CRB BLS Spot Indexes

November 2017

Contents

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2   Background and History

As early as January 1934, at the request of the U.S. Department of the Treasury, the Bureau of Labor Statistics began the computation of a daily commodity price index, using quotations for sensitive commodities. It was released first to the general public in January 1940. In 1952, in connection with the revision of all its major price index series, the Bureau issued a new Daily Index of Spot Market Prices. The new index was not a continuation of the old series, but was based on a new sample of 22 commodities and was calculated on a 1947-49 base; in contrast, the old index was based on 28 commodities and was calculated with August 1939 as base.

In January 1962, the 22-commodity index was recalculated on a 1957-59 = 100 base to correspond to the base period adopted for other Federal Government general purpose indexes. In January 1971, the index was rebased again in accordance with government-wide practice, this time to a 1967 = 100 base. In 1969, computation of the index on a daily basis was discontinued. The index was then prepared for Tuesday of each week until May 1981 when Commodity Research Bureau began calculating the index on a daily basis.

3   Description of Survey

The Spot Market Price Index is a measure of price movements of 22 sensitive basic commodities whose markets are presumed to be among the first to be influenced by changes in economic conditions. As such, it serves as one early indication of impending changes in business activity.

The commodities used are in most cases either raw materials or products close to the initial production stage which, as a result of daily trading in fairly large volume of standardization qualities, are particularly sensitive to factors affecting current and future economic forces and conditions. Highly fabricated commodities are not included for two reasons: (1) they embody relatively large fixed costs which fact causes them to react less quickly to changes in market conditions; and (2) they are less important as price determinants than the more basic commodities which are used throughout the producing economy.

A spot price is a price at which a commodity is selling for immediate delivery. In the absence of a spot price, a bid or and asked price may be used. Some of the prices used are nominal prices in that they are not actual transaction prices.

Often they are exchange prices - a price for a completely standard commodity which eliminates the effect of minor quality changes on actual transaction prices? . Trade publications may use this type of price for commodities such as cocoa beans, coffee, and wool tops. The price for print cloth is an average of the spot price and price for the most distant forward contract because it was determined that a large part of the sales of print cloth are made on a contract basis.

The 22 commodities are combined into an "All Commodities" grouping, with two major subdivisions: Raw Industrials, and Foodstuffs. Raw Industrials include burlap, copper scrap, cotton, hides, lead scrap, print cloth, rosin, rubber, steel scrap, tallow, tin, wool tops, and zinc. Foodstuffs include butter, cocoa beans, corn, cottonseed oil, hogs, lard, steers, sugar, and wheat.

The items upon which the index is based are classified further into four smaller groups: Metals, Textiles and Fibers, Livestock and Products, and Fats and Oils. However, some of the 22 commodities do not fall into one of these four groupings. For example, sugar is not included in any special group. Furthermore, the groupings are not mutually exclusive. Lard, for instance, is in both the Livestock and Products Index and in the Fats and Oils Index.

4   Data Sources and Collection Methods

The prices used in the index are obtained from trade publications or from other government agencies. Prices for cocoa beans, corn, steers, sugar, wheat, burlap, copper scrap, cotton, lead scrap, print cloth (spot), rubber, steel scrap, wool tops, and zinc, are of the same specification and market source as those used in the comprehensive monthly Wholesale Price Index. Prices for butter, hides, hogs, lard, rosin, tallow, and tin are either differently specified spot prices or from different markets.

Exchanges which issue spot prices have committees to make a determination of the spot for the standard commodity.

4.1   Product Selection

The criteria for the selection of commodities were (1) wide use for further processing (basic), (2) freely traded in an open market, (3) sensitive to changing conditions significant in those markets, and (4) sufficiently homogeneous or standardized so

that uniform and representative price quotations can be obtained over a period of time.

Subject to these restrictions, efforts were made to include representative sensitive commodities from as large a segment of the economy as possible. Also, the influence of international markets upon the economy was taken into account by the inclusion of some key commodities (such as crude rubber and tin) which are important in international trade. Both in the sample and in the index structure, an attempt was made to prevent price movements of agricultural products from dominating the movement of the index.

4.2   Estimating Procedures

The Spot Market Index is an unweighted geometric mean of the individual commodity price relatives, i.e., of the ratios of the current prices to the base period prices. The use of the geometric mean has the advantage that the index is not dominated by extreme price movements of individual commodities. Since extremely large movements may be atypical, it was deemed better to minimize their effects, even at the expense of losing the effect of large representative changes. However, the fact that each of the commodities is unweighted in the index means that a price change for rosin, a comparatively unimportant commodity such as wheat, cotton, or steel scrap.

The computation procedure involves obtaining for each commodity the ratio of its price in any given period to its price in the base period and taking the 22nd root of the product of these ratios. This product is then multiplied by 100 to obtain the index number for each period. The calculation is made by means of logarithms. The formula reduces to:

$$\log_{10} I_k = \log_{10} P_k - \log_{10} P_0 + 2$$

where:
I_k = Index for a given day
P_k = Price for a given day
P_0 = Average (geometric) price in base period
2 = Constant equals log of 100.

Monthly average indexes are obtained according to the previous procedure, except that P k = the geometric average of the Tuesday prices (daily prices prior to

1969) over the month. In maintaining the index over time, it may be necessary by a statistical linking procedure so that only actual price movements are reflected in the index.

The geometric mean of n figures is the nth root of their product. Thus, the geometric mean of the numbers 1.5,2.0,and 9.0 is 3.0 (1.5*2*9=27. 3 27=3). The arithmetic mean, is 4.2.

5 Analysis and Presentation

Tuesday spot market indexes and prices are published each week, on the Friday following the day of reference. A summary of weekly indexes and the average for each month are published with the first weekly release of the following month. Beginning with 1950, historical indexes are shown for Tuesday of each week together with monthly averages; from July 1946 through 1949 indexes are listed for Tuesday of each week only. In addition, indexes are published for selected earlier dates: August 15, 1939, December 6, 1941, August 17, 1945, and June 28, 1946.

5.1 Uses and Limitations

A survey of users in 1964 showed that the Index is frequently used as a general economic indicator, for gauging the direction of basis prices, for forecasting general price movements, and for current prices of specific commodities. Other uses, frequently mentioned, are for market research and for comparing price trends with the user's selling or buying prices.

The Tuesday Index of Spot Market Prices differs from the Wholesale Price Index in method of construction and weighting, as well as in the sample of items for which prices are included. While it is independent of the monthly comprehensive index, changes in the Tuesday Index or its components may foreshadow turns in Wholesale Price Indexes. However, the Tuesday Index is not a good indicator of current price trends for the whole economy. For this purpose, the comprehensive Wholesale Price Index should be used. The Tuesday Spot Market Index is, by design, very sensitive to price changes in basic commodities but, because of its unweighted structure, the magnitude of changes in any of the index groups cannot be used as a reliable measure of the general price change of all commodities within the groups.

For many of the 22 items, the commodity exchange prices are based upon trans-actions which cover as little as 25 percent of the total sold in all markets. In some cases, the price is set by a committee of experts from the commodity exchange for a standardized commodity. Also, when there are not enough transactions from which to obtain an actual market price, a "nominal" spot price is set. From this, it is apparent that the exchange prices may not always be representative of the large volume of private transactions occurring outside the organized market. However, it is believed that the reported exchange prices generally are used as a basis for private negotiations.

6 Groupings and Constituents

6.1 CRB BLS Composition of Sub-indices

- CRB BLS Metals: Copper scrap, lead scrap, steel scrap, tin, and zinc.

- CRB BLS Textiles and Fibers: Burlap, cotton, print cloth, and wool tops.

- CRB BLS Livestock and Products: Hides, hogs, lard, steers, and tallow.

- CRB BLS Fats and Oils: Butter, cottonseed oil, lard, and tallow.

- CRB BLS Raw Industrials: Hides, tallow, copper scrap, lead scrap, steel scrap, zinc, tin, burlap, cotton, print cloth, wool tops, rosin, and rubber.

- CRB BLS Foodstuffs: Hogs, steers, lard, butter, soybean oil, cocoa, corn, Kansas City wheat, Minneapolis wheat, and sugar.

6.2 Specifications for commodities included in the index as of October 1975s

Commodity	Specifications	Market
Burlap	10 oz., 40", ex-dock or ex-warehouse, duty paid, per yd.	New York
Butter	Grade A, 92 score, per lb.	Chicago
Cocoa beans	Accra, per lb.	New York
Copper scrap	No. 2 heavy copper and wire, refiners' buying price, carload lots, delivered buyers' works, per lb.	New York
Corn	No. 2 yellow, per bu.	Chicago
Cotton	Middling, 11/16", per lb.	10 markets
Cottonseed oil	Crude, valley, per lb.	Memphis
Hides	Cow, light native, packer 30/53 lbs., fleshed, packer to tanner, dealer, or exporter per lb., f.o.b. shipping point.	Chicago
Hogs	U.S. No. 2's and 3's, 200=220 lbs., per 100 lb.	Omaha
Lard	Prime Steam, in tanks, per lb.	Chicago
Lead scrap	Battery plates, smelters' buying price, East, carload lots; delivered buyers' works, per lb.	New York
Print cloth	48", 78*78 count, 4 yds./lb. spot and nearby, per yd.	New York
Print cloth	48", 78*78 count, 4 yds./lb. most distant contract, per yd.	New York
Rosin	Gum, windowglass grade, carlots, per 100 lb.	New York
Rubber	Crude, natural, No. 1 ribbed smoked sheets, per lb.	New York
Steel Scrap	No. 1 heavy melting, (dealer), consumers' buying price, including brokerage, delivered, per gross ton.	Chicago
Steers	Choice, 900-1100 lbs., per 100 lb.	Omaha
Sugar	Raw, 96°, duty paid, per 100 lb.	New York
Tallow	Packers' prime, inedible, per lb.	Chicago
Tin	Grade A, spot delivery, per lb.	New York
Wheat	No. 1 Dark Northern Spring, per bu.	Minneapolis
Wheat	No. 1 Hard Winter Ord., per bu.	Kansas City
Wool tops	Certified spot price, nominal, per lb.	Boston
Zinc	Slab, Prime Western, for prompt delivery, delivered, (f.o.b. New York equivalent), per lb.	New York

7 CRB BLS Spot Indices: Calculation and Symbology

7.1 CRB BLS Spot Index

7.1.1 Calculation Methodology

$$\begin{aligned}
\log_{10} Index = \frac{1}{22}(&\log_{10}[01] + \log_{10}[02] + \log_{10}\frac{[CC]}{22.046} + \log_{10}[HG] \\
&+ \log_{10}[C2] + \log_{10}[06] + \log_{10}([30]*1.2+10) + \log_{10}([LH]*100) \\
&+ \log_{10}[09] + \log_{10}[10] + \log_{10}[11] + \log_{10}([12]*100) \\
&+ \log_{10}[13] + \log_{10}[BO] + \log_{10}([57]*100) + \log_{10}([LC]*100) \\
&+ \log_{10}([17]*100) + \log_{10}[18] + \log_{10}([54]-40) + \log_{10}\frac{[MW]+[KW]}{2} \\
&+ \log_{10}[22] + \log_{10}[23] + 2.99087)
\end{aligned}$$

7.1.2 Components

Components		
01 = Burlap	09 = Lard	17 = Sugar
02 = Butter	10 = Lead Scrap	18 = Tallow
CC = Cocoa	11 = Print Cloth	54 = Tin
HG = Copper Scrap	12 = Rosin	MW = Minneapolis Wheat
C2 = Corn	13 = Rubber	KW = Kansas City Wheat
06 = Cotton	BO = Soybean Oil	22 = Wool
30 = Hides	57 = Steel Scrap	23 = Zinc
LH = Hogs	LC = Steers	

7.2   CRB BLS Metals Sub-Index

7.2.1   Calculation Methodology

$$\log_{10} Index = \frac{1}{5}(\log_{10}[HG] + \log_{10}[10] + \log_{10}([57] * 100)$$
$$+ \log_{10}([54] - 40) + \log_{10}[23] + 0.64913)$$

7.2.2   Components

Components		
HG = Copper Scrap 10 = Lead Scrap	57 = Steel Scrap 54 = Tin	23 = Zinc

7.3   CRB BLS Textiles Sub-Index

7.3.1   Calculation Methodology

$$\log_{10} Index = \frac{1}{4}(\log_{10}[01] + \log_{10}[06] + \log_{10}[11] + \log_{10}[22] + 1.76231)$$

7.3.2   Components

Components		
01 = Burlap 06 = Cotton	11 = Print Cloth	22 = Wool

7.4   CRB BLS Raw Industrials Sub-Index

7.4.1   Calculation Methodology

$$\log_{10} Index = \frac{1}{13}(\log_{10}[01] + \log_{10}[HG] + \log_{10}[06] + \log_{10}([30] * 1.2 + 10)$$
$$+ \log_{10}[10] + \log_{10}[11] + \log_{10}([12] * 100) + \log_{10}[13]$$
$$+ \log_{10}([57] * 100) + \log_{10}[18] + \log_{10}([54] - 40) + \log_{10}[22]$$
$$+ \log_{10}[23] + 4.15495)$$

7.4.2   Components

Components		
01 = Burlap	11 = Print Cloth	54 = Tin
HG = Copper Scrap	12 = Rosin	22 = Wool
06 = Cotton	13 = Rubber	23 = Zinc
30 = Hides	57 = Steel Scrap	
10 = Lead Scrap	18 = Tallow	

7.5   CRB BLS Foodstuffs Sub-Index

7.5.1   Calculation Methodology

$$\log_{10} Index = \frac{1}{9}(\log_{10}[02] + \log_{10} \frac{[CC]}{22.046} + \log_{10}[C2] + \log_{10}([LH] * 100)$$
$$+ \log_{10}[09] + \log_{10}[BO] + \log_{10}([LC] * 100)$$
$$+ \log_{10}([17] * 100) + \log_{10} \frac{[MW] + [KW]}{2} + 1.16713)$$

7.5.2   Components

Components		
02 = Butter	09 = Lard	MW = Minneapolis Wheat
CC = Cocoa	BO = Soybean Oil	KW = Kansas City Wheat
C2 = Corn	LC = Steers	
LH = Hogs	17 = Sugar	

7.6   CRB BLS Fats and Oils Sub-Index

7.6.1   Calculation Methodology

$$\log_{10} Index = \frac{1}{4}(\log_{10}[02] + \log_{10}[09] + \log_{10}[BO] + \log_{10}[18] + 3.51608)$$

7.6.2   Components

Components		
02 = Butter	BO = Soybean Oil	18 = Tallow
09 = Lard		

7.7 CRB BLS Livestock Sub-Index

7.7.1 Calculation Methodology

$$\log_{10} Index = \frac{1}{5}(\log_{10}\left([30] * 1.2 + 10\right) + \log_{10}\left([LH] * 100\right) + \log_{10}[09]$$
$$+ \log_{10}\left([LC] * 100\right) + \log_{10}[18] + 0.46638)$$

7.7.2 Components

Components		
30 = Hides LH = Hogs	09 = Lard LC = Steers	18 = Tallow

7.8 Symbology

CRB BLS Spot Indices	CRB	Barchart	Bloomberg	Reuters
CRB BLS Metals Sub-Index	B1	BTY0	CRB METL	US@?CRBSM
CRB BLS Textiles Sub-Index	B2	BUY0	CRB TEXT	US@?CRBST
CRB BLS Raw Industrials Sub-Index	B3	BVY0	CRB RIND	US@?CRBSR
CRB BLS Foodstuffs Sub-Index	B4	BWY0	CRB FOOD	US@?CRBSF
CRB BLS Fats & Oils Sub-Index	B5	BXY0	CRB FTOL	US@?CRBSO
CRB BLS Livestock Sub-Index	B6	BYY0	CRB LIVS	US@?CRBSV
CRB BLS Spot Index	B7	BZY0	CRB CMDT	US@?CRBSC

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