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Volume Title: Value of Commodity Output Since 1869

Volume Author/Editor: William Howard Shaw

Volume Publisher: UMI

Volume ISBN: 0-87014-047-7

Volume URL: <http://www.nber.org/books/shaw47-1>

Publication Date: 1947

Chapter Title: Price Indexes

Chapter Author: William Howard Shaw, William Howard Shaw

Chapter URL: <http://www.nber.org/chapters/c5426>

Chapter pages in book: (p. 287 - 302)

PART IV

Price Indexes

A PROBLEMS OF CONSTRUCTING PRICE INDEXES

THE VALUE of output in constant prices can be measured by counting the actual quantities of commodities produced and multiplying by appropriate base period prices or by deflating the current dollar values of the different classes of commodities by representative price indexes. Lack of adequate quantity data for most commodities make the second method alone feasible in this study. Even if this were not true, there would be reason to prefer the second method since most quantity series do not reflect changes in quality.¹

Nearly all price indexes attempt to measure price changes for qualitatively constant articles; thus deflation of current dollar values by these indexes makes the deflated series reflect qualitative as well as purely quantitative changes.

Of course, for such indexes to give meaningful results, there must be a continuous core of homogeneity in the series being deflated. If, to cite the extreme, a commodity changes so drastically from Period I to Period II that as produced in Period I it may be said to have disappeared, deflation by an hypothetical price index for the commodity that has disappeared would have no meaning. In fact, the problem of continuous deflation could hardly be solved.

So far as possible, a price index was constructed for each minor group. This usually involved combining two or more series. Since the group indexes are intended to serve as deflators of current dollar values, the most appropriate weights are clearly the corresponding value data for the individual commodities. And since the weights used by the Bureau of Labor Statistics, the chief source of the basic indexes, approximate the most appropriate weights, we simply adopted them to calculate composite indexes for many of the groups. When indexes were taken from other sources, the weights utilized are indicated in the detailed notes below.

Weighting, of course, involves more than a decision concerning the

¹ A change in quality is just as much a change in physical output, as defined here, as a change in units produced.

most appropriate weights. Of considerable importance is whether to use fixed or variable weights. It is hardly necessary here to go into the ramifications of this perennial index problem.² Although fixed weights were deemed simplest and therefore preferable, the length of the period and the marked changes in the composition of output following World War I led us to use two sets: one for the period since 1919 based on the weights in *Wholesale Price Bulletin 512* (Bureau of Labor Statistics) and reflecting proportionate values of output in the late 1920's; and one for the period before 1919 based on the weights in *Bulletin 269* and reflecting proportionate values of output in 1909. Occasional modifications and exceptions to this general rule are mentioned specifically in the detailed notes below.

B ADEQUACY OF THE PRICE INDEXES

Series not taken from the Wholesale Price Bulletins were assembled from the Presidents' Conference Committee (on Railroads), the Bureau of Valuation, Interstate Commerce Commission, the Bureau of Corporations, the Federal Trade Commission, the Automobile Manufacturers' Association, and *Wholesale Prices, Wages and Transportation* (Senate Report 1394, Finance Committee, 52d Cong., 2d Sess., Part V, Washington, D. C., 1893), hereafter called the Aldrich Report.

All series suffer from defects inherent in their origin. Those from the Bureau of Labor Statistics usually reflect list price quotations for specific grades of commodities in certain areas. Moreover, despite attempts to obtain quotations on commodities qualitatively comparable over time, many of the indexes reflect both price and quality changes. In some series from other sources—e.g., the per unit price of automobiles, which we had to use for the years before 1913—we could not differentiate between price and quality changes. Yet it is unlikely that these defects, ubiquitous as they are, seriously impair the usefulness of the indexes.³

Of graver import is the lack of any price series whatever for many commodities. Some of the gaps were filled by using indexes of the chief ma-

² For comprehensive discussions of indexes see Irving Fisher, *The Making of Index Numbers* (Houghton Mifflin, 1925) and *Wholesale Price Bulletin 284* (Bureau of Labor Statistics). Part I of the latter contains an excellent summary of the various factors that should be considered in constructing indexes.

³ For an appraisal of the BLS wholesale price series, see Saul Nelson, A Consideration of the Validity of the Bureau of Labor Statistics Price Indexes, *The Structure of the American Economy* (National Resources Committee, 1939), App. 1.

materials that enter into a commodity, for example, women's dress goods to represent women's dresses. In this respect our indexes are more comprehensive than those in *Commodity Flow and Capital Formation*, Vol. One. Kuznets used only price series directly measuring finished commodities. The use of indirect series tends to make the composite indexes fluctuate a little more than they would if based on direct series alone, for it is generally recognized that prices of materials usually fluctuate more than prices of end products. We believe, however, that the better trend representativeness more than compensates for this slight cyclical defect.

But even the use of indirect indexes did not provide enough series to ensure complete coverage; and for no minor group is there a series for every commodity in it. For many, enough series are included to warrant an assumption of representativeness; but for some, including several durable groups, coverage is less than 25 percent and representativeness uncertain. Finally, for groups accounting in 1909 for 3.1 percent of the total value of semidurable commodities, 22.8 of consumer durable, and 23.4 of producer durable, we could not find any series at all.⁴ To derive estimates in 1913 prices for these groups we had to use either an index for a related group or an average index based on the minor groups, within the apposite major group, for which we were able to compile separate indexes.

Table IV 1 shows the price indexes computed for each commodity group. The note to the table describes the composition of each index.

⁴ For the groups for which indexes could not be derived as well as the data from which similar percentages can be computed for any year, see Tables I 3 and IV 1.

TABLE IV 1
Price Indexes 1869, 1879, 1889-1939 (1913: 100)
Major and Minor Commodity Groups

	PERISHABLE										SEMIDURABLE										IMPLICIT INDEX ^b				
	1	2	3	4	5a	5b	IMPLICIT INDEX ^a	6	7	8	9	10	11	1	2	3	4	5	6	7		8	9	10	11
1869	143.8	96.7	No Index	No Index	263.0	141.2	225.9	177.1	105.4	191.7														158.5	
1879	84.9	93.7	No Index	No Index	154.4	86.6	107.0	106.7	89.5	91.5															102.2
1889	89.5	82.6	80.2		60.1	88.3	108.2	101.3	75.5	91.5															95.6
1890	86.4	87.2	87.6	138.8	59.6	86.1	100.2	101.7	78.2	91.1															94.9
1891	85.3	86.9	87.4	131.3	49.7	84.8	92.0	101.7	76.9	88.5															92.6
1892	79.4	84.2	82.0	129.2	44.0	79.8	95.9	100.6	76.3	84.2															92.6
1893	85.1	86.5	94.0	127.8	43.5	84.7	94.7	96.7	75.4	86.6															90.5
1894	75.1	86.7	86.9	129.4	48.4	76.3	78.9	84.2	75.0	79.0															80.5
1895	73.6	85.6	76.1	126.9	68.8	75.0	77.0	77.9	75.4	76.6															77.1
1896	68.7	82.6	83.5	121.2	66.2	70.9	73.4	76.1	75.5	79.1															75.5
1897	70.8	81.4	78.5	120.5	51.6	72.0	74.1	77.2	72.8	77.4															75.5
1898	74.3	87.0	75.0	95.4	55.4	74.9	76.4	80.5	71.7	75.1															77.3
1899	74.3	88.9	73.3	91.1	70.1	75.4	85.3	84.2	71.0	80.0															81.0
1900	79.0	90.8	76.2	109.1	76.2	80.2	91.8	91.0	72.4	89.3															86.7
1901	78.6	91.7	72.7	101.9	69.0	79.6	83.9	85.7	71.8	83.6															127.1
1902	83.0	92.5	85.3	104.1	69.2	84.1	87.4	87.1	71.9	84.3															125.6
1903	81.0	93.8	84.6	109.7	84.8	83.3	91.3	89.9	73.0	89.1															86.0
1904	84.0	95.1	82.1	112.7	85.3	85.5	90.8	89.7	73.9	91.5															86.0
1905	85.8	97.8	85.2	107.6	75.2	86.9	94.9	94.5	78.0	85.9															90.5
1906	83.2	98.1	87.3	100.4	82.1	84.9	102.8	102.1	85.1	93.5															98.2
1907	88.7	97.2	88.0	106.5	87.5	89.7	113.8	105.9	86.0	104.5															102.6
1908	91.4	98.1	95.1	105.6	89.6	92.3	98.2	100.0	83.9	90.0															96.0
1909	97.4	98.5	98.8	94.8	83.7	96.9	101.4	102.6	88.6	93.0															99.3
1910	101.1	98.5	104.3	95.0	71.7	100.0	103.7	104.7	88.2	103.1															100.9
1911	96.5	99.6	104.0	97.1	67.2	96.2	98.5	100.1	97.8	98.4															97.4
1912	104.0	100.0	101.7	98.4	79.5	102.8	100.1	100.5	92.7	92.4															98.6
1913	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0															100.0

DIFFERENT METHOD OF ESTIMATES. SEE NOTES

No Index

1914	101.8	100.3	101.8	100.1	90.1	101.4	94.8	96.3	100.0	103.3	83.5	96.5
1915	104.5	102.0	107.1	99.8	82.8	103.7	94.9	97.0	102.4	92.4	74.9	96.5
1916	121.2	102.0	125.7	149.5	113.4	120.6	129.4	121.7	111.9	120.8	77.4	117.6
1917	167.2	108.4	155.2	189.2	127.3	161.1	185.0	171.8	151.5	189.9	95.6	161.0
1918	188.4	146.7	170.4	194.6	147.1	182.8	262.2	233.3	172.0	272.0	110.6	206.2
1919	206.6	176.4	173.0	221.7	140.5	199.9	254.6	227.0	236.6	262.3	101.0	212.4
1919	201.7	175.0	199.9	221.3	135.6	196.5	246.1	239.2	247.2	266.5	101.0	219.0
1920	214.0	186.9	212.8	297.0	185.3	213.4	311.9	312.8	277.2	310.1	112.2	265.6
1921	141.1	183.1	167.1	206.4	114.9	146.5	170.5	182.7	204.6	192.1	86.3	173.8
1922	136.4	182.5	146.9	180.1	121.8	141.2	179.3	183.9	180.0	192.3	55.7	163.2
1923	144.4	182.5	149.5	190.6	106.0	147.7	202.5	205.7	181.8	222.7	52.8	177.6
1924	141.7	161.3	148.5	202.1	98.8	143.5	199.0	201.7	180.6	233.5	44.7	164.9
1925	156.1	159.5	151.6	214.2	105.2	154.3	197.8	202.9	184.4	217.6	47.6	160.0
1926	155.8	159.5	155.8	201.7	109.3	154.3	178.6	188.6	183.5	195.1	48.3	150.4
1927	150.6	159.5	148.4	176.1	85.2	146.9	174.4	179.0	188.1	183.2	36.1	137.4
1928	157.3	157.0	140.2	174.8	86.7	150.0	179.2	174.6	201.7	184.1	30.6	131.7
1929	155.6	156.5	138.7	174.8	82.7	147.4	169.5	169.2	195.0	182.8	26.3	130.7
1930	141.0	157.4	133.8	174.8	71.1	135.1	149.5	154.1	187.2	164.5	24.8	122.0
1931	116.2	153.4	120.4	164.5	54.2	114.1	123.7	139.9	191.9	133.8	22.2	109.2
1932	95.0	147.4	106.1	158.2	58.1	96.7	104.9	115.6	158.0	113.7	19.8	93.6
1933	94.2	132.2	101.2	149.4	56.5	95.0	129.3	131.1	165.5	139.1	20.3	105.0
1934	109.8	138.0	114.1	148.2	62.7	107.8*	149.5	148.2	180.0	168.4	21.7	120.6*
1935	130.4	137.4	116.2	148.2	63.2	122.4	142.4	144.3	179.8	152.7	22.1	119.2
1936	127.9	137.1	122.3	149.1	68.8	122.6*	140.5	145.6	183.1	155.8	22.8	170.6*
1937	133.2	138.0	135.9	150.7	72.2	126.4	151.0	157.3	192.7	217.4	26.9	132.6
1938	114.6	137.7	134.0	157.6	66.1	114.6*	124.7	147.7	187.5	182.4	27.9	122.7*
1939	109.7	137.7	132.2	155.1	64.7	110.6*	128.1	146.9	188.3	189.6	28.7	123.1*

* For Total Perishable.

1 Food & kindred products—mfd. & nonmfd.

2 Cigars, cigarettes & tobacco.

3 Drug, toilet, & household preparations.

4 Magazines, newspapers, stationery & supplies, & misc. paper products.

5a Fuel & lighting products, mfd.

5b Fuel & lighting products, nonmfd.

b For Total Semidurable.

6 Dry goods & notions.

7 Clothing & personal furnishings.

8 Shoes & other footwear.

9 House furnishings.

10 Toys, games, & sporting goods.

11 Tires & rubes.

*Implicit indexes for these years derived by weighting the individual group indexes by the average current price estimates for 1933, 1935, and 1937. The composite indexes thus calculated were used to interpolate and extrapolate the implicit indexes for 1933, 1935, and 1937.

CONSUMER DURABLE

	12	13 ^a	13 ^b	13 ^c	14 ^a	14 ^b	15	16	17	18	19	20 ^a	20 ^b	20 ^c	21	22	23	24	IMPLICIT INDEX ^c
1869	81.8				168.0	186.3	263.4												119.4
1879	54.0				104.0	96.6	128.9		No INDEX										83.2
1889	55.9				82.1	86.4	125.7	89.6											81.9
1890	54.9				82.0	85.6	124.1	87.4	127.3										82.3
1891	54.9				87.5	83.9	123.8	85.5	127.3										82.1
1892	54.9				81.1	82.6	120.5	93.1	115.8										79.2
1893	50.9				82.3	84.0	120.2	90.6	104.0										74.8
1894	50.0				77.2	77.8	118.0	83.8	98.6										72.3
1895	45.8				69.8	71.3	113.8	75.1	98.6										67.4
1896	41.0				68.9	71.8	111.2	75.2	98.6										63.8
1897	40.7				71.8	69.3	101.2	75.9	90.5										63.0
1898	45.5				76.9	67.7	101.4	74.6	96.8										67.5
1899	47.0				76.0	67.8	104.4	80.6	100.0										70.0
1900	53.0				79.4	78.7	110.1	87.1	100.0										77.0
1901	52.3				78.6	74.0	125.8	88.3	109.5										77.5
1902	54.5				79.0	76.2	126.1	96.8	109.5										79.9
1903	56.4				83.9	80.5	124.8	97.6	109.5										82.7
1904	56.6				85.0	86.7	119.1	95.6	111.7										83.5
1905	57.1				89.7	80.7	112.2	102.5	112.0										85.3
1906	60.2				90.9	91.3	111.9	102.4	105.6										89.1
1907	67.3				94.9	97.6	113.0	109.4	109.4					95.8					97.7
1908	66.0				91.6	82.9	110.4	105.2	95.7					99.9					96.6
1909	64.8				89.6	86.7	106.9	104.2	90.5					100.9					90.4
1910	70.3				89.9	93.9	104.4	103.2	90.5					101.4					93.5
1911	80.0				89.9	96.5	98.3	105.6	90.5					100.0					95.8
1912	88.2				95.6	95.1	98.7	97.6	94.1					100.0					66.2
1913	100.0				100.0	100.0	100.0	100.0	100.0			100.0		100.0					100.0
1914	99.8	100.0			97.5	98.2	104.2	94.1	101.4					98.3					94.4
1915	100.0	99.8			100.7	92.3	104.6	100.1	100.0					95.9					90.3
1916	102.5	103.2			123.2	122.3	119.5	95.8	118.2					98.2					90.4
1917	113.4	115.9			146.7	212.4	165.2	97.2	165.4					109.1					100.8
1918	131.5	141.5			192.2	284.3	208.7	117.0	198.2					150.1					121.9
1919	168.2	154.9			230.6	254.8	224.9	141.0	213.9					171.1					136.4

INDEX OF MINOR GROUP 20a

INDEX OF MINOR GROUP 21

No INDEX

No INDEX

No INDEX

No INDEX

No INDEX

No INDEX

No INDEX

No INDEX

No INDEX

1919	168.2	154.9	222.4	216.4	144.0	213.9	263.2	96.6	134.5
1920	252.3	184.8	291.6	252.2	170.4	243.0	263.2	108.9	157.8
1921	195.3	178.0	228.0	245.1	159.9	230.1	245.5	97.2	139.8
1922	173.2	176.0	199.3	210.3	144.0	197.1	233.5	79.0	113.4
1923	178.6	199.2	217.9	253.7	160.7	237.7	189.4	73.7	108.2
1924	165.0	194.3	206.4	255.3	166.5	240.8	189.4	72.9	108.5
1925	158.7	190.6	214.0	236.7	155.3	220.6	187.6	71.4	103.3
1926	153.7	187.5	209.8	227.5	158.8	207.4	174.1	67.8	98.8
1927	149.7	186.0	206.2	224.7	162.6	207.4	184.6	69.5	104.0
1928	148.9	178.0	200.8	223.6	163.4	207.4	194.8	72.5	105.4
1929	147.1	180.0	195.4	220.2	161.9	207.4	189.8	75.2	106.4
1930	146.4	177.8	195.5	225.5	166.3	207.4	188.4	70.8	104.3
1931	137.6	168.5	160.0	225.3	138.5	207.4	162.8	67.1	99.8
1932	119.3	155.9	146.5	224.0	147.4	201.0	145.3	66.8	98.0
1933	119.2	140.9	151.3	230.4	124.6	193.7	137.1	66.7	96.8
1934	122.6	147.8	165.2	261.7	141.1	193.7	145.1	70.0	98.5*
1935	118.2	151.1	168.5	262.0	105.0	193.7	146.8	68.9	93.6
1936	117.2	153.1	172.2	262.9	127.2	193.7	158.6	67.8	90.8*
1937	132.1	165.0	201.2	285.1	113.5	198.2	192.2	63.4	91.9
1938	132.2	166.0	193.5	285.2	117.9	198.2	186.4	67.2	92.8*
1939	130.1	167.3	200.1	283.4	116.4	185.0	180.8	65.6	92.1*

* For Total Consumer Durable.

12 Household furniture.

13a Heating & cooking apparatus & household appliances, except electrical.

13b Electrical household appliances & supplies.

13c Radios.

14a Floor coverings.

14b Misc. house furnishings.

15 China & household utensils.

16 Musical instruments.

17 Jewelry, silverware, clocks & watches.

18 Printing & publishing: books.

19 Luggage.

20a Motor vehicles.

20b Motor vehicle accessories.

20c Carriages & wagons.

21 Motorcycles & bicycles.

22 Pleasure craft.

23 Ophthalmic products & artificial limbs.

24 Monuments & tombstones.

PRODUCER DURABLE

	25a	25b	26	27	28	29	30	31	32a	32b	33	34	35	36	IMPLICIT INDEX	C.M.E
1869	No Index		No Index	No Index	No Index	No Index	No Index	No Index					204.8	129.7	163.8	107.4
1879	No Index		No Index	No Index	No Index	No Index	No Index	No Index					132.5	79.9	95.4	81.4
1889	87.3		76.6	116.6		61.5	82.7	77.1					97.1	91.0	88.2	85.0
1890	88.6		77.8	118.4		60.4	82.7	77.1					93.0	83.4	87.7	84.3
1891	80.6		70.8	113.9		60.4	81.2	75.7					90.4	72.3	81.1	80.2
1892	79.8		70.0	112.3		60.4	80.2	74.8					90.1	71.2	80.0	75.9
1893	79.9		70.1	110.6		56.0	78.5	73.2					89.7	66.1	78.4	75.4
1894	84.9		74.5	106.8		55.0	76.9	71.7					87.6	60.2	78.2	71.6
1895	69.9		61.4	103.9		50.4	74.7	69.7					86.1	70.3	72.2	70.7
1896	62.0		54.4	100.7		45.1	74.2	69.2					85.9	65.9	66.1	71.8
1897	85.0		74.6	97.9		44.8	75.3	70.2					86.1	59.5	75.9	67.1
1898	91.5		80.3	94.4		49.7	79.0	73.7					85.7	71.9	82.5	69.9
1899	98.1		86.1	97.3		50.3	82.9	77.3					91.2	81.3	88.1	80.7
1900	96.9		85.1	101.0		56.5	84.0	78.4					97.9	87.3	90.0	85.8
1901	95.9		84.2	101.7		55.2	86.2	80.4					98.5	80.7	88.9	80.7
1902	93.9		82.4	102.6		57.2	87.2	81.3					99.4	87.1	89.7	82.5
1903	88.2		77.4	103.1		59.1	87.2	81.3					99.9	81.9	86.2	84.5
1904	94.7		83.1	102.0		59.0	88.3	82.4	97.1				97.2	80.5	88.8	81.7
1905	94.4		82.9	102.0		59.7	90.1	84.0	94.7				98.1	83.4	89.7	87.0
1906	93.0		81.6	99.6		63.1	92.3	86.1	96.1				100.0	91.0	90.6	96.6
1907	97.3		85.4	99.6		69.7	93.6	87.3	95.1				102.6	92.3	93.6	101.0
1908	90.0		79.0	103.1		68.0	95.0	88.6	90.8				101.2	81.8	89.3	93.3
1909	100.6		88.3	102.6		66.8	96.6	90.1	86.4				100.6	82.3	94.3	94.8
1910	100.7		88.4	100.4		72.1	98.2	91.6	86.0				100.5	83.0	95.3	97.6
1911	111.4		97.8	100.0		81.9	90.9	94.2	105.0		No Index		101.4	81.2	99.1	97.0
1912	104.2	97.1	91.5	100.0		89.8	94.4	96.7	104.4		No Index		100.6	86.6	97.6	97.9
1913	100.0	100.0	100.0	100.0		100.0	100.0	100.0	100.0		No Index		100.0	100.0	100.0	100.0
1914	106.7	96.6	100.2	100.2		100.3	91.8	101.8	94.9		No Index		99.0	95.6	100.3	93.1
1915	120.3	92.6	105.6	98.4		100.4	93.3	107.3	90.8		No Index		98.6	102.5	106.4	94.6
1916	131.8	91.0	124.7	98.3		103.3	126.9	125.4	93.3		No Index		117.3	119.0	120.5	119.0
1917	162.1	74.5	152.6	97.1		113.9	162.7	164.5	92.1		No Index		158.9	171.1	145.5	154.9
1918	200.8	89.2	173.2	128.7		131.8	213.7	227.7	102.0		No Index		191.8	192.0	175.7	174.5
1919	209.2	87.1	182.5	127.6		170.4	235.1	245.7	88.3		No Index		200.4	242.9	185.0	202.7

1919	209.2	87.1	182.5	127.6	168.1	235.1	245.7	88.3	199.2	242.9	184.1	202.7
1920	219.7	78.0	197.0	121.8	242.6	259.8	239.7	70.2	221.3	265.2	181.0	262.0
1921	207.1	89.0	181.3	135.2	190.2	180.9	200.6	59.9	191.1	204.5	164.5	172.2
1922	181.0	66.6	169.0	104.4	167.9	159.1	175.5	44.7	173.2	193.6	135.2	170.7
1923	191.4	66.0	181.1	104.7	171.1	194.1	170.5	40.3	186.3	196.4	138.7	190.4
1924	193.5	63.0	178.4	109.1	158.0	178.0	170.5	40.8	188.6	193.1	134.8	179.5
1925	193.5	65.2	175.4	107.4	153.4	169.0	170.5	46.1	188.0	204.0	135.0	178.5
1926	194.6	66.4	178.9	108.3	146.5	170.5	170.5	46.7	189.8	201.0	138.4	175.6
1927	195.6	66.3	173.8	108.3	146.5	179.2	170.5	42.8	187.5	205.9	138.5	166.6
1928	197.7	65.7	173.2	107.3	146.4	169.7	170.5	39.7	187.3	210.5	136.5	165.6
1929	199.8	65.3	173.8	106.2	145.8	182.0	170.5	41.1	187.7	206.7	131.1	167.8
1930	184.1	64.5	164.1	104.4	145.6	181.1	165.5	38.3	185.0	199.0	125.6	158.4
1931	173.6	60.3	150.4	101.3	137.3	166.3	158.5	35.7	179.5	181.5	117.2	140.2
1932	162.1	57.1	140.8	97.3	127.3	149.9	148.4	34.7	175.5	170.4	112.9	126.8
1933	162.1	56.7	146.2	95.0	116.6	149.3	148.4	31.4	166.8	165.2	104.6	136.0
1934	187.2	57.1	155.2	97.0	123.6	165.7	158.5	32.6	175.9	164.8	107.6*	151.4
1935	187.2	59.9	149.0	99.2	117.9	177.1	160.5	31.4	173.6	164.3	99.6	149.8
1936	187.2	60.4	151.8	100.0	117.6	178.3	160.5	31.3	173.4	178.4	102.0*	152.2
1937	207.1	62.6	157.4	103.6	129.0	191.2	171.5	33.1	186.5	191.2	112.1	167.3
1938	209.2	62.6	154.6	105.0	128.3	190.6	171.5	36.5	191.1	190.0	112.8*	159.0
1939		58.5		102.5	130.0			36.3	190.9	185.1	110.4†	159.0

^d For Total Producer Durable.

^e Construction Materials.

^f Based on the movement of the NBER price index for processed capital equipment goods.

- 25a Industrial machinery & equipment.
- 25b Tractors.
- 26 Electrical equipment, industrial & commercial.
- 27 Farm equipment.
- 28 Office & store machinery & equipment.
- 29 Office & store furniture & fixtures.
- 30 Locomotives & railroad cars.
- 31 Ships & boats.
- 32a Business vehicles, motor.
- 32b Business vehicles, wagons.
- 33 Aircraft.
- 34 Professional & scientific equipment.
- 35 Carpenters' & mechanics' tools.
- 36 Misc. subsidiary durable equipment.

NOTE TO TABLE IV 1

Composition of the Price Indexes,
Minor Commodity Groups

1 *Food and kindred products*: Since 1890 the Bureau of Labor Statistics wholesale price index for foods, a composite of manufactured and nonmanufactured foods, was used. For years before 1890 the following appropriate series (Aldrich Report, Part I) were combined, using 1909 BLS weights: beans; butter and cheese; coffee; eggs; codfish; mackerel; flour and meal; currants; lard; meat and meat products; fresh milk; molasses; rice; salt; spices; refined sugar; potatoes; livestock; and raisins. The composite index was then linked to the BLS index for 1890.

2 *Cigars, cigarettes and tobacco*: Since 1926 BLS series for cigarettes; cigars; plug tobacco; snuff; and safety matches were combined, using 1926 BLS weights (*Wholesale Prices, 1931*, Bull. 572, Bureau of Labor Statistics, Washington, D.C., 1933). For 1919-25 BLS series for plug and smoking tobacco were combined and linked to the index compiled for later years. For 1890-1919 the BLS series for plug and smoking tobacco were combined with series for cigarettes and little cigars (weighing less than 3 lb. per thousand). The latter series, developed from data in *Prices of Tobacco Products* (Federal Trade Commission, Jan. 1922); *Prices of Tobacco and Tobacco Products*, Lloyd L. Shawnlis (Bull. 19, War Industries Board, Washington, D.C., 1919); and *Report of the Commissioner of Corporations on the Tobacco Industry, Part III, Prices, Costs and Profits* (1915), are described more fully in Part II, Table II 6, Note B. Plug and smoking tobacco were first combined by using 1909 BLS weights; then combined with the cigarette and little cigar series, using census production values for 1909 as weights. For years before 1890 prices of tobacco leaf used for binders, fillers, smokers, and wrappers (Aldrich Report) were weighted equally and linked to the index compiled for later years.

3 *Drug, toilet and household preparations*: Since 1926 the BLS index for drugs and pharmaceuticals was combined with the series for soap chips, laundry soap, laundry powder, and toilet soap, using 1926 BLS weights. For 1919-25 a similar combination, but including fewer series, was made and linked to the index compiled for later years. For 1913-18 indexes for drugs and pharmaceuticals; proprietary medicine; soap; hot water bottles; and ice bags (*Prices of Drugs and Pharmaceuticals* and *Prices of Proprietary Preparations*, W. Lee Lewis and F. W. Casserbeer, Bull. 54 and 55, War Industries Board, 1919; and *Prices of Soap and Glycerin*, H. L. Trumbull, Bull. 49, *ibid.*) were combined, using the average value of production of these commodities in 1914 and 1919 as weights. For 1890-1912 and 1919 BLS series for opium, natural; quinine; and bicarbonate of soda were combined, using 1909 BLS weights, with an index of the average annual export price of soap (*Monthly Summary of Foreign Commerce, seriatim*). The composite index was then linked to the War Industries Board composite for 1913-18. Extension to 1889 was based on

the movement of the opium and castile soap series (Aldrich Report). For years before 1889 no index could be constructed.

4 *Magazines, newspapers, stationery and supplies, and miscellaneous paper products*: Since 1919 BLS series for newsprint and wrapping paper were combined, using 1926 BLS weights. For 1890-1919 the same series were combined, using 1909 weights. For years before 1890 no index could be constructed.

5a *Fuel and lighting products, manufactured*: Since 1926 BLS series for by-product coke, Newark, N.J.; fuel oil, Pennsylvania; gasoline, California, North Texas, Oklahoma, and Pennsylvania; kerosene, standard and water white; regular matches; and oil, neutral, Gulf coastal, and Pennsylvania were combined, using 1926 BLS weights. For 1919-25 such of the above series as were available were similarly combined and linked to the index constructed for later years. For 1913-18 series for gasoline; kerosene; lubricating oil; and matches (*Prices of Petroleum and Its Products*, J. E. Pogue and I. Lubin, and *Prices of Matches*, Mary L. Danforth, Bull. 36 and 37, War Industries Board, 1919) together with a BLS series for byproduct coke, Newark, N.J., were combined, using the average value of production in 1914 and 1919 as weights. For 1919 a BLS composite, based on 1926 weights, of byproduct coke, Newark, N.J.; fuel oil, Pennsylvania; gasoline, Oklahoma; and kerosene, standard and water white, was linked to the War Industries Board index for 1913-18. For 1890-1912 a BLS composite, based on 1909 weights, of matches; candles; crude petroleum; and kerosene, standard and water white, was linked to the War Industries Board index. For years before 1890 series for candles and matches (Aldrich Report) were used to extrapolate the index for later years.

5b *Fuel and lighting products, nonmanufactured*: Quantity data for anthracite and bituminous coal, and fuel briquets were multiplied by the respective prices for 1913. See Note to Table II 10 for sources.

6 *Dry goods and notions*: Since 1926 BLS indexes for cotton goods and woolen and worsted goods, together with the separate index for cotton thread, were combined, using 1926 BLS weights. For 1919-25 the cotton and woolen and worsted group indexes, after the removal of series for cotton blankets, hosiery, and underwear, and for woolen blankets and underwear, were combined and linked to the index for later years. For 1890-1919 BLS series for colored cotton flannel, denims, cotton thread, drillings, gingham, print cloths, raw silk, all wool flannels, woolen dress goods, overcoatings, suitings, trouserings, and broadcloth were combined, using BLS 1909 weights. For years before 1890 prices for drillings, denims, print cloths, gingham, cotton thread, and cassimeres (Aldrich Report) were combined, using BLS 1909 weights, and linked to the index for later years.

7 *Clothing and personal furnishings*: Since 1926 BLS indexes for clothing, men's and women's cotton and silk hosiery, cotton and woolen underwear and gloves were combined, using 1926 BLS weights. For 1919-25 BLS indexes for gingham, hosiery, overcoatings, shirtings, suitings, trouserings, underwear, women's dress goods, and broadcloth were combined and linked to the index

for later years. For 1913-18 an index for clothing products excluding boots and shoes (*Prices of Clothing*, John M. Curran, Bull. 5, War Industries Board, 1919) was used. The boots and shoes components were removed by using weights based on the average census values of production for 1914 and 1919. For 1890-1912 and 1919 the composite BLS series listed above for 1919-25, but combined, using 1909 BLS weights, was linked to the War Industries Board index. For years before 1890 series for shirtings, hosiery, cassimeres, shirts and drawers, suitings and dress goods (Aldrich Report) were combined, using 1909 BLS weights, and linked to the index for later years.

8 *Shoes and other footwear*: Since 1919 the BLS index for boots and shoes was used. For 1913-18 composite prices for men's, women's, boys', misses', and children's shoes, rubber arctics and boots (*Prices of Clothing*) were combined, using average census production values in 1914 and 1919. The composite index for 1913-18 was extrapolated to 1919 by the movement of the BLS index for boots and shoes. For 1890-1912 BLS series for men's brogans, men's vici kid shoes, men's calf bluchers, and women's solid grain shoes were combined, using 1909 BLS weights, and linked to the 1913-18 index excluding rubber shoes. For years before 1890 series for men's brogans and women's solid grain shoes (Aldrich Report) were combined and linked to the index for later years.

9 *Housefurnishings (semidurable)*: Since 1926 BLS indexes for blankets, comforters, table oilcloth, pillowcases, shades, sheets, tablecloths, and mirrors were combined, using 1926 BLS weights. For 1919-25 the BLS index for blankets was linked to the index for 1926 and later years. For 1890-1919 BLS indexes for cotton blankets, sheetings, and tickings were combined, using 1909 BLS weights. For years before 1890 series for blankets and sheetings (Aldrich Report) were combined and linked to the index for later years.

11 *Tires and tubes*: Since 1913 the BLS index for tires and tubes was used. For years before 1913 the index for Minor Group 20a was used to extrapolate the tire and tube index.

12 *Household furniture*: Since 1913 BLS indexes for wooden beds, bedroom chairs, dressers, and rockers; dining room buffet chairs and tables; kitchen chairs and tables; and living room davenports and tables were combined, using 1926 BLS weights. For 1890-1912 BLS indexes for bedroom sets, bedroom chairs, and kitchen chairs and tables were combined, using similar weights (no satisfactory 1909 weights were available), and linked to the index for later years. For years before 1890 series for bedroom chairs, kitchen tables and chairs (Aldrich Report) were combined and linked to the index for 1890 and later years.

13a *Heating and cooking apparatus and household appliances except electrical*: Since 1913 BLS composite indexes for coal, gas and oil cooking stoves were combined, using 1926 BLS weights. For years before 1913 no index could be constructed.

14a and 14b *Floor coverings and housefurnishings (durable)*: Since 1919 BLS indexes for Axminster, Brussels, and Wilton carpets, all wool blankets,

wooden beds, and tickings were combined, using 1926 BLS weights. For 1890–1919 BLS indexes for Axminster, Brussels, and Wilton carpets were combined, using 1909 BLS weights, to derive a separate floor coverings index. For years before 1890 series for Brussels, Lowell, and Wilton carpets (Aldrich Report) were combined and linked to the index for later years. A separate index for housefurnishings (durable) 1890–1919 was computed by combining, using 1909 BLS weights, BLS indexes for all wool blankets, bedroom sets, and tickings. For years before 1890 series for blankets and tickings (Aldrich Report) were combined and linked to the index for later years.

15 *China and household utensils*: Since 1919 BLS indexes for carvers, knives and forks, pails, napkins, pitchers, tumblers, white plates, and teacups and saucers were combined, using 1926 BLS weights. For 1890–1919 the same indexes were combined, but using 1909 weights. Series unweighted in 1909 were arbitrarily assigned a weight of .01. For years before 1890 series for glass pitchers and tumblers, and wooden pails and tubs (Aldrich Report) were combined and linked to the index for later years. Pitchers and tumblers were assigned 1909 BLS weights; wooden pails and tubs, weights based on their 1909 production value relative to that of glass products.

16 *Musical instruments*: The price index compiled for this group was based chiefly on per unit export price series (*Foreign Commerce and Navigation of the United States* and the *Monthly Summary of Foreign Commerce*). Since 1919 export prices of pianos and phonographs were first adjusted to the census year per unit price, then combined, using the average values of output in 1927 and 1929 as weights. For 1913–19 export prices of player pianos, other pianos, and organs were adjusted to 1914 and 1919 census prices, then combined, using the average values of output in 1914 and 1919 as weights. For 1904–12 a similar compilation was based on export prices for *all* pianos and organs. For 1889–1903 an index based on the export prices of organs was linked to the index for later years. For years before 1889 no index could be constructed.

17 *Jewelry, silverware, clocks, and watches*: Since 1890 BLS indexes for carvers and knives and forks were combined, using 1926 BLS weights. For years before 1890 no index could be constructed.

19 *Luggage*: Since 1913 BLS indexes for suitcases and traveling bags were combined, using 1926 BLS weights. For years before 1913 no index could be constructed.

20a *Passenger vehicles, motorized*: Since 1913 the BLS index for passenger cars was used. For 1900–12 an index derived from the per unit prices of passenger cars sold in the United States (*Automobile Facts and Figures, 1941*, Automobile Manufacturers' Association, p. 4) was linked to the index for later years.

20b *Motor vehicle accessories*: The index derived for passenger vehicles, motorized, was used.

20c *Passenger vehicles, horse-drawn*: As this group is included with the farm equipment group since 1919, no separate index had to be constructed for these years. For 1913–19 the revised BLS index for wagons (*Wholesale Prices, Bu-*

reau of Labor Statistics, Jan. 1936, p. 22) was used. For 1911-12 an index of prices paid by farmers for farm machinery and motor trucks (*Income Parity for Agriculture*, Part III, Sec. 4, *Prices Paid by Farmers for Farm Machinery and Motor Vehicles*, 1910-38, Bureau of Agricultural Economics, May 1939) was linked to the index for later years. For 1907-10 prices received by the International Harvester Company for two-horse wagons (U. S. Bureau of Corporations, *The International Harvester Company*, March 1913, p. 248) were linked to the index for later years. For years before 1907 no index could be constructed.

22 *Pleasure craft*: The index derived for Minor Group 31 was used.

25a *Industrial machinery and equipment*: Since 1915 the maintenance account index for shop machinery (Interstate Commerce Commission, Engineering Section, Bureau of Valuation, mimeographed release, July 1, 1940) was used. For 1889-1914 an index of shop machinery costs (*Trend of Cost of Shop Machinery*, President's Conference Committee, Eastern Group Pamphlet 314, Jan. 1926) was linked to the index for later years. The President's Conference Committee index was based on railroad purchase of 1,091 machines representing 288 types, sizes, or kinds of machines—air compressors, pressure blowers, bolt cutters, bolt headers, boring mills, car wheel borers, car borers, centering machines, flue cutters, metal cutters, drill presses, flangers, flue welders, forging machines, grinders, hammers, jacks, lath axles, lath engines, lath turrets, lath wheels, milling machines, mortisers, pipe threaders, planers, press bushings, hydraulic presses, power presses, press wheels, punches and shears, boiler feed pumps, band saws, rip saws, hack saws, crank shapers, slotters, surfacers, and welders and rappers. For years before 1889 no index could be constructed.

25b *Tractors*: Since 1913 BLS indexes for tractors, 2-plow; tractors, 3-4 plow; and tractors, crawler (*Wholesale Prices*, Jan. 1936 and subsequent Dec. issues) were combined, using 1926 BLS weights.

26 *Electrical equipment, industrial and commercial*: Since 1915 a combination of Interstate Commerce Commission indexes (*op. cit.*) for the following accounts: telephone and telegraph lines (26), signals and interlockers (27), power transmission systems (31), power distribution systems (32), power line poles and fixtures (33), underground conduits (34), power plant machinery (45), and power substation apparatus was used. For years before 1915 the index derived for Minor Group 25a was linked to the index for later years.

27 *Farm machinery and equipment*: Since 1913 the revised BLS index for farm machinery (*Wholesale Prices*, Jan. 1936 and subsequent Dec. issues) was used. For 1911-12 the index of prices paid by farmers for farm machinery and motor trucks (*Income Parity for Agriculture*, Part III, Sec. 4) was linked to the index for later years. For 1903-10 prices received by the International Harvester Company (*op. cit.*) for grain binders, 5, 6, and 7 feet; grain binders, 8 feet; mowers; rakes; tedders; corn binders; disk harrows; manure spreaders; and cream separators were combined, using 1913 BLS weights, and linked to the index for later years. For 1900-02 the index for Minor Group 35 was linked to the index for later years. For 1890, 1895, and 1900 prices for hay carriers,

churns, condensers, cradles, cultivators, cutters, diggers, drills, fertilizer distributors, forks, gins, harrows and pulverizers, harvesters, hullers, markers and furrows, mills, mowers, planters, plows, rakes, reapers, rollers, scythes, seeders and sowers, shellers, stackers, stump pullers, tedders, threshers, and windmills (*Course of Prices of Farm Implements and Machinery for a Series of Years*, George K. Holmes, Department of Agriculture, Division of Statistics, Misc. Series, Bull. 18, Washington, D.C., 1901) were combined, using BLS 1913 weights. Items for which no weights were reported were arbitrarily given weights of .01. The composite index was linked to the index for later years. An index for the intervening years and for 1889 was constructed on the basis of the index for carpenters' and mechanics' tools. For years before 1889 no index could be constructed.

28 *Office and store machinery and equipment*: The index for Minor Group 25a was used.

29 *Office furniture and fixtures*: Since 1926 BLS indexes for four types of office furniture—side and swivel armchairs, flat-top and typewriter desks—were combined, using 1926 BLS weights. For 1919–26 the BLS index for household furniture was linked to the index for later years. For 1890–1919 the index for Minor Group 12 was combined with an index of the per unit export prices of safes, using 1909 census values for all other office furniture and safes and vaults as weights. For 1889 the index for household furniture was linked to the index for later years.

30 *Locomotives and railroad cars*: Since 1915 a combination of Interstate Commerce Commission indexes (*op. cit.*) for the following accounts: steam locomotives (51), other locomotives (52), freight train cars (53), and passenger train cars (54) was used. For 1910–14 indexes for locomotives; freight cars: all steel; freight cars: wood and steel; freight cars: all wood; and passenger cars, all steel (*Trend of Prices for Locomotives, Freight and Passenger Train Cars and Floating Equipment*, President's Conference Committee, Eastern Group Pamphlet 138-6, Aug. 15, 1930) were combined, using Interstate Commerce Commission weights. The total weight for freight train cars was split among the different types on the basis of average census values in 1914 and 1919. For years before 1910 the index for Minor Group 31 was used to extrapolate the index for later years.

31 *Ships and boats*: Since 1915 the Interstate Commerce Commission (*op. cit.*) index for floating equipment was used. For 1889–1914 two indexes of the cost to railroads of floating equipment were reported in *Cost of Floating Equipment* (President's Conference Committee, Eastern Group Pamphlet 290). One was prepared by the Committee from shipbuilders' reports of estimated prices to railroads; the other by the Cost Section, Bureau of Valuation, Interstate Commerce Commission, from actual prices to railroads for more than 1,500 units of floating equipment. It was indicated in Pamphlet 290 that an average of the two series would probably be more reliable than either separately. The average was linked to the index for later years.

32a *Business vehicles, motorized*: Since 1927 the BLS index for motor trucks

was linked to the index for earlier years. For 1904-26 an index was constructed from the per unit prices for motor trucks (*Automobile Facts and Figures, 1941*, Automobile Manufacturers' Association, p. 4).

32b *Business vehicles, horse-drawn*: The index for Minor Group 20c was used.

35 *Carpenters' and mechanics' tools*: Since 1890 BLS indexes for augers, chisels, files, hammers, planes, cross-cut saws, handsaws, shovels, vises, axes (1922 and subsequent years), and hatchets (1926 and subsequent years) were combined, using 1926 BLS weights. For years before 1890 series for handsaws, cross-cut saws, and shovels (Aldrich Report) were combined and linked to the index for later years.

36 *Miscellaneous subsidiary durable equipment*: Since 1913 BLS indexes for Manila rope and leather harness were combined, using 1926 BLS weights. For 1890-1912 the leather harness index was first extrapolated by the BLS index for oak harness leather, then combined with that for Manila rope. For years before 1890 series for manila rope and harness leather (Aldrich Report) were combined and linked to the index for later years.

Construction materials: Since 1913 BLS index for lumber and building materials and BLS index for steel rails were combined using 1926 weights. For 1890-1913 a similar composite, using 1909 weights, was combined with an index of structural steel prices computed from data in *Metal Statistics, 1938* (p. 95) by means of weights suggested by comparing the 1909 production values of steel rails and structural steel. For years before 1890 series for lead pipe, cut nails, brick, cement, lime, maple boards, pine boards, pine flooring, spruce shingles, window glass, and plate glass (Aldrich Report) were combined, using 1909 BLS weights, and linked to the index for later years.