less favorable cyclical phase. The 1922/24 data on farm expenditures cannot be compared with the much more plentiful data for 1935/36 or even 1941. Consequently, while we analyzed and compared the three samples as best we could, the conclusions are subject to too many qualifications to admit of inferences concerning long term changes or to merit detailed presentation. For example, the comparison of the 1935/36 and the 1941 samples, after categories had been re-grouped to assure the greatest possible comparability, shows that the share expended for housing (including fuel, light, and refrigeration, which cannot be segregated) by urban consumers declined from 26.4 to 22.1 percent for income groups up to \$1,500, and from 21.8 to 17.6 percent for all income groups. The total service share for the low income groups declined from 41.0 to 39.7; for all income groups from 42.7 to 38.8. While both

the rent and total service shares thus moved fairly alike for the low income and for all urban consumers, this is obviously not too secure a basis upon which to assume a similarity of long term changes in the service shares in the flow of goods to low income and to all urban consumers in the past. Yet were there *no* similarity in movement between 1935/36 and 1941, it could still be assumed for the longer term trends.

Whatever the limitations of these recent sample data, they do indicate that the shares of rent and of other services moved more or less parallel for low income and all urban consumers; and for urban and rural consumers. And, the assumption we are adopting, for lack of specific information to the contrary—viz., that the longer term changes in the shares of rent and of other services for all urban consumers are similar to those established for the low income groups, and that they are also similar as between urban and the two groups of rural consumers—is plausible, but no more. Under it we combine the two items of information we have—longer term trends in the shares for low income urban consumers and differences in the 1935/36 levels of the shares between low income urban consumers and all urban consumers and between urban and rural consumers—into an estimate for all consumers.

4 *Service Shares for All Consumers, 1870-1914*

The minor rise in the rent share from 1870-85 to 1885-1900/01 is due almost entirely to the growth of the urban population (Table III 8). The rise from 1885-1900/01 to 1900/01-14 is due not only to the continued rapid growth of the urban population but also to increases in the rent share for all three groups of consumers. The movement of the latter is not unlike that of Carl Snyder's rent index, which practically does not change from 1875 to 1895, then rises gradually from 1895 to 1913.⁸

The rise in the share of other services, while assumed to be proportionately the same for all consumer groups, is affected by the greater gain in the urban population. Consequently, the rise for all groups is somewhat greater than that for any one group.

⁸ *Business Cycles and Business Measurements* (Macmillan, 1927), p. 291.

TABLE III 8
Service Shares for All Consumer Groups,* 1870-1914
(shares as percentages of total expenditures)

	1870- 1885 (1)	1885- 1900/01 (2)	1900/01- 1914 (3)
A RENT			
1 Share for low income urban consumers	17.15	17.22	18.98
2 Share for all urban consumers	15.34	15.41	16.98
3 Weight for all urban consumers	14,212	24,354	38,701
4 Share for all rural nonfarm consumers	11.73	11.78	12.98
5 Weight for all rural nonfarm consumers	9,302	12,963	16,839
6 Share for all rural farm consumers	9.47	9.51	10.48
7 Weight for all rural farm consumers	24,042	28,956	31,191
8 Share for all consumers	11.67	12.12	13.87
B OTHER SERVICES			
9 Share for low income urban consumers	9.22	10.18	11.54
10 Share for all urban consumers	15.14	16.16	17.54
11 Weight for all urban consumers	14,212	24,354	38,701
12 Share for all rural nonfarm consumers	14.28	15.24	16.54
13 Weight for all rural nonfarm consumers	9,302	12,963	16,839
14 Share for all rural farm consumers	9.96	10.63	11.54
15 Weight for all rural farm consumers	24,042	28,956	31,191
16 Share for all consumers	12.35	13.56	15.19
C TOTAL SERVICES			
17 Share for low income urban consumers	26.37	27.40	30.52
18 Share for all urban consumers	30.48	31.57	34.52
19 Share for all rural nonfarm consumers	26.01	27.02	29.52
20 Share for all rural farm consumers	19.43	20.14	22.02
21 Share for all consumers	24.02	25.68	29.06

* An alternative series was calculated by extrapolating the positional means of the service shares for low income urban consumers for 1900/01-14 (Table III 6) by the arithmetic means of the per year changes in the components of the total service shares underlying Table III 2. The shares for the other consumer groups were estimated by the procedure outlined in this table.

	1870- 1885	1885- 1900/01	1900/01- 1914
Rent	10.79	12.66	14.33
Other services	11.12	12.65	15.33
Total services	21.91	25.31	29.66

LINE

- 1 Table III 6, line 1.
- 2 Col. 3, assumed to be 2 percent lower than line 1 (see Table III 7, line 1), extrapolated by line 1.
- 3, Representing thousands of persons. Census reports provide estimates for urban and rural population at ten-year intervals from 1870 to 1930, and indicate the apportionment of rural population between farm and nonfarm in 1930 and 1920. *The Agricultural Situation* for June 1939 shows the apportionment for 1910. Rural nonfarm population for the years before 1910 was estimated on the basis of its 1910 relation to total population, as the relation has varied little since. Interpolations for 1885 and 1914 are along a straight line.
- 4 It was not thought worth while for the present purpose to correct for the lack of uniformity in Census dates.
- 5 Col. 3, assumed to be 4 percent lower than line 2 (see Table III 7, col. 2, lines 1 and 4), extrapolated by line 2.

Table III 8 concluded:

LINE

- 6 Col. 3, assumed to be 6.5 percent lower than line 2 (see Table III 7, col. 2, lines 1 and 7), extrapolated by line 2.
- 8 Average of line 2, weighted by line 3; line 4, weighted by line 5; and line 6, weighted by line 7.
- 9 Table III 6, line 2.
- 10 Col. 3, assumed to be 6 percent higher than line 9 (see Table III 7, line 2), extrapolated by two-thirds the rate of change in line 9. The lower rate was assumed after consideration of the rate of change from 1935/36 to 1941.
- 12 Col. 3, assumed to be 1 percent lower than line 10 (see Table III 7, col. 2, lines 2 and 5), extrapolated by line 10.
- 14 Col. 3, assumed to be 6 percent lower than line 10 (see Table III 7, col. 2, lines 2 and 8), extrapolated by line 10.
- 16 Average of line 10, weighted by line 11; line 12, weighted by line 13, and line 14, weighted by line 15.
- 17 Table III 6, line 3.
- 18 Sum of lines 2 and 10.
- 19 Sum of lines 4 and 12.
- 20 Sum of lines 6 and 14.
- 21 Sum of lines 8 and 16.

C MOVEMENT OF THE TOTAL SERVICE SHARE FOR ALL CONSUMERS, 1869-78 TO 1929-38

1 *The Final Series*

The estimates of consumers' outlay on services, derived by deducting net capital formation and consumers' outlay on commodities from national income, go back only to 1919. The ratio of service outlay to total outlay, as computed from these series for 1919-28, is extrapolated to 1909-18 on the basis of the movement of the service share computed from Lough's over-all estimates of consumer expenditures for 1909, 1914, and 1919-28.⁹

⁹ The marked differences in the percentage composition of Harold Barger's recent series on consumers' outlay (*Outlay and Income in the United States, 1921-1938*; National Bureau of Economic Research, 1942) and Lough's is to be attributed in part to differences in concept, in part to the fact that Barger could take account of material Lough could not. Barger's use of our commodity series renders his outlay series more comparable to ours than Lough's, but since it begins in 1921 it is useless as a means of extending our data back. In the light of Barger's series, Lough's estimates appear subject to considerable correction, especially for the later years, but the revision need not appreciably alter the *movement* of the service share from 1909-18 to 1919-28.

From 1909-18 to 1869-78 extrapolation is by the sample series in Table III 8 (Table III 9).

The total service share rises steadily from 1869-78 to 1914-19. The violent price changes during the war caused a decline that offset the rise in the early part of the 1909-18 decade. Resumed after the war, the rise continues through 1929-38.

The upward trend characterizes the shares of both rent and other services, but the rise in the former is much more moderate than that in the latter. While the paucity of underlying data does not warrant full confidence in the exact magnitude of the difference shown between the trends in the shares of the two major components of services, the difference is confirmed by whatever nonquantitative evidence comes to mind. It is 'other' services that include such rapidly growing items of consumers' demand as repairs and maintenance of consumer durable goods; expenditures on education, amusement, and travel; and outlays on medical and other professional services.

From sources and by methods discussed in Part II, we have a series of decade estimates of the flow of finished commodities at final cost to consumers. Converting percentages of total outlay derived in this Part (Table III 9) to percentages of commodity flow to consumers, and applying them to the estimates of such commodity flow in current prices, we get a series of estimates of the value of services not embodied in new commodities, at cost to consumers in current prices, for the overlapping decades 1869-1938 (Table III 10, col. 1-3).

The problems involved in the adjustment of this series for price changes were mentioned in Part II. We present here the series in 1929 prices without further comment, for convenience of reference by students who may wish to have at hand the estimates that distinguish the two major components of the total service category in consumers' outlay.

2 *An Over-all Check*

The reader who has patiently followed the discussion of the character of the sample budget data and the account of the various statistical manipulations that were tried, employed, or discarded in the process of constructing the final series of ratios (Table III 9) is probably left with an impression that the basic

TABLE III 9
Service Shares for All Consumers, 1869-1938*
(shares as percentages of total expenditures)

	EXTRAPOLATING SERIES				FINALSERIES				
	SAMPLE DATA		LOUGH		Rent extrapolated by col. 1 & 4 (7)		Other Services (line 13 extrapolated by col. 2 & 5) (8)		Total Services (7 + 8) (9)
	Rent (1)	Other Services (2)	Total Services (1 + 2) (3)	Rent (4)	Other Services (5)	Total Services (6)	Rent (7)	Other Services (8)	Total Services (9)
1 1869-78	11.55	12.03	23.58				12.41	13.80	26.21
2 1874-83	11.70	12.43	24.13				12.57	14.25	26.82
3 1879-88	11.84	12.83	24.67				12.72	14.71	27.43
4 1884-93	12.00	13.22	25.22				12.89	15.16	28.05
5 1889-98	12.29	13.67	25.96				13.20	15.68	28.88
6 1894-1903	12.81	14.21	27.02				13.76	16.30	30.06
7 1899-1908	13.42	14.77	28.19				14.42	16.94	31.36
8 1904-13	14.02	15.33	29.35				15.06	17.58	32.64
9 1909-14	14.38	15.67	30.05	12.99	19.56	32.55	15.45	17.97	33.42
10 1914-19				10.25	19.99	30.24	12.19	18.37	30.56
11 1909-18				10.95	19.94	30.89	13.03	18.32	31.35
12 1914-23							13.21	18.30	31.51
13 1919-28				11.86	21.95	33.81	14.11	20.17	34.28
14 1924-33							14.59	23.24	37.83
15 1929-38							14.13	23.88	38.02

* An alternative series was derived for 1869-1913 by extrapolating 1909-14 (col. 7 & 8) by the series in the footnote to Table III 8.

	TOTAL SERVICES		OTHER SERVICES	
	RENT	TOTAL SERVICES	RENT	TOTAL SERVICES
1869-78	10.54	23.30	12.84	27.18
1874-83	11.08	23.54	13.31	28.81
1879-88	11.68	24.08	13.94	30.46
1884-93	12.30	25.41	14.84	32.27
1899-98				
1894-1903				
1899-1908				
1904-13				

COLUMNS 1 & 2

LINE

Averages of annual estimates derived by straight-line interpolation and extrapolation of the series in Table III 8.

COLUMNS 4 & 5

Derived from *High-Level Consumption* (McGraw-Hill, 1935), pp. 28, 236-46. The data in his Table 3 were adjusted to exclude immigrant remittances and to include direct taxes (shown for Census years in his Appendix A and estimated for non-Census years by straight-line interpolation).

9 Percentage of average value for 1909 and 1914.

10 Percentage of average value for 1914 and 1919.

11 Percentage of average value for 1909, 1914, and 1919.

13 Distribution of col. 6 on the basis of the apportionment of the average value for the odd years, 1919-29.

COLUMN 6

LINE

9-11 Col. 4 plus col. 5.

13 Derived from *ibid.*, from average value for 1919-28.

COLUMN 7

12 Weighted average of 1914-19 (line 10) and 1919-23, calculated from the source indicated for lines 13-15.

13-15 Gross rents (Table III 10, col. 1) divided by flow of goods to consumers (Table II 8, col. 5).

COLUMN 8

12 See note to col. 7, line 12.

13-15 'Other' services (Table III 10, col. 3 minus col. 1) divided by flow of goods to consumers (Table II 8, col. 5).

TABLE III 10
Total Outlay on Services, Current and 1929 Prices, 1869-1938
(averages per year, millions of dollars)

	CURRENT PRICES			1929 PRICES		
	Rent (1)	Other Services (2)	Total Services (3)	Rent (4)	Other Services (5)	Total (6)
1 1869-78	708	787	1,496	1,292	1,066	2,358
2 1874-83	909	1,030	1,939	1,680	1,625	3,305
3 1879-88	1,098	1,270	2,368	2,015	2,232	4,246
4 1884-93	1,213	1,427	2,640	2,214	2,687	4,900
5 1889-98	1,323	1,571	2,894	2,392	3,226	5,618
6 1894-1903	1,706	2,021	3,727	3,025	4,219	7,244
7 1899-1908	2,488	2,922	5,410	4,238	5,546	9,784
8 1904-13	3,479	4,061	7,540	5,611	6,930	12,540
9 1909-18	4,143	5,826	9,970	6,404	7,915	14,319
10 1914-23	6,406	8,871	15,277	*	*	17,647
11 1919-28	9,072	12,971	22,043	*	*	22,393
12 1924-33	9,543	15,207	24,750	*	*	25,210
13 1929-38	8,486	14,337	22,823	*	*	25,591

* Not estimated.

COLUMN 1

LINE

- 1-9 The flow of commodities to consumers (Table II 7, col. 1) multiplied by the share of rent in total outlay (Table III 9, col. 7), divided by the share of commodities in total outlay (100 percent minus Table III 9, col. 9).
- 10 Average of 1914-18 estimated by the procedure indicated for lines 1-9, and of 1919-23, from the source indicated for lines 11-13.
- 11-13 Averages of annual estimates of gross rents underlying the series on net rents in *National Income and Its Composition*.

COLUMN 2

- 1-9 The flow of commodities to consumers (Table II 7, col. 1) multiplied by the share of 'other' services in total outlay (Table III 9, col. 8), divided by the share of commodities in total outlay (100 percent minus Table III 9, col. 9).
- 10 See note to col. 1, line 10.
- 11-13 Col. 3 minus col. 1.

COLUMN 3

- 1-10 Col. 1 plus col. 2.
- 11-13 Table II 7, col. 3.

COLUMN 4

Col. 1 divided by the index described in the note to col. 5 of Table II 7.

COLUMN 5

Col. 2 divided by the index described in the note to col. 5 of Table II 7.

COLUMN 6

- 1-9 Col. 4 plus col. 5.
- 10 See note to col. 1, line 10.
- 11-13 Table II 7, col. 5.

data are extremely scanty and unreliable and that our procedures were beset with pitfalls. A perusal of the Appendixes to this Part will do little to restore his confidence.

It is, therefore, important to have some check by which we may judge whether the results are subject to too wide a margin of error to use in deriving longer term trends in the percentage shares accounted for by services not embodied in new commodities. We turned again to the underlying sample budget data, studying the ratios to total expenditures of the outlay in two commodity categories: food and clothing. The idea was to derive a series of percentage shares of total expenditures accounted for by outlays on food and clothing, and compare the result, in the form of estimated outlay on food and clothing in current prices, with the series that would be derived from the basic production data on food and clothing destined for ultimate consumption (from Shaw's study).¹⁰

To make the check as close as possible, the data and procedures employed to derive shares of food and clothing in total outlay were kept strictly identical with those used to derive shares of services. The same state and national sample budget data were used; the percentage shares were grouped for the same periods and positional means selected; the shift from shares based on budget data, for low income urban families, to percentages estimated for all consumers, urban and rural, was by the same methods and using the same basic data and population weights that were used for the service shares; and, finally, the linking to the recent decades and the interpolations within the earlier 15-year periods were by procedures strictly analogous to those employed in Table III 9. Indeed, the only difference from methods used in connection with service shares was the omission of the adjustment in the shares for 1900/01-14 for the effect of the extrapolation from 1918 to 1914: the tests showed no need for such an adjustment in the shares of food and clothing.

After the ratios of food and clothing to total consumers' outlay (in current prices) were derived, they were applied to the estimates of this total already available to get dollar values of the flow of food and clothing to consumers in current prices (Table III 11, col. 1).

¹⁰ I am indebted to Solomon Fabricant for suggesting this over-all check.

TABLE III 11
Two Estimates of the Flow of Food and Clothing
to Consumers, 1869-1928
(averages per year, dollar figures in millions, current prices)

DECADE	ESTIMATES BASED ON		DIFFERENCE AS % OF COL. 2 (3)	INDEXES, 1904-13:100	
	Sample Budget Data (1)	Production Data (Shaw) (2)		Col. 1 (4)	Col. 2 (5)
A FOOD					
1 1869-78	2,001.1	2,141.2	-6.5	28.2	27.6
2 1874-83	2,495.1			35.1	
3 1879-88	2,929.9	2,856.0	+2.6	41.2	36.9
4 1884-93	3,140.8			44.2	
5 1889-98	3,284.8	3,467.4	-5.3	46.2	44.8
6 1894-1903	3,982.6	4,339.7	-8.2	56.0	56.0
7 1899-1908	5,423.5	5,867.8	-7.6	76.3	75.7
8 1904-13	7,107.4	7,747.2	-8.3	100.0	100.0
9 1909-18	10,338.5	10,787.9	-4.2	145.5	139.2
10 1914-23	15,091.6	15,078.9	+0.1	212.3	194.6
11 1919-28	17,999.2	17,876.4	+0.7	253.2	230.7
B CLOTHING					
12 1869-78	1,077.4	1,102.3	-2.3	32.5	32.7
13 1874-83	1,325.3			40.0	
14 1879-88	1,535.4	1,439.6	+6.7	46.4	42.8
15 1884-93	1,621.5			49.0	
16 1889-98	1,664.1	1,649.5	+0.9	50.2	49.0
17 1894-1903	1,970.1	1,903.7	+3.5	59.5	56.6
18 1899-1908	2,606.3	2,617.6	-0.4	78.7	77.8
19 1904-13	3,312.5	3,366.0	-1.6	100.0	100.0
20 1909-18	4,595.1	4,536.5	+1.3	138.7	134.8
21 1914-23	7,333.6	7,195.0	+1.9	221.4	213.8
22 1919-28	9,372.8	9,140.0	+2.5	283.0	271.5
C FOOD & CLOTHING					
23 1869-78	3,078.5	3,243.5	-5.1	29.5	29.2
24 1874-83	3,820.4			36.7	
25 1879-88	4,465.3	4,295.6	+4.0	42.9	38.7
26 1884-93	4,762.3			45.7	
27 1889-98	4,948.9	5,116.9	-3.3	47.5	46.0
28 1894-1903	5,952.7	6,243.4	-4.7	57.1	56.2
29 1899-1908	8,029.8	8,485.4	-5.4	77.1	76.4
30 1904-13	10,419.9	11,113.2	-6.2	100.0	100.0
31 1909-18	14,933.6	15,324.4	-2.6	143.3	137.9
32 1914-23	22,425.2	22,273.9	+0.7	215.2	200.4
33 1919-28	27,372.0	27,016.4	+1.3	262.7	243.1

COLUMN 1

LINE

- 1-9, The flow of goods to consumers (Table II 8, col. 5) multiplied by the percentage share of consumer expenditure on food or clothing, estimated by the procedure outlined for rent and other services in Table III 9.
- 10 & 21 Average of 1914-18, estimated by the procedure indicated for lines 1-9, 12-20, and of 1919-23 from the source indicated for line 11 or 22.
- 11 Average of annual estimates of flow, before inventories, in *Commodity Flow and Capital Formation*, Vol. One, Table V-4, line 3, and Table V-8, line 1.

LINE

- 22 Average of annual estimates of flow, after inventories, of dry goods and clothing, estimated by multiplying the flow of semidurables (Table I 2, col. 2) by the share of dry goods and clothing destined for domestic consumption (*ibid.*, Table II-5, lines 7-11) in the value of all semidurables destined for domestic consumption (*ibid.*, line 14), the latter adjusted by an unpublished estimate of tires used for business purposes.
- 23-33 Sum of lines 1 and 12, 2 and 13, etc.

COLUMN 2

- 1-11 Average of annual estimates of value destined for domestic consumption (*Value of Commodity Output since 1869*, Tables I 1 and I 2, groups 1a and 1b) raised by the 1919-28 ratio of flow, before inventories, to the value destined for domestic consumption (col. 1, line 11, divided by the corresponding value destined for domestic consumption from *Commodity Flow and Capital Formation*, Vol. One, Table V-4, line 4, and Table V-8, line 1).
- 12-22 Average of annual estimates of value destined for domestic consumption (*Value of Commodity Output since 1869*, Tables I 1 and I 2, groups 6, 7, and 8) raised by the 1919-28 ratio of flow, after inventories, to the value destined for domestic consumption (for sources of the data for this ratio see the note to col. 1, line 22).
- 23-33 Sum of lines 1 and 12, 2 and 13, etc.

The totals against which the derived series are tested are based upon the flow of food and clothing into domestic consumption, at manufacturers' prices, as estimated by Shaw from Census and other data. These series differ from estimates of flow at final cost to consumers in two respects: they neither include transportation and distributive margins nor allow for changes in finished inventories. The latter item is minor, particularly for decade averages, and was disregarded in estimating the food series in both columns 1 and 2. The former is taken account of by raising the Shaw series by a constant relative mark-up. For food this mark-up is calculated from the National Bureau of Economic Research annual series for 1919-28. For clothing, it is estimated from the National Bureau of Economic Research series for the entire semidurable group for 1919-28, from which the change in finished inventories also is derived (Table III 11, col. 2).

In observing the two estimates it must be kept in mind that they are independent with respect to *movements over time* but not with respect to absolute level in the last two decades in the table, viz., 1914-23 and 1919-28. The absolute totals in 1919-28 are derived from the same body of data, and the slight differences are due to the differences between Shaw's classification of com-

modities and ours. In 1914-23 there is also dependence upon the same data, since Lough's work, used to extrapolate the ratios underlying column 1, relies heavily on census of production data utilized by Shaw. But with respect to movement during the decades before 1914-23 the two estimates are completely independent: that in column 1 is based on family budget samples, that in column 2 on production census data.

In view of this independence, the close agreement of the two estimates for the decades before 1914 is encouraging. For food the estimates in column 1 tend to fall somewhat short of those in column 2, suggesting that the sample budget data underestimate somewhat the shares of total outlay devoted to food—as compared with production data. But the percentage differences are quite minor; and no sustained trend in them is apparent. For clothing, the estimates in column 1 tend to exceed somewhat those in column 2, suggesting that the sample budget data slightly overestimate the shares of total outlay devoted to clothing—as compared with production data. But the percentage differences are quite moderate and no sustained trend is apparent. When food and clothing are combined (Table III 11, Part C), the differences tend to cancel out; and the series based on sample budget data approximates closely that based on production data, the greatest difference between the two being slightly over 6 percent and the discrepancies for most decades running below 5 percent.

The use of sample budget data to derive the long term movement of the share of consumers' outlay accounted for by services should have yielded estimates subject to a not much wider margin of error than estimates based on direct use of production data. Naturally, the latter are subject to errors of their own; and no part of the comparison in Table III 11 is a test of our assumption concerning transportation and distributive margins.¹¹ All we can infer from the evidence of Table III 11 is that the scanty and

¹¹ The check in Table III 11 may be treated as in a sense reciprocal. If it tends to confirm our use of sample budget data, it also tends to confirm the assumption concerning the 'spread' between manufacturers' prices and final cost to consumers. So far as sample budget data have an independent statistical validity of their own, the fact that they yield results so close to those obtained by the use of production data *plus* the assumption of a constant relative mark-up from manufacturers' values provides a basis for inferring that the error involved in that assumption cannot be large.

deficient sample budget data, treated and combined as they have been, yield estimates not much different from those that would have been derived from production census data were they available for services not embodied in new commodities.

The significance of the comparison in Table III 11 as a test of the series derived in Table III 9 should not be exaggerated. Sample budget data may be far more reliable in measuring the shares of food and clothing than of those of services, even after all the adjustments made to get proper estimates of service shares. There may be an error in our series in column 2 due to the assumption of a constant relative spread between manufacturers' values and final costs that parallels and hence offsets some error in the sample budget data relating to shares of food and clothing. Yet there is no evidence of its existence. It is legitimate to conclude that the over-all check does indicate that the series of service shares in total consumers' outlay, based on family budget samples, reveal a trend not much different from that which would have been shown by evidence comparable in its comprehensiveness and accuracy with production census and other data that underlie our estimates of commodity flow for the decades before 1914.

APPENDIX A

United States Reports on Consumers' Expenditures for Years before 1919

The data for 1918 were used only after extrapolation to 1914. The reasons and the procedure followed are set forth in Parts 2 and 3 of this Appendix.

1 *Tabular Summary of Sources and Characteristics of United States Sample Data for Years before 1919*

SOURCE	1890/91	1890/91	1900/01 ^d	1918
	<i>7th An. Report, Com. of Labor</i>	<i>Retail Prices and Wages (52d Cong., 1st Sess., Senate Comm. Report, Vol. 8, No. 986, Pt. 3, pp. 2040-97)</i>	<i>18th An. Report, Com. of Labor</i>	<i>Cost of Living in the United States (BLS Bulletin 357)</i>
Persons covered by returns	'Normal' families (i.e., families with a husband, wife, & not more than 5 children, none over 14, who had no boarders or dependents) in the textile & glass industries	Workingsmen, incl. those receiving income from boarders, wife, children, etc. ^b	Wage workers & salaried workers in the principal industrial centers earning not more than \$1,200 a year, with 'normal' families (i.e., families composed of a husband at work, a wife, not more than 5 children, none over 14, & no dependents, boarders, lodgers, or servants)	Wage earners & salaried workers representing proportionately the wage earners & the low or medium salaried families of the locality, with families having as a minimum a husband, wife, & at least 1 child who is not a boarder or lodger, no boarders or over 3 lodgers, either outsiders or children living as such. ^e
Total returns		232	11,156	12,096 ^f

No. of returns utilized in state comparisons:

Connecticut	387	100
Illinois	699	
Kansas	95	
Maine	190	27
Massachusetts	1,189	213
Missouri	447	
New Jersey	501	58
Ohio	963	192
Pennsylvania	1,666	194
Wisconsin	250	128

91^c

Expenditures reported & rating as commodity (C), service (S), or 'mixed' category (S & C)

<i>Food (C)</i>	*	*	*
<i>Clothing (C)</i>	*	*	*
<i>Rent (S)</i>	*	*	*
<i>Fuel (C)</i>	*	*	**j
<i>Lighting (C)</i>	*	*	**j
<i>Sundries (S & C)</i>	*	*	-
<i>Furniture & furnishings (C)</i>	-	1	*
<i>Insurance (S)</i>	-	-	-
<i>Life</i>	-	1	*
<i>Accident & health</i>	-	-	*
<i>Life, other than members of family</i>	-	-	*

- Not reported. * Reported separately. ** Reported, but not separately.

Tabular Summary continued:

SOURCE	1890/91 7th An. Report, Com. of Labor	1890/91 Retail Prices and Wages (52d Cong., 1st Sess., Senate Comm. Report, Vol. 8, No. 986, Pt. 3, pp. 2040-97)	1900/01 ^a 18th An. Report, Com. of Labor	1918 Cost of Living in the United States (BLS Bulletin 357)
<i>Contributions, dues, gifts, etc. (S)</i>				
Church	-	*	1	*
Labor organizations	-	*	1	*
Lodges, clubs, societies, etc.	-	*	1	*
Charity	-	*	1	*
Patriotic purposes	-	-	-	*
Gifts	-	-	-	*
<i>Street-car fares (S)</i>				
To work	-	-	-	-
To school	-	-	-	*
Other	-	-	-	*
<i>Travel (S)</i>				
<i>Amusements, vacations, etc. (S)</i>				
Movies	-	*	1	*
Plays, concerts, etc.	-	-	-	*
Other amusements	-	-	-	*
Excursions	-	-	-	*
Vacations	-	-	-	*
<i>Education & uplift (C)</i>				
Newspapers	-	**g	1	*
Magazines	-	-	-	*
Books	-	**g	1	*
Schools, tuition, books, etc.	-	-	-	*
Music	-	-	-	*

Postage (S)	-	-	*
Sickness & disability (S)	-	**h	*
Physician, surgeon, oculist (S)	-	-	*
Medicine (C)	-	-	*
Nurse (S)	-	-	*
Hospital (S)	-	-	*
Dentist (S)	-	-	*
Eyeglasses (C)	-	-	*
Other sickness (S)	-	-	*
Undertaker (S)	-	**h	*
Cemetery (S)	-	**b	*
Liquor (C)	-	†	*
Tobacco (C)	-	*	*
Insurance, personal property (S)	-	*	*
Taxes, personal property & poll (S)	-	*	*
Tools (C)	-	-	*
Cleaning supplies, soap, etc. (C)	-	-	*
Toilet articles & preparations (C)	-	-	*
Barber (S)	-	-	*
Telephones (S)	-	-	*
Moving (S)	-	-	*

- Not reported. * Reported separately. ** Reported, but not separately.

Tabular Summary concluded:

SOURCE	1890/91	1890/01 ^a	1918
	<i>71b An. Report, Com. of Labor</i>	<i>18th An. Report, Com. of Labor</i>	<i>Cost of Living in the United States (BLS Bulletin 357)</i>
<i>Automobiles, motorcycles, bicycles (C)</i>	-	-	*
<i>Servant & day wages (S)</i>	-	-	*
<i>Other miscellaneous items (S & C)</i>	*	1	*

- Not reported. * Reported separately. ** Reported, but not separately.

The items are not strictly comparable from sample to sample, the greatest difference occurring in 'other miscellaneous items' which may include any of or all the expenditures not specifically covered.

^a Because it covers persons in selected industries only, this report was not utilized except as indicated below, for Massachusetts. Even in this instance, its use has been questioned.

^b Location of workmen reporting is:

City	Number	City	Number
Savannah, Ga.	20	Cleveland, Ohio	19
Indianapolis, Ind.	17	Altoona, Pa.	17
Dubuque, Iowa	12	Harrisburg, Pa.	14
Manchester, N. H.	11	Philadelphia, Pa.	60
Auburn, N. Y.	23	Richmond, Va.	27
Syracuse, N. Y.	12		

^c The only state with a sample large enough to warrant consideration in the state comparisons.

^d Some of the reports are for the year ending in 1900, some for the year ending in 1902, but the majority, for the year ending in 1901.

^e For other details regarding the selection of persons canvassed, see *Cost of Living in the United States*, p. 2.

^f Distribution of those reporting is by the following income groups:

Income	Number	Income	Number
Under \$900	332	\$1,800-2,100	1,594
\$900-1,200	2,423	2,100-2,500	705
1,200-1,500	3,959	2,500 & over	553
1,500-1,800	2,730		

Where these data are used by states in comparison with those for 1900/01, which were confined to returns of wage workers and salaried workers earning not more than \$1,200 a year, data for families with an income of \$1,200 or more were omitted.

^g Expenditure reported is for books and newspapers.

^h Expenditure reported is for illness and death.

ⁱ Specifically included with sundries.

^j Expenditure reported is for fuel and light.

2 *Extrapolation to 1914 of the BLS Sample Data for 1918*

Extrapolation to 1914 was carried through for each state sample on the basis of changes in the service shares for a city sample. Average yearly expenses per family for each type of outlay in 1918 were taken from Table 3 of *Cost of Living in the United States*. The corresponding outlay in 1914 was estimated by dividing that in 1918 by 1 plus the percentage increase indicated in Table H (*ibid.*) for each item from December 1914 to December 1918. These outlay estimates were added, percentage shares of the total calculated, and the change from 1914 to 1918 in the service shares computed.

TABLE A 1
Extrapolation to 1914 of the United States Sample for 1918
(shares as percentages of total expenditures)

EXPENDITURE	1914 EXTRAPOLATED FROM 1918 BY CHANGES IN LIVING COSTS	1918 <i>Cost of Living in the United States</i> *
	(1)	(2)
Food	35.3	38.2
Clothing	13.4	16.6
Rent	19.6	13.4
Fuel & light	5.8	5.3
Furniture & furnishings	4.1	5.1
Miscellaneous	21.8	21.3

* Bureau of Labor Statistics Bulletin 357.

For the two state samples for which city samples were lacking, extrapolation was by the change in the service shares for *all* cities in the United States sample comprising the index in Table K (*ibid.*). The extrapolators for each state sample are shown below, and the results of the extrapolation for the United States sample in Table A 1.

State	Extrapolator
Illinois	Chicago
Maine	Portland
Massachusetts	Boston
New Jersey	U. S. sample
Ohio	Cleveland
Pennsylvania	Philadelphia
Wisconsin	U. S. sample

Most striking of the changes in the shares of the various items is the decline in the share of rent from 1914 to 1918. This is due less to a decrease in the expenditure for rent than to the increased outlay on commodities caused by the precipitous rise in prices.

"During the early war period rents did not rise at the same time nor to the same degree as the prices of most commodities, chiefly in consequence of rent laws enacted at the time."¹ These rent laws, together with other influences not usually present or present in exaggerated degree (e.g., shortages of materials and goods created by diversion to military purposes) compel us to characterize 1914-18 as an abnormal period and preclude its use in estimating the long term movement.

3 *Adjustment of the Extrapolation to 1914*

The extrapolation from 1918 to 1914 was felt to be in error because constant weights were used. When the consumption of an item is substantially curtailed owing to the war, or one item is substituted for another, extrapolation that takes account of the changes in prices alone is inadequate. To gauge the extent of our error and to provide a possible means of correcting for it, our 1914-18 extrapolations were compared with similar extrapolations for 1935-39 to 1942, and with the 1914-19 change in Lough's estimates.

'Cost of Living Indexes in Wartime' (*Journal of the American Statistical Association*, Dec. 1942) shows percentage shares of expenditures for 1935-39 and June 15, 1942, as well as the percentage increase in groups of items from August 1939 to August 1942. Extrapolation of the percentage shares for June 15, 1942 by the percentage changes in living costs from August 1942 to August 1939 yielded an estimate for 1939. The latter is compared with that for 1935-39 which reflects the quantities and prices for a period in which the cost of living was substantially the same as in 1939. This procedure is of course extremely arbitrary, both for the extrapolation of June by the August to August change and for its identification of 1939 with the entire period 1935-39. Variations in the cost of living during 1935-39 do not seem big enough, however, to impair the results seriously (Table A 2). Although the direction of the change is in general the same for both lines 4 and 5, the amount differs considerably. The difference in the service shares in line 5 is appreciably less than

¹ *Changes in Cost of Living, 1914-1936*, M. Ada Beney (National Industrial Conference Board, 1936), p. 47.

TABLE A 2
 Changes from 1935-39 to 1942 in the Percentage Shares of
 Total Expenditures
 Based on Extrapolated and on Observed Values

	FOOD	CLOTHING	RENT	FUEL & LIGHT	FURNITURE & FURNISHINGS	MISC.
1 June 15, 1942, 'Cost of Living Indexes in Wartime' ^a	35.9	11.4	16.8	5.8 ^b	3.6	26.5
2 1939, extrapolated from June 15, 1942 by changes in living costs	31.6	10.8	19.3	6.3 ^b	3.5	28.4
3 1935-39, 'Cost of Living Indexes in Wartime' ^a	33.9	10.5	18.1	6.4 ^b	4.2	26.9
4 Change, 1939 to June 15, 1942 (1 - 2)	+4.3	+0.6	-2.5	-0.5	+0.1	-1.9
5 Change, 1935-39 to June 15, 1942 (1 - 3)	+2.0	+0.9	-1.3	-0.6	-0.6	-0.4

^a F. M. Williams, F. R. Rice, and E. D. Schell (*Journal of the American Statistical Association*, Dec. 1942).

^b Fuel, electricity, and ice.

in line 4 where changes in prices alone are considered. Consequently it is more than likely that the difference in the service shares between 1914 and 1918 in Table A 1 is also exaggerated.

As a check, our percentage shares for 1914 and 1918 were compared with those derived from Lough's estimates of consumers' outlay for 1914 and 1919 (Table A 3). The relation between the actual and the estimated change in the shares is similar to that observed in Table A 2. The decline in the total service share in Lough's estimates from 1914 to 1919 is less than four-tenths of that in our sample data from 1914 to 1918, a difference too large to be attributed wholly to the difference of one year in the interval compared or to the difference in coverage—Lough's estimates purport to cover expenditures by all consumers, whereas ours cover only low income urban consumers. It seems reasonable to assign a portion of it to our failure to adjust for changes in the quantity and quality of goods consumed arising from the change in prices. Therefore, we lowered the rent share for our sample states 1.5 percent, the 'other' service share 0.5 percent. Although the correction should properly be applied to

TABLE A 3
 Estimated Changes from 1914 to 1918 in Service Shares,
 Computed from Urban Sample Data
 Compared with Changes from 1914 to 1919, Computed from
 Comprehensive Totals
 (shares as percentages of total expenditures)

	RENT	OTHER SERVICES	TOTAL SERVICES
SEVEN SAMPLE STATES ^a			
1 1918, <i>Cost of Living in the U.S.</i>	14.45	12.25	26.70
2 1914, extrapolated from 1918 by changes in living costs	22.13	12.34	34.47
3 Change, 1914-18 (1 - 2)	-7.68	-0.09	-7.77
ALL STATES			
4 1914, Lough ^b	12.75	19.36	32.11
5 1919, Lough ^b	8.91	20.33	29.24
6 Change, 1914-19 (5 - 4)	-3.84	+0.97	-2.87

^a Illinois, Maine, Massachusetts, New Jersey, Ohio, Pennsylvania, and Wisconsin.

^b Derived from data in *High-Level Consumption*, Table 3, adjusted by the deduction of immigrant remittances and the addition of taxes shown in Appendix A.

the 1914 data for each state, it was made in the positional mean for 1900/01-14 since the latter was felt to be affected by the 1914 data.

4 *Apportioning the Undistributed Sundry Item in the State Samples between Services and Commodities by the 1890/91 and 1918 United States Samples*

As indicated in Section A Ie, the undistributed sundry item in the state samples for the years before 1900/01 is divided on the basis of the apportionment of the 1890/91 United States sample; in the state samples for 1900/01 and subsequent years, on that of the 1918 United States sample.

Before the 1890/91 and 1918 United States samples could be so utilized, their expenditures on 'other miscellaneous items' had to be divided between services and commodities. All the specific sundry service and commodity items were added, the ratio of each sum to the total was determined, and this ratio applied to the undistributed sundry item.

In applying the ratios taken from the 1890/91 and 1918 samples, allowance was made for the relative coverage of the undistributed sundry item in the state samples. From the per capita absolute for total sundry expenses in the United States

sample was deducted the sum of the absolutes for items covered separately in the state sample. The percentage distribution of the balance between services and commodities was then determined and applied to the state sample figure for unallocated sundries.

Because furniture is included with sundries the United States data by states for 1900/01 had to be adjusted before sundries proper were allocated. Furniture was estimated by its 1918 ratio to furniture and other sundries and deducted.

Appendix B continued:

SOURCE	MASSACHUSETTS			MISSOURI			NEBRASKA		
	187C	1874/75	1883	1901	1880	1888/89	1889/90	1912	
No. of returns utilized	10	397t	16	152	13y 89z	77y	27bb	cc	
Expenditures reported & rating as (C), (S), or (S & C)									
Food (C)	-	*	-	-	-	**na	*	*	
Groceries	*a	-	*s	**v	*a	-	-	-	
Meat	-	-	*	**v	-	*	-	-	
Clothing (C)	*	*	*	*	*	*	*	*	
Boots & shoes	-	-	*	-	-	-	-	-	
Dry goods	-	-	*	-	-	-	-	-	
Rent (S)	*	*	*	*	*	*	*	*	
Fuel (C)	**m	*	*	**m	*	u	**k	**d	
Lighting (C)	**m	-	-	**m	-	u	*	*	
Sundries (S & C)	*	*	*	*	*	*	-	**ee	
Furniture & furnishings (C)	*	u	-	*	-	u	*	-	
Insurance (S)	-	u	-	*	-	u	*	-	
Life	-	u	-	-	-	-	*	-	
Accident	-	u	-	-	-	-	-	-	
Religion (S)	**q	u	-	**q	-	-	-	-	
Trade unions (S)	-	-	-	**w	-	-	-	**ee	

Societies (S)	-	u	-	**w	-	-	u	-	*
Charity (S)	**q	u	-	**q	-	-	u	-	*
Care of parents (C)	-	u	-	-	-	-	-	-	*
Street car fares (S)	-	-	-	-	-	-	-	-	*
To work	-	-	-	-	-	-	-	-	-
Travel (recreation) (S)	-	-	-	**j	-	-	-	-	-
To work	-	u	-	*	-	-	-	-	-
Amusements (recreation) (S)	**e	u	-	**j	-	-	u	-	*
Vacation (S)	-	-	-	-	-	-	u	-	-
Musical instruments (C)	-	-	-	-	-	-	-	-	*
Education (C)	**c	-	-	**x	-	-	-	-	-
Newspapers (C)	-	u	-	**x	-	-	u	-	*
Books (C)	-	u	-	**x	-	-	u	-	*
Music & music lessons (C)	-	-	-	-	-	-	-	-	*
Medicine & medical attendance	-	-	-	-	-	-	-	-	*
(sickness) (S)	*	u	-	**r	-	-	u	-	*
Funeral expenses (S)	-	-	-	**r	-	-	-	-	-
Liquors (C)	-	-	-	-	-	-	u	-	*
Tobacco (C)	-	-	-	-	-	-	u	-	*
Insurance, fire (S)	-	-	-	-	-	-	-	-	-
Taxes (S)	-	-	-	-	-	-	-	-	-
Road (S)	-	-	-	-	-	-	u	-	-
Repairs (S)	-	-	-	-	-	-	u	-	-
Improvement & tools (C)	-	-	-	-	-	-	u	-	-
Soap (C)	-	-	-	-	-	-	-	-	-
Personal expenses (C)	-	-	-	*	-	-	-	-	-
House girl (help) (S)	-	u	-	-	-	-	-	-	-
Care of house (C)	-	u	-	-	-	-	-	-	-
Boarding (C)	-	-	-	-	-	-	-	-	-
Interest (S)	-	-	-	-	-	-	-	-	-
Laundry (S)	-	-	-	-	-	-	-	-	-
Food for cows, chickens, etc. (C)	-	-	-	-	-	-	u	-	*

-Not reported. * Reported separately.

** Reported, but not separately.

NOTES TO APPENDIX B

^a Expenditure reported is for groceries and provisions.

^b Averages of monthly data for 15 occupations. The location of the persons reporting, the number of monthly returns, and the months they cover, are indicated below.

CITY	NO. OF MONTHLY RETURNS UTILIZED	MONTHS COVERED
<i>Blacksmiths</i>		
Atchison	56	Jan.-Sept. 1889
Kansas City	51	Nov. 1888, Jan.-Sept. 1889
Leavenworth	52	Jan.-Sept. 1889
Topeka	32	Jan.-Sept. 1889
<i>Harness-Makers</i>		
Atchison	29	Jan.-Sept. 1889
Topeka	26	Apr.-Sept. 1889
<i>Laborers</i>		
Atchison	51	Jan.-Sept. 1889
Kansas City	52	Nov. 1888, Jan.-Sept. 1889
Leavenworth	62	Nov. 1888, Jan.-Sept. 1889
Topeka	175	Jan.-Sept. 1889
<i>Laborers—Railroad</i>		
Atchison	9	Jan.-Apr. 1889
Kansas City	25	Nov. 1888, Jan.-Apr., June-Sept. 1889
<i>Painters</i>		
Atchison	43	Jan.-Sept. 1889
Kansas City	52	Nov. 1888, Jan.-Sept. 1889
Leavenworth	26	Jan., Apr.-Sept. 1889
Topeka	29	Jan.-Sept. 1889
<i>Printers</i>		
Atchison	46	Jan.-Sept. 1889
Kansas City	52	Nov. 1888, Jan.-Sept. 1889
Leavenworth	46	Jan.-Sept. 1889
Topeka	89	Jan.-Sept. 1889
<i>Street Car Drivers</i>		
Atchison	41	Jan.-Sept. 1889
Leavenworth	30	Jan.-Sept. 1889
Topeka	45	Jan.-Sept. 1889
<i>Conductors—Cable Street Railroad</i>		
Kansas City	19	Nov. 1888, Jan.-Sept. 1889
Topeka	13	Jan., May, July-Sept. 1889
<i>Conductors—Elevated Street Railroad</i>		
Kansas City	16	Jan.-Mar., May-Sept. 1889
<i>Engineers—Elevated Street Railway</i>		
Kansas City	13	Jan.-Mar., May-Sept. 1889
Topeka	14	Apr.-Sept. 1889
<i>Gripmen—Cable Street Railroad</i>		
Kansas City	9	Jan.-July 1889
<i>Cigar Makers</i>		
Leavenworth	32	Jan.-Mar., June-Sept. 1889
Topeka	15	Jan.-May, July 1889
<i>Bricklayers</i>		
Topeka	16	May-Sept. 1889
<i>Shoemakers</i>		
Topeka	24	Jan.-Apr., June, July 1889

CITY	NO. OF MONTHLY RETURNS UTILIZED	MONTHS COVERED
Topeka	<i>Tinners</i> 15	Jan., Feb., Apr., May, July, Aug. 1889

For occupations for which there were returns from more than one city, an average for all the cities reporting was computed, equal weight being assigned the per capita for each city.

^c Expenditure reported is for education and amusements. The distribution between services and commodities is based on the division of the United States sample for 1890/91 (App. A).

^d Expenditure reported is for interest, insurance, taxes.

^e Averages of data for 21 occupations. The size of the sample utilized for each occupation is:

<i>Occupation</i>	<i>No. of Returns Utilized</i>
Railway Employees in Train Service	
Brakemen	7
Conductors	11
Locomotive engineers	5
Locomotive firemen	11
Railway Employees in Miscellaneous Trades	
Blacksmiths	2
Boilermakers	4
Agents and operators.	6
Machinists	3
Trackmen	4
Miscellaneous	10
Building Trades	
Carpenters	8
Laborers	5
Painters and paper hangers	2
Stone masons and bricklayers	6
Miscellaneous Trades	
Barbers	1
Butchers	6
Leather workers	1
Miners, coal	7
Printers	3
Retail clerks	8
Miscellaneous	12

^f Averages of data for 25 occupations. The size of the sample utilized for each occupation is:

<i>Occupation</i>	<i>No. of Returns Utilized</i>
Railway Employees in Train Service	
Brakemen	3
Freight conductors	9
Engineers	5
Firemen	7
Switchmen	4
Railway Employees in Miscellaneous Trades	
Boilermakers	8
Boilermakers' helpers	1
Carmen	18
Machinists	2
Building Trades	
Bricklayers and stone masons	8
Carpenters	19
Electrical workers	7
Hod carriers	1
Painters and paper hangers	4
Stone cutters	1

NOTES TO APPENDIX B (concl.)

<i>Occupation</i>	<i>No. of Returns Utilized</i>
Miscellaneous Trades	
Barbers	14
Cigar makers	7
Retail clerks	1
Iron molders	5
Laborers (common)	2
Mine workers	12
Powder workers	1
Printers	9
Teamsters	18
Miscellaneous Skilled Vocations	12

g Expenditure reported is for life and accident insurance.

h Expenditure reported is for taxes and repairs.

i Expenditure reported is for books and lodge dues.

j Averages of data for laborers and carpenters. The size of the sample utilized for each occupation is:

OCCUPATION	NO. OF RETURNS UTILIZED	
	1878/79	1883/84
Laborers	11	174
Carpenters	15	49

k Expenditure reported is for meat and vegetables.

l Expenditure reported is for clothing and dry goods.

m Expenditure reported is for fuel and light.

n Expenditure reported is for education, including papers.

o Expenditure reported is for tobacco and liquors.

p Averages of data for laborers, shoemakers, blacksmiths, and machinists. The size of the sample utilized for each occupation is:

OCCUPATION	NO. OF RETURNS UTILIZED	
	1890/91	1899/1900
Laborers	25	3
Shoemakers	58	35
Blacksmiths	7	8
Machinists	18	7

q Expenditure reported is for religion and charity.

r Expenditure reported is for sickness and funeral expenses.

s Separate expenditures for fish and milk included.

t Composite total derived from returns for 397 families.

u Specifically included with sundries.

v Expenditure reported is for groceries, meats, fish, ice, milk.

w Expenditure reported is for (dues to) societies and unions.

x Expenditure reported is for education, newspapers, and periodicals.

y Returns for mine workers utilized in the 1880-88/89 comparison alone.

z Returns for all industries canvassed.

aa Expenditure reported is for food other than meat.

bb Most of the data reported are on a monthly basis but annual data are shown for clothing and house furnishings.

cc Returns for 'wage earners of the minimum class from seven Nebraska industrial centers'. The size of the sample is not stated. All data are monthly.

dd Expenditure reported is for fuel and ice.

ee Expenditure reported is for incidentals including union dues and insurance.

ff Expenditure reported is for society dues and life insurance.

gg Expenditure reported is for clothing, etc.

hh Expenditure reported is for rent, taxes, or repairs.

ii Expenditure reported is for education and books.

jj Expenditure reported is for amusements and travel for recreation.

kk Separate expenditure for oil included.

APPENDIX C

Appraisal of the Sample Data and of the Comparisons

Changes in the service shares from one period to another may be due to the incomparability of the basic data as well as to a genuine shift in the pattern of consumer expenditures. It is impossible to determine the relative influence of these two factors. Careful scrutiny of each sample, together with consideration of the movement of the per capita expenditure from sample to sample, however, afford a better basis for judging the comparability of the data, so that we are able to surmise the extent of the true change in the service shares. We proceed, therefore, to examine each sample, pointing up aspects that may affect their comparison. An A or B beside a year indicates whether the sample material is tabulated in Appendix A or B.

CONNECTICUT

1887/88 (B) and 1900/01 (A)

Of 611 reports for 1887/88, 568 had to be discarded either because of incompleteness or because returns for several families were combined, making it impossible to ascertain whether all items were reported for each family. (Inclusion of these combined returns depresses the share of rent—evidence, probably, that rent was often not reported.) The 1900/01 report includes no returns for persons with incomes over \$1,200; for 1887/88, data were included for persons with incomes up to \$1,400. In the earlier sample only 12 industries are covered; in the later years presumably far more.

ILLINOIS

1878/79 (B) and 1883/84 (B)

Of the 38 occupational groups covered by the report for 1878/79, only two—laborers and carpenters—are utilized in our comparison. Had we summarized the entire report, our conclusions might be different, but the period between the two sample years was so short that the time and labor did not seem warranted. Enlarging the sample in 1883/84 to cover all 26 occupations reported yields a total service share of 26.73 percent, only slightly higher than that for laborers and carpenters—26.41 percent.

The drop in the total service share from 28.09 percent in 1878/79 to 26.41 percent in 1883/84 is due to the decline in 'other' service items from 10.76 to 7.41 percent, which offsets the rise in the share of rent from 17.33 to 19.00 percent. Comparison of the per capita absolutes leads to the belief that coverage of items other than food, fuel and light, clothing, and rent is far less complete for 1883/84 than for 1878/79. Since 'all other' and 'sundries' are not described in the source material, this belief cannot be confirmed, but there appears to be justification for attributing at least a part of the drop in the total service share to the less complete coverage of service items in the later year.

1900/01 (A) and 1918 (A)

The 1918 sample, comprising returns for 3 cities (69 for Chicago, 19 for Danville, and 12 for Pana), is only 14 percent of that for 1900/01. Although the disparity in size and territorial coverage is appreciable, the comparability of the samples is not seriously affected. The 1918 material is extrapolated to 1914 by the movement of the shares for rent and other services for Chicago.

From 1900/01 to 1914 the rent share rose from 16.20 to 23.37 percent; that of other services from 8.77 to 13.65 percent. Even were a part of these rises due to inconsistencies between the two samples, the movement would still be definitely upward.

KANSAS

1888/89 (B), 1900 (B), and 1907 (B)

From the source material for 1888/89 it is not clear how the published figures were arrived at, but considerable computation was evidently required to raise the partial data to the coverage finally indicated. We had to recompute the average expenses for illness, interest, insurance, taxes, education, and society dues—dividing by total returns rather than by the number showing the particular type of expense. When boarding is mentioned, as well as expenses for groceries and meat, these items are also divided by total returns. The sum of these per capita is the total per capita outlay for food. We are not justified in disregarding the rent element involved in the payments for board, but com-

parison of the per capita for board with those for groceries and meat seems to indicate that the item is essentially a payment for food rather than for food and lodging.

The omission of returns for October and December may affect the comparison with the 1900 and 1907 samples.

The rise in the total service share from 31.10 percent in 1888/89 to 31.49 percent in 1900 is due to the increase in the share of 'other' services from 13.26 to 15.99 percent; the share of rent declines from 17.84 to 15.50 percent. The increase of 3.85 percent in the total service share from 1900 to 1907 is due chiefly to 'other' services, which rose from 15.99 to 18.36 percent. The shares for 1888/89, computed as they are from monthly data, are probably not comparable with those for 1900 and 1907, computed from annual data. This may well account for the surprising difference in the per year increases in the share of services: 0.035 percent from 1888/89 to 1900, and 0.550 percent from 1900 to 1907.

MAINE

1890/91 (B) and 1899/1900 (B)

The sample for 1899/1900 is far smaller than that for 1890/91, yet comparison of the per capita absolutes in the two years fails to reveal any serious disparity. However, though enlarging the sample for 1899/1900 to cover all 7 occupations canvassed causes practically no change in the percentage share for services, the total service share for 1890/91 is lowered more than 1 percent—from 28.46 to 27.24 percent—if all 27 occupations are used. The shares based on the 4 occupations should not, therefore, be compared with percentage shares for other states purporting to represent complete occupational coverage.

The rise in the total service share from 28.46 to 34.21 percent is due to the increase in the share of rent from 17.35 to 20.45 percent as well as in the share of other services from 11.11 to 13.76 percent. Since it was feared that these increases might have been the accidental effect of the small, and therefore doubtful, samples, they were checked against those for shoemakers—the one occupational group for which our 1899/1900 sample is of appreciable size. They tally closely.

1900/01 (A) and 1918 (A)

The sample for 1918 is only one-seventh of that for 1900/01 and is for a single city, Portland. However, the data are apparently not out of line with those for states for which the samples are larger and more representative.

The total service share for 1914, extrapolated from 1918 on the basis of the movement of the share for all income groups in Portland, is 34.47 percent, an annual increase from 1900/01 to 1914 of 0.939 percent—slightly higher than that for Illinois.

MASSACHUSETTS

1870 (B) and 1883 (B)

Not only are the samples extremely small, but inspection of the per capita absolutes in the two years casts grave doubt upon their comparability. Fuel and light are reported in 1870, but the item on the 1883 schedule is for fuel alone. Since the 1883 figure is appreciably lower than the 1870, there is reason to suspect that light is not covered in the later year. On the other hand, the very much higher rent figure in 1883 may include light. The markedly larger figure for sundries in 1883 may indicate the inclusion of furniture, education, etc., which were reported separately in 1870.

The total share of services is 25.21 percent in 1870 and 27.41 percent in 1883. Rent rises from 14.67 to 21.37 percent; other services decline from 10.54 to 6.04 percent. In an alternative distribution it was assumed that the expenditure for fuel and light in 1883 was the same as in 1870. The amount thus added to the 1883 figure for fuel was deducted from the figure for rent, on the ground that the rent figure, rising out of all proportion to other items, included expenses for lighting. It was further assumed that in 1883 sundries excluded furniture, education, etc., and hence was comparable with sundries proper in 1870. These adjustments reduced the percentage shares for services, but the increase from 1870 to 1883 was even larger—from 21.03 to 24.11 percent. The movement of the components seemed more reasonable than that yielded by the unadjusted data, rent rising from 17.15 to 18.07 percent and other services from 3.88 to 6.04 percent. But these alternative distributions were disregarded be-

cause they widen the difference between the total service shares in the two years.

1874/75 (B) and 1901 (B)

Although the fuel item reported in 1874/75 purports to be for fuel alone, comparison of the per capita absolutes in the two years seems to indicate that light is included. The statement in the source that "only about one-third of this (the sundries) item is specifically accounted for" does not necessarily mean that there is undercoverage, but it does indicate that in many instances sundries were estimated as a whole rather than by items and that in this lump estimate certain items may possibly have been undervalued. When rent was not reported for 1901, 'other expenses' were substituted, inasmuch as apparently they usually represented payments by home owners. In the few cases where both rent and 'other expenses' were reported on the same schedule, the latter was regarded as a miscellaneous item.

The rise from 20.35 percent in 1874/75 to 23.91 percent in 1901 is due entirely to the rise in the 'other' service share from 3.62 to 9.07 percent, since rent declines from 16.73 to 14.84 percent. The very marked rise in the share for sundries can be regarded as an indication either of greater proportionate outlay on services not embodied in new commodities or of greater coverage in the later year. Probably both factors were at work.

1890/91 (A), 1900/01 (A), and 1918 (A)

The sample for 1900/01 is much bigger and presumably, therefore, of wider territorial coverage than the fairly large samples for 1890/91 and 1918. In using the 1890/91 sample for comparison, we assume that the data on workers in cotton, woolen, and glass mills vary little, at least in percentage distribution, from those in other industries. The marked difference in per capita rents in 1890/91 and 1900/01, however, may indicate that the assumption is invalid.

The rise in the total service share from 26.52 percent in 1890/91 to 32.46 percent in 1900/01 is due to the rise in the share of rent from 15.38 to 20.95 percent, as the share of other services rises only slightly—from 11.14 to 11.51 percent. When

we extrapolate the 1918 shares of rent and of other services to 1914 by the movement of the shares for Boston, the total service share becomes 33.24 percent, as against 32.46 percent for the 1900/01 sample, or a yearly increase of 0.058 percent.

It seems unlikely that this low annual gain would follow that of +0.594 percent for 1890/91-1900/01. Surprising also is the wide disparity between the percentage shares calculated from the Massachusetts source material for 1901 and the United States source material for 1900/01. It seems to be due to the groceries and provisions item, the per capita absolute computed from the Massachusetts report being \$415 and that from the United States material \$258. The higher per capita is consistent with those for other years based on Massachusetts reports, while the lower tallies with those for 1890/91 and 1918 with which it is compared. The low per capita rent in 1890/91 mentioned above may be evidence of incomparability in the 1890/91 and 1900/01 samples.

MISSOURI

1880 (B) and 1888/89 (B)

Fuel in 1888/89 was estimated on the basis of the 1880 ratio of fuel to the sum of items other than rent, food, and clothing.

The total service share rises from 19.63 percent in 1880 to 23.58 percent in 1888/89: rent from 10.01 to 12.75 percent, and other services from 9.62 to 10.83 percent. Part of these rises may be due to undercoverage of expenditures for food in 1888/89. According to the source, many of the families canvassed had a small garden, pigs, chickens, etc.; sometimes a cow. Though there is no way of determining how much home-grown products contributed to the food supply, it is unlikely that the addition of their value would raise the commodity share sufficiently to offset the very pronounced rise in the service shares.

1880 (B) and 1900/01 (A)

The rise in the total service share from 28.15 percent in 1880 to 33.53 percent in 1900/01 is due entirely to the increase in sundries. The declining shares of all other items, despite the substantial rise in the per capita absolutes, may be evidence of greater coverage of sundries in the later year.

NEBRASKA

1889/90 (B) and 1912 (B)

Both samples are derived from monthly data. Per capita expenditures are \$696 in 1912 and \$379 in 1889/90. This 84 percent increase is not distributed equally, as food, e.g., increases only 39 percent, rent, 97 percent, and street car fares, more than 1,500 percent. The sample for the earlier year shows no specific entry for laundry, nor does it include a miscellaneous category in which laundry might be covered. It is impossible, on the other hand, to determine what the later sample includes under 'incidental'; i.e., whether house furnishings, musical instruments, and the other items not specifically listed are taken care of or disregarded. Since, with the exception of contributions, the items unaccounted for in the later year are all in the commodity category, there may be a bias in favor of services. This may explain, in part at least, the very large increase in the share of 'other' services, from 2.94 percent in 1889/90 to 14.13 percent in 1912, as rent rises only moderately—from 21.41 to 22.94 percent.

The service shares for 1918, computed from data for 19 families in Grand Island, and 8 in Omaha (*Cost of Living in the United States*), and extrapolated to 1914 by the movement of the cost of living for 32 cities in the United States (*ibid.*), yields a total service share of 36.11 percent, less than 1 percent smaller than that calculated from the Nebraska data for 1912. Although the shares for these two years cannot be regarded as comparable, their closeness suggests that the figure for 1912 is not much too high.

NEW JERSEY

1877/78 (B) and 1885/86 (B)

The decline in the total service share from 24.46 to 23.23 percent reflects a decline in both rent (from 17.89 to 17.13 percent) and other service items (from 6.57 to 6.10 percent). The comparability of the sundry category in the two years is suspect, for while the per capita absolutes of all other items rise appreciably, that for sundries declines.

As data for consecutive years are more likely to be comparable than those for widely separated years, percentages were calculated for 1878/79 and 1884/85 also. These indicate a slight rise

in the total service share from 1877/78 to 1878/79 and from 1884/85 to 1885/86. The decline from 1877/78 to 1885/86 cannot be dismissed on the evidence of these short term changes, though they lend weight to the surmise that the decline may be due to vagaries in the sample.

1900/01 (A) and 1918 (A)

The 1918 sample, comprising returns for 3 cities (12 for Dover, 35 for Newark, and 11 for Trenton), is only one-tenth of that for 1900/01. This appreciable disparity in size and territorial coverage may affect the results of the comparison of the percentage shares in the two years.

The shares for rent and other services in 1918 are extrapolated to 1914 by the change in the cost of living for 32 cities in the United States as derived from *Cost of Living in the United States*, yielding a total service share of 35.23 percent, an annual increase from 1900/01 of 0.353 percent.

OHIO

1878 (B) and 1885/86 (B)

The source material does not indicate what the category 'clothing, etc.' in 1878 comprises. It may be the equivalent of clothing, boots and shoes, and dry goods, as reported in 1885/86. The composition of 'other expenses' and of 'sundries' is likewise unknown.

If it is assumed that the two samples are comparable, the total service shares are 27.88 percent in 1878 and 27.14 percent in 1885/86; rent rises from 17.00 to 18.41 percent; other services decline from 10.88 to 8.73 percent. The per capita absolutes, however, suggest that recreation and education were not covered in the 1885/86 sample and that dry goods and trade union dues were disregarded in 1878. Without these items, total service shares are 27.14 percent in 1878 and 28.21 percent in 1885/86; rent rises from 17.64 to 19.67 percent; other services decline from 9.50 to 8.54 percent, owing to the drop in the expenses for illness. Perhaps the one conclusion we are justified in drawing is that there is no pronounced change in the pattern of consumers' outlay.

1900/01 (A) and 1918 (A)

Although the 1918 sample is only one-fifth that for 1900/01, it is fairly representative, covering returns for 192 families (117 in Cincinnati, 25 in Cleveland, 47 in Columbus, and 3 in Steubenville). When the 1918 shares are extrapolated to 1914 by the movement of the shares for Cleveland, the total service share becomes 35.30 percent, an annual increase of 0.567 percent from 1900/01. Rent rises from 14.11 percent in 1900/01 to 22.29 percent in 1914; other services decline slightly—from 13.54 to 13.01 percent.

PENNSYLVANIA

1875 (B), 1879 (B), and 1886/87 (B)

The samples differ appreciably in size and may not be comparable for the three years. Expenditures for recreation are not specifically mentioned in the 1875 sample, and religion is apparently not covered in the 1879 sample. The 1886/87 sample, on the other hand, mentions society dues and life insurance, but not education, recreation, or religion. As sundries or 'other' expenses are not described, it cannot be determined whether they include these items. It was assumed that the data are comparable so far as coverage is concerned, since discrepancies are presumably minor. Rent per capita, however, suggests that there is some disparity in concept, since rent in 1879 seems unreasonably low, and is the primary cause for the fall in the total service share from 1875 to 1879, and the rise from 1879 to 1886/87. The rent shares for these three years are 17.42, 14.68, and 19.11 percent respectively; other services rise from 7.36 to 9.74 percent and drop from 9.74 to 9.04 percent.

1890/91 (A), 1900/01 (A), and 1918 (A)

The great disparity in the size of the three samples and in the territorial coverage may account for the big differences the comparison reveals. The sample for 1890/91—91 families, of which 17 reside in Altoona, 14 in Harrisburg, and 60 in Philadelphia—may give too much weight to the high rent figures in Philadelphia. The 1918 sample, covering returns for 4 cities (31 for Chambersburg, 56 for Pittsburgh, 40 for Scranton, and 67 for Philadelphia and Camden, N. J.), is bigger, and is not as greatly influenced by the returns for any one city.

The total service share declines from 34.08 percent in 1890/91 to 32.29 percent in 1900/01, because of the drop in the share of rent from 24.01 to 20.89 percent; the share of other services rises from 10.07 to 11.40 percent. The total service share for 1914, extrapolated from 1918 on the basis of the changes in the component shares for Philadelphia, is 33.60 percent, an annual increase of 0.097 percent from 1900/01.

WISCONSIN

1885 (B) and 1895 (B)

It was assumed that expenditures for fuel in 1885 are included with miscellaneous expenditures and are the same as in 1895.

Despite the great disparity in the size of the two samples, there is surprising agreement in the per capita absolutes and in the level of expenditures. The earlier sample, though small, may therefore be regarded as fairly representative. In sundries alone does the very much higher per capita in 1885 indicate more complete coverage. A widening of the scope of this item for 1895 would, however, tend to raise the service share, thereby accentuating the rise from the 1885 level. If, on the other hand, undue emphasis was placed on the miscellaneous items in the 1885 sample, as may occur when samples are small, we should, perhaps, assume a lower share of the service items in 1885 rather than a higher in 1895. Therefore, the difference between the shares for the two years tends to be the same whichever alternative is assumed. The total service share in 1895 tallies so closely with that for 1900/01 that overstatement in 1885 seems more likely than understatement in 1895.

The rise in the service share from 25.06 percent in 1885 to 26.51 percent in 1895 is due entirely to the rise in rent from 14.18 to 17.37 percent; the share of other services declines from 10.88 to 9.14 percent.

1900/01 (A) and 1918 (A)

The sample for 1918, comprising returns for 128 families (31 in Green Bay, 53 in Milwaukee, and 44 in Chippewa Falls), though only half that for 1900/01, is nevertheless large enough to merit consideration.

The shares for rent and other services in 1918 are extrapolated to 1914 by the change in the cost of living for 32 cities in the United States as derived from *Cost of Living in the United States*, yielding a total service share of 32.42 percent, an annual increase from 1900/01 of 0.414 percent.

APPENDIX D

United States Reports on Consumers' Expenditures since 1919 Tabular Summary of Sources and Characteristics of the Sample Data

SOURCE	1922/24 ^a	1935/36	1941
<p><i>The Farmer's Standard of Living</i> (Dept. of Agriculture, Bull. 1466)</p> <p>Persons covered by returns</p>	<p>Farm families of selected localities in 11 states.^c Each family had an adult man operating the farm and an adult woman as homemaker. It included parents & children who were at home, or, who, while away at school or elsewhere, were supported from the family purse.</p>	<p><i>Family Expenditures in the United States</i> (National Resources Planning Board, Washington, D. C., 1941)</p> <p>'Normal' families in 6 types of community: farms, rural nonfarm areas, small cities, middle-sized cities, large cities, & metropolises. A normal family was one containing a husband & a wife, with or without other persons. 7 broad occupational groups were represented: wage earner, clerical, independent business, salaried business, independent professional, salaried professional, & farming.^d</p>	<p>Family Spending and Saving in Wartime (preliminary releases by the Bureau of Home Economics, Dept. of Agriculture; 'Income and Spending and Saving of City Families in Wartime', <i>Monthly Labor Review</i>, Sept. 1942)^b</p> <p>Families & single consumers in farm & rural nonfarm areas, & in cities^e</p>
<p>Total returns</p> <p>Expenditures reported & rating as (C), (S), or (S & C)^g</p> <p><i>Food</i> (C)</p> <p><i>Clothing</i> (C)</p> <p>Cleaning, pressing (S)</p> <p><i>Housing</i> (S)</p> <p><i>Household operation</i></p> <p>Fuel, light, refrigeration (C)</p> <p>Paid household service (S)</p>	<p>2,886</p> <p>*</p> <p>**h</p> <p>**h</p> <p>#i</p> <p>-</p> <p>**j</p> <p>**j</p>	<p>54,000</p> <p>*</p> <p>*</p> <p>*</p> <p>*</p> <p>-</p> <p>*</p> <p>*</p>	<p>3,060^f</p> <p>*</p> <p>**p</p> <p>**p</p> <p>**q</p> <p>-</p> <p>**q</p> <p>**r</p>

Telephone (S)	**j	*	**r
Laundry sent out (S)	**j	*	**r
Other (S & C)	**j	*	**r
Furnishings (C)	*k	*	*
<i>Transportation</i>	-	-	-
Automobile	-	-	-
Purchase (C)	-	-	-
Operation	**j	*	*
Gasoline (C)	-	*	*
Oil (C)	-	*	*
Insurance (S)	-	*	*
Other items (S & C)	**j	*	*
Other (S & C)	*l	-	*
<i>Medical care</i>	-	-	-
Physician, dentist, oculist, other specialist (S)	-	*	*
Medicine, drugs (C)	-	*	*
Other medical care (S & C)	-	*	*
<i>Recreation</i>	-	-	-
Movies & other paid admissions (S)	**m	*	*
Sports, games (S & C)	-	*	*
Radio purchase (C)	-	*	*
Other recreation (S & C)	-	*	*
<i>Personal care</i>	-	-	-
Services (S)	**n	*	*
Toilet supplies (C)	**n	*	*
Tobacco (C)	**n	*	*
<i>Education (S)</i>	**m	*	*
<i>Reading (C)</i>	-	*	*
<i>Other items (S)</i>	*o	*	*
<i>Gifts</i>	-	-	-
To individual (C)	**n	*	*
To church (S)	**m	*	*
Other (S)	-	*	*
<i>Personal taxes (S)</i>	-	*	*

-Not reported. * Reported separately. ** Reported, but not separately.

NOTES TO APPENDIX D

^a Data are for one year in 1922/24.

^b Final estimates, published since this study went to press, appear in *Family Spending and Saving in Wartime*, BLS Bulletin 822.

^c Distribution of families studied is:

NUMBER OF FAMILIES		NUMBER OF FAMILIES	
New Hampshire	40	Alabama	558
Vermont	86	Missouri	178
Massachusetts	81	Kansas	406
Connecticut	110	Iowa	472
Kentucky	370	Ohio	383
South Carolina	202		

^d A much more detailed description is given in the source.

^e A more detailed description is given in the final report (see note b, above).

^f Given in the final report (see note b, above).

^g When the rating is indicated as (S & C) an equal division between services and commodities was made. For 1922/24 the apportionment of the so-called 'mixed' categories between services and commodities is based upon the relation in 1935/36. For 1941, and for 1935/36 when comparison is with 1941, the rating for these mixed categories is:

Clothing, including cleaning and pressing (C)

Housing, including fuel, light, and refrigeration (S)

'Other' household operation (S)

Automobile (C)

Other transportation (S)

Medical care (S)

Recreation: for urban and rural nonfarm families (S); for rural farm families (S & C)

Personal care (S & C)

Gifts (S & C)

^h Expenditure reported is for clothing, including sewing, dry cleaning, pressing, and shoe repairing.

ⁱ Rent, estimated at 10 percent of the total value of the house, plus taxes, insurance, improvements, repairs, and depreciation.

^j Expenditure reported is for automobile (including license, tax, operation, repairs, and depreciation); fuel; household labor (hired); ice and water; insurance on furnishings and equipment; laundry work done outside; postage, stationery, express, freight and drayage; travel by bus, trolley, and train; supplies for cleaning, laundry, and miscellaneous purposes; telephone.

^k Furnishings and portable equipment (including repairs) plus musical instruments.

^l Expenditure reported is for doctors, etc., eye glasses, medicine, and travel to hospitals or for treatments.

^m Expenditure reported is for advancement and covers education, contributions to church organizations, concerts, vacations, etc.

ⁿ Expenditure reported is for personal care and covers barbers, hairdressers; candy, etc.; gifts to family and friends; jewelry, including repairs; tobacco; toilet articles.

^o Expenditure reported is for exceptional items, emergencies, etc.

^p Expenditure reported is for clothing which includes cleaning and pressing.

^q For urban families the expenditure reported is for housing, fuel, light, and refrigeration.

^r Expenditure reported is for 'other' household operation.