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Volume Author/Editor: George J. Stigler and James K. Kindahl

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Chapter Author: George J. Stigler, James K. Kindahl

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Indexes for Commodity Groups and for All Commodities Included

The seventy price indexes that constitute the heart of our material have made anonymous appearances in the preceding chapter. We now regroup the prices in their traditional categories. These group price indexes, unlike the individual commodity price indexes, are weighted indexes, based upon the 1958 values of shipments of the commodities.[1] The same weights and the same commodity coverage are of course used for both BLS and NB indexes. The commodity groups are listed in Table 6-1. The extent of the NB coverage of the various BLS commodity groups is measured by the relative importance of the commodities included in the NB indexes. The coverage is reasonably good in basic industrial raw materials but almost negligible in machinery and fabricated goods. We discuss the first five broad commodity classes and then a more comprehensive price index. The tables and charts for the remaining three commodity classes for which we have only token representation are given at the end of the chapter.

METALS AND PRODUCTS

The BLS and NB price indexes for steel products and for nonferrous metals are presented in the two panels of Figure 6-1. They have little

[1] When a commodity first appears in a later year, it is brought in at its relative importance in that year. For example, if X and Y are combined with 1958 weights, and Z begins in 1961, Z is combined with X and Y on the basis of their

Percentage of BLS Commodity Categories Covered by NB Indexes and
Comparable BLS Indexes, Based upon December 1961 Relative Importance

Metals and Products	30
Finished steel products	66
Nonferrous metal products	60
Primary refinery shapes	58
Mill shapes	77
Wire and cable	64
Fuel and Related Products	46
Petroleum and products	86
Rubber and Products	43
Tires	93
Synthetic rubber	93
Paper, Pulp and Allied Products	67
Paper, converted paper and paperboard products	72
Chemicals and Allied Products	29
Industrial chemicals	28
Inorganic chemicals	43
Organic chemicals	19
Paints and paint materials	55
Plastic materials	82
Pharmaceutical preparations, ethical	42
Nonmetallic Mineral Products	21
Flat glass	100
Electrical Machinery and Equipment	8
Lumber and Wood Products	9
All Industrial Commodities	19

in common beside their metallic nature, and we therefore discuss them
separately.

The BLS and NB prices of steel products move together so closely
that a description of one is a description of the other (see Table 6-2).
The upward trends in price are essentially the same: .05 per cent
monthly (BLS) vs. .03 per cent monthly (NB). Neither index displays
a noticeable cyclical movement in either expansion or contraction. Nor
are the short-run fluctuations of appreciable size.

relative values in 1961. These 1961 relative values are 1958 value of shipments
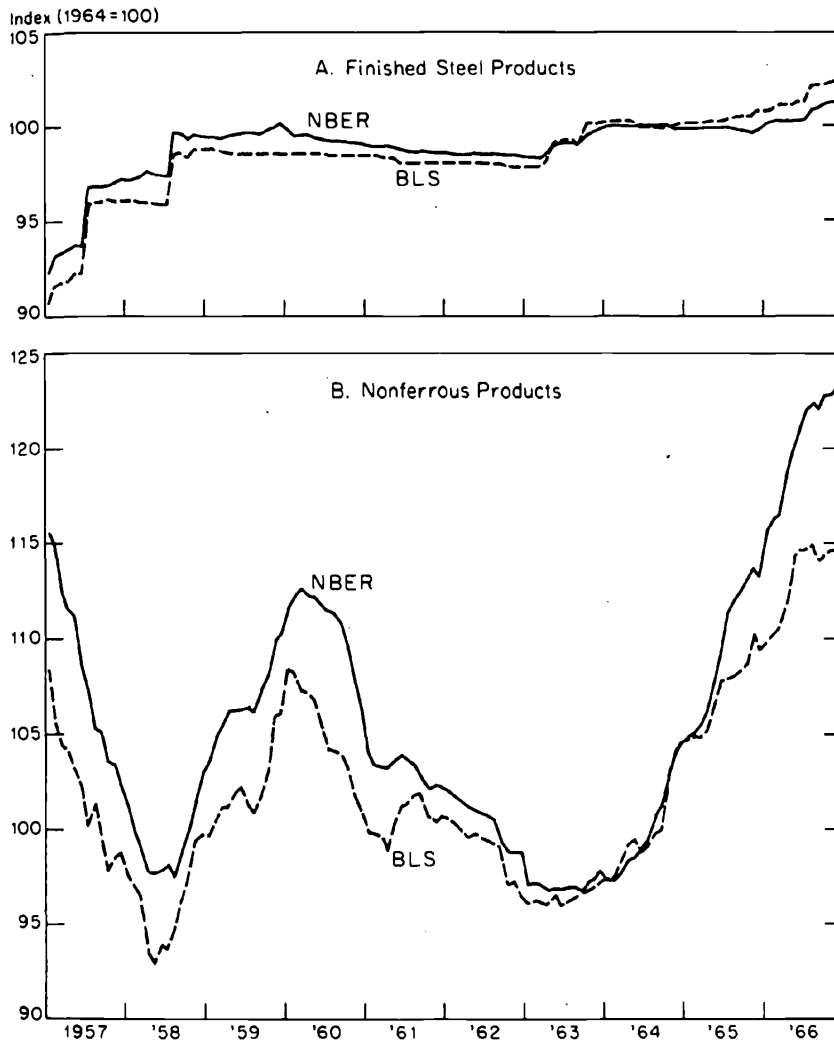times the price relative for 1961 on 1958.

This finding, it must be confessed, comes as a surprise to us. The steel industry is now unconcentrated as compared with the first decade of the century, or indeed as compared with many other industries in

Figure 6-1

Metals and Products: Comparison of BLS and NBER Price Indexes of Product Groups

Index (1964 = 100)

A. Finished Steel Products
NBER
BLS

B. Nonferrous Products
NBER
BLS

1957 '58 '59 '60 '61 '62 '63 '64 '65 '66

TABLE 6-2

Finished Steel: Comparison of BLS and NBER Price Indexes

	BLS	NBER
Trend		
Monthly Percentage Rate of Increase	.052	.032
Cycle		
Average Monthly Percentage Rates of Change		
Peak to Trough	.067	.077
Trough to Peak	.101	.066
Average Monthly Percentage Rates of Change		
Corrected for Trend		
Peak to Trough	−.024	.002
Trough to Peak	.020	.007
Short Run		
Correlation of First Differences of Logarithms		
Monthly		.946
Quarterly		.944
Semiannually		.932
Variances of First Differences of Logarithms	.225	.156

our sample. Import competition was growing fairly steadily during the period. With the exception of three steel products, however, we were not able to learn of any important and continuous departures from quoted prices. The exceptions were reinforcing bars (where we saw, but could not obtain, records of extensive short-run price fluctuations), pipe, and stainless steel products. One encounters minor incidents of price cutting such as quantity discounts granted on small orders and the supply of qualities somewhat better than minimum specifications. Nevertheless the general picture was one of close adherence to quoted prices even for very large buyers of steel.[2]

In nonferrous metals the story is more complex (see Table 6-3). The large reversal of trend leads us to calculate trends for subperiods, and

[2] Allegations of wide-spread, informal price cutting in steel products were made in 1968, in the *Wall Street Journal* of October 7. For example, "A steel buyer for one large appliance plant says certain mills have agreed to forego until January a $5.50-a-ton increase in the price of cold-rolled sheet, the industry's biggest-volume product. What's more, he says the cold-rolled sheet currently is available at $15 to $20 a ton below the $150-a-ton list price".

TABLE 6-3

Nonferrous Metal Products: Comparison of BLS and NBER Price Indexes

|	BLS	NBER
Trend		
Monthly Percentage Rate of Increase		
1957–63	−.038	−.102
1964–66	.516	.769
1957–66	.068	.045
Cycle		
Average Monthly Percentage Rates of Change		
Peak to Trough	−.760	−.917
Trough to Peak	.456	.628
Average Monthly Percentage Rates of Change		
Corrected for Trend		
Peak to Trough	−.805	−.919
Trough to Peak	.281	.430
Short Run		
Correlation of First Differences of Logarithms		
Monthly		.626
Quarterly		.834
Semiannually		.924
Variances of First Differences of Logarithms	.949	.748

in each of them the NB index has a stronger trend. The greater rise in the NB index in 1964–66 reflects the more rapid rise in transaction prices than in quoted prices, which were under "guideline" control. The general agreement of cyclical and short-run movements is excellent.

FUEL AND RELATED PRODUCTS

The great preponderance of our fuel price data pertains to petroleum products (Figure 6-2 and Table 6-4). The great volatility of the BLS index, as compared with the NB index, is ascribable to the large role of contracts and quarterly average prices in the latter index, particularly for the large number of railroads reporting diesel oil purchases. Subject to this difference in type of price (the BLS has essentially a spot

Figure 6-2

Petroleum and Products: Comparison of BLS and NBER Price Indexes of Product Groups

Index (1964 = 100)
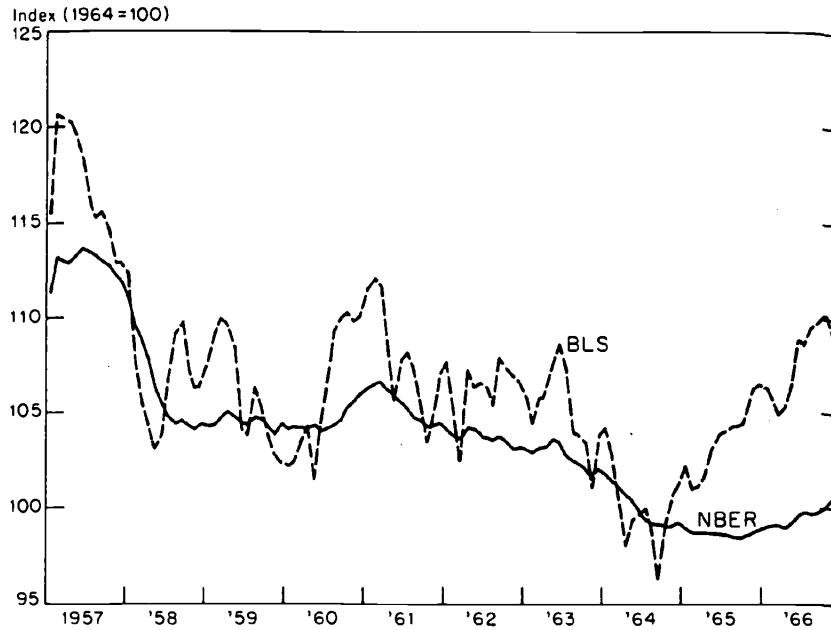
price), the two indexes show fairly similar cyclical patterns (except that the NB index rose little in 1965 and 1966). The more rapid secular fall of the NB index is due exclusively to this difference in the last two years.

The NB price index for coal, the only other fuel covered by our study, is based upon prices paid by large transportation companies. The NB index falls about one-half per cent a year until 1964 and then rises substantially, whereas the BLS index falls about three-quarters per cent a year until 1965. The NB index, which is based largely upon long-term contracts, does not have the seasonal fluctuations evident in the BLS index. The two indexes differ so much in coverage that no useful comparison of details is possible.

TABLE 6-4

Petroleum and Products: Comparison of BLS and NBER Price Indexes

	BLS		NBER
Trend			
Monthly Percentage Rate of Increase	−.064		−.098
Cycle			
Average Monthly Percentage Rates of Change			
Peak to Trough	−.180		−.164
Trough to Peak	.161		−.045
Average Monthly Percentage Rates of Change			
Corrected for Trend			
Peak to Trough	−.040		−.035
Trough to Peak	.227		.069
Short Run			
Correlation of First Differences of Logarithms			
Monthly		.431	
Quarterly		.497	
Semiannually		.779	
Variances of First Differences of Logarithms	2.528		.156

RUBBER AND PRODUCTS

On average the BLS and NB indexes agree tolerably on rubber products (Figure 6-3 and Table 6-5). The agreement in tires, which are not shown separately, was close for the decade but not for shorter periods, and in synthetic rubber the NB index fell more rapidly. The NB index conforms more closely to business fluctuations and displays much smaller short-run fluctuation. The short-run fluctuations of the two indexes, however, are completely uncorrelated: the BLS index exhibits large and sudden price changes, often with complete reversals within a month or two, which are totally absent from the NB series.

PAPER, PULP AND ALLIED PRODUCTS

The agreement between the BLS and NB price indexes for paper and pulp products is broadly satisfactory, but poor in two respects (Figure 6-4 and Table 6-6). Neither price index has a strong trend, but the

Figure 6-3

Rubber and Products: Comparison of BLS and NBER Price Indexes of
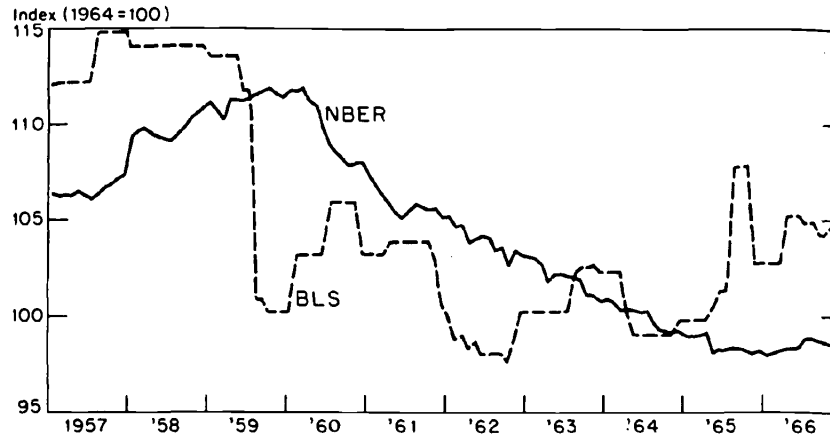Product Groups

TABLE 6-5

Rubber and Products: Comparison of BLS and NBER Price Indexes

	BLS	NBER
Trend		
Monthly Percentage Rate of Increase	—.099	—.112
Cycle		
Average Monthly Percentage Rates of Change		
Peak to Trough	.046	—.028
Trough to Peak	—.099	.007
Average Monthly Percentage Rates of Change		
Corrected for Trend		
Peak to Trough	.275	—.015
Trough to Peak	—.035	.072
Short Run		
Correlation of First Differences of Logarithms		
Monthly	—.011	
Quarterly	—.113	
Semiannually	—.205	
Variances of First Differences of Logarithms	1.955	.161

Figure 6-4

Paper, Pulp and Allied Products: Comparison of BLS and NBER Price
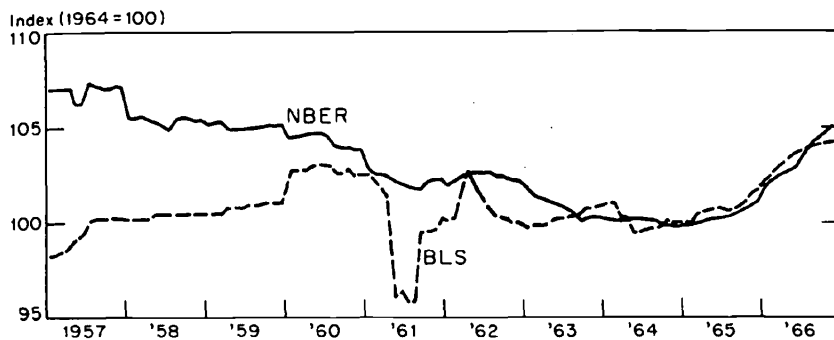Indexes of Product Groups

Index (1964 = 100)

TABLE 6-6

Paper, Pulp and Allied Products: Comparison of BLS and NBER Price
Indexes

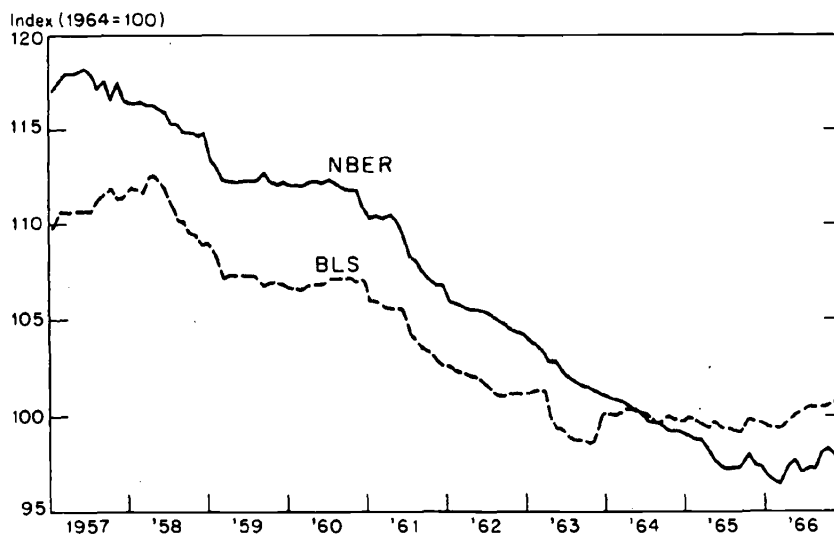|	BLS	NBER
Trend		
Monthly Percentage Rate of Increase	.015	−.049
Cycle		
Average Monthly Percentage Rates of Change		
Peak to Trough	−.013	−.194
Trough to Peak	.139	.091
Average Monthly Percentage Rates of Change		
Corrected for Trend		
Peak to Trough	−.028	−.113
Trough to Peak	.107	.125
Short Run		
Correlation of First Differences of Logarithms		
Monthly	.120	
Quarterly	.240	
Semiannually	.493	
Variances of First Differences of Logarithms	.493	.089

NB index falls almost two-thirds of 1 per cent per year while the BLS index drifts upward slightly. The NB index is also considerably more sensitive to business down-turns and omits the four-month break in prices in 1961 reported by the BLS.

CHEMICALS AND ALLIED PRODUCTS

The NB composite index for all chemicals falls more rapidly than the BLS index, but in other respects the series agree fairly well (see Figure 6-5 and Table 6-7). The differences in trends varied substantially among categories of chemicals: by .8 per cent a year, for industrial chemicals; by .6 per cent a year, for paints and materials; by 1.4 per cent a year for plastics; by zero, for ethical pharmaceutical preparations. The trend-corrected NB price indexes consistently conformed better than the BLS indexes to cyclical changes for each of these four commodity classes.

Figure 6-5

Chemicals and Allied Products: Comparison of BLS and NBER Price Indexes
of Product Groups

Index (1964 = 100)

TABLE 6-7

Chemicals and Allied Products: Comparison of BLS and NBER Price Indexes

	BLS	NBER
Trend		
Monthly Percentage Rate of Increase	−.113	−.188
Cycle		
Average Monthly Percentage Rates of Change		
Peak to Trough	−.004	−.160
Trough to Peak	−.077	−.097
Average Monthly Percentage Rates of Change		
Corrected for Trend		
Peak to Trough	.124	−.006
Trough to Peak	.002	.062
Short Run		
Correlation of First Differences of Logarithms		
Monthly	.233	
Quarterly	.548	
Semiannually	.608	
Variances of First Differences of Logarithms	.129	.131

THE COMPREHENSIVE INDEX

The comprehensive NBER index, with commodities combined on the basis of their 1958 aggregate values, is presented in Figure 6-6 (and see also Table 6-8), together with the corresponding BLS index. The BLS index of nonfarm prices is also shown, to indicate the difference in price behavior of "all" industrial goods and the commodities in our sample.

The finding that the NB prices have a tendency to fall secularly relative to BLS prices is so general in the individual series that, of course, it is found in the comprehensive indexes: the difference is about .4 per cent per year. The difference in trend does not become significant or persistent until after 1961.

The cyclical patterns of the two indexes are similar. Both series rise moderately in cyclical expansions; they fall .13 (BLS) and .21 (NB) per cent per month during contractions. (The decline of the BLS index

Figure 6-6

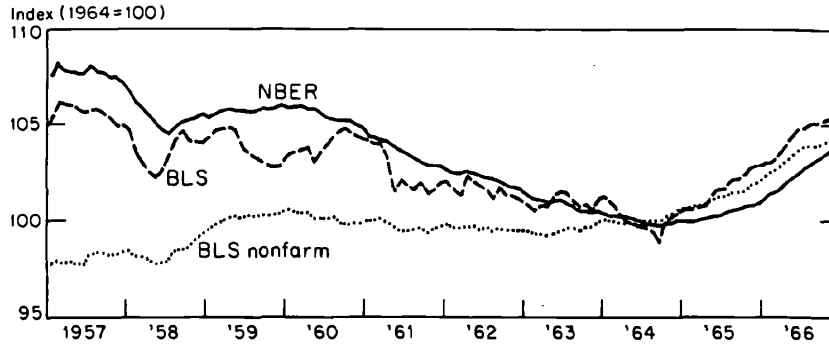All Industrial Commodities: Comparison of BLS and NBER Price Indexes
of Product Groups

TABLE 6-8

Comparison of the Comprehensive BLS Index with the Corresponding
NBER Index for All Industrial Commodities

	BLS	NBER
Trend		
Monthly Percentage Rate of Increase	−.026	−.060
Cycle		
Average Monthly Percentage Rates of Change		
Peak to Trough	−.129	−.205
Trough to Peak	.118	.079
Average Monthly Percentage Rates of Change		
Corrected for Trend		
Peak to Trough	−.082	−.140
Trough to Peak	.117	.111
Short Run		
Correlation of First Differences of Logarithms		
Monthly	.378	
Quarterly	.576	
Semiannually	.728	
Variances of First Differences of Logarithms	.202	.042

in 1959 and early 1960 is attributable to the large break reported in BLS rubber and petroleum prices.)

The short-run movements of the two comprehensive indexes differ substantially. Even at this aggregate level the BLS index has larger, jerkier movements, and its variance of monthly changes is much larger

Figure 6-7

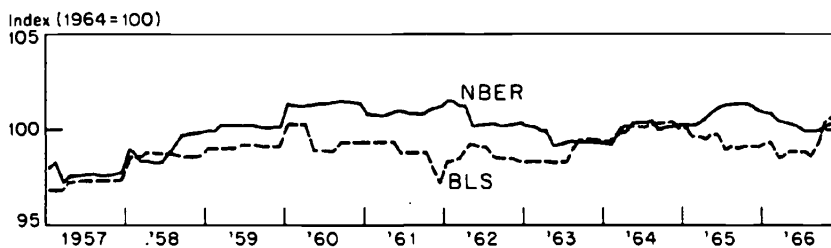Nonmetallic Mineral Products: Comparison of BLS and NBER Price Indexes
of Product Groups

TABLE 6-9

Nonmetallic Mineral Products: Comparison of BLS and NBER Price Indexes

	BLS	NBER
Trend		
Monthly Percentage Rate of Increase	.013	.015
Cycle		
Average Monthly Percentage Rates of Change		
Peak to Trough	.083	.012
Trough to Peak	.019	.062
Average Monthly Percentage Rates of Change		
Corrected for Trend		
Peak to Trough	.053	−.060
Trough to Peak	−.006	.023
Short Run		
Correlation of First Differences of Logarithms		
Monthly	.305	
Quarterly	.123	
Semiannually	−.040	
Variances of First Differences of Logarithms	.124	.081

Figure 6-8

Electrical Machinery and Equipment: Comparison of BLS and NBER Price
Indexes of Product Groups

Index (1964=100)
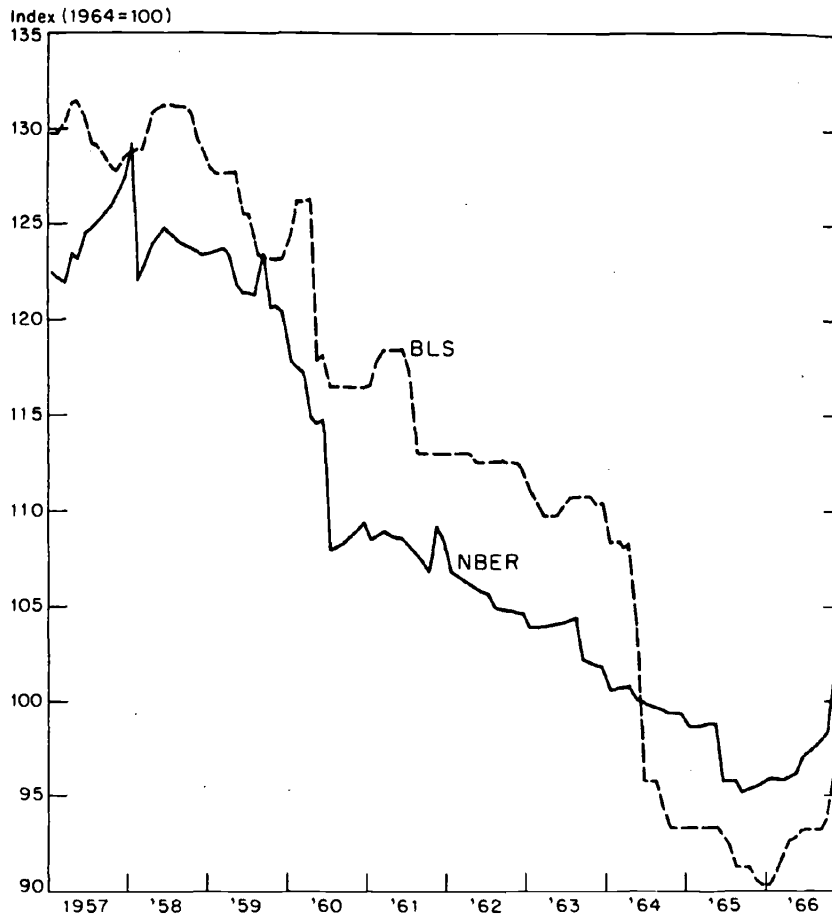
than that of the NB index. The timing of movements is also only
moderately close.

It is a traditional characteristic of index numbers which purport to
represent broad categories of transactions that they are remarkably un-
responsive to changes in coverage and method of computation. Irving

TABLE 6-10

Electrical Machinery and Equipment: Comparison of BLS and NBER Price Indexes
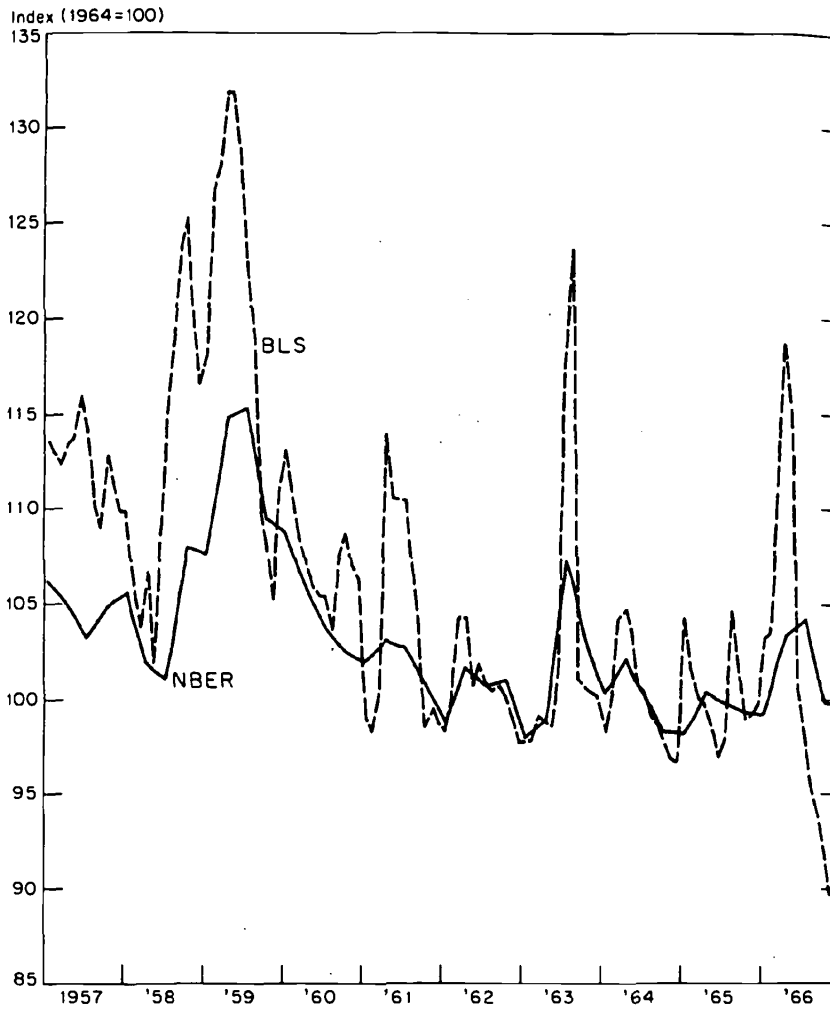
	BLS	NBER
Trend		
Monthly Percentage Rate of Increase	−.344	−.262
Cycle		
Average Monthly Percentage Rates of Change		
Peak to Trough	−.123	−.352
Trough to Peak	−.113	−.134
Average Monthly Percentage Rates of Change		
Corrected for Trend		
Peak to Trough	.138	−.041
Trough to Peak	.247	.114
Short Run		
Correlation of First Differences of Logarithms		
Monthly	.170	
Quarterly	.253	
Semiannually	.333	
Variances of First Differences of Logarithms	1.597	1.110

Fisher italicized his conclusion: "All index numbers which are not freakish or biased practically agree with each other".[3] Measured by this exacting standard of difference, the NB and BLS indexes differ appreciably.

[3] *The Making of Index Numbers,* Boston, 1922, p. 360.

Figure 6-9

Lumber and Wood Products: Comparison of BLS and NBER Price Indexes
of Product Groups

Index (1964=100)

TABLE 6-11

Lumber and Wood Products: Comparison of BLS and NBER Price Indexes

	BLS	NBER
Trend		
Monthly Percentage Rate of Increase	−.148	−.063
Cycle		
Average Monthly Percentage Rates of Change		
Peak to Trough	−.850	−.214
Trough to Peak	−.096	.090
Average Monthly Percentage Rates of Change		
Corrected for Trend		
Peak to Trough	−.680	−.166
Trough to Peak	−.011	.114
Short Run		
Correlation of First Differences of Logarithms		
Monthly	.411	
Quarterly	.507	
Semiannually	.800	
Variances of First Differences of Logarithms	16.513	.894