

A Short Note on Updating the Grilli and Yang Commodity Price Index

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The Grilli and Yang commodity price index is one of the most widely used commodity price series in the applied economics literature. This note provides some practical advice on updating this data series by listing the base period index values, identifying relevant data sources, and describing a method for computing subindex weights. JEL codes: O13, F1.

In 1988, Enzo Grilli and Maw Cheng Yang published their seminal article on the long-run development of an index of 24 primary commodity prices (GYCPI) deflated by an index of manufactured goods' unit values. The sample of average annual primary commodity prices covers about 54 percent of the primary commodity trade in the index reference period, 1977–79 (Grilli and Yang 1988, p. 3, n. 2). The deflators considered for manufacturing prices were the U.S. manufacturing price index (USMPI) and the manufacturing unit value index (MUV).¹

Widely used and discussed, the Grilli and Yang data set has been extended by a number of researchers (for example, Lutz 1999; León and Soto 1997; Cashin and McDermott 2002). The data have been employed in a variety of contexts in later studies (for example, Bleaney and Greenaway 2001; Kim *et al.* 2003). Thus, the GYCPI data continue to enjoy wide popularity in their own right and as a benchmark for new approaches to empirical studies. However,

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1. The MUV had to be interpolated for 1914–20 and 1939–47.

because the data sources consulted for updates have differed, it may not always be clear when differences in results arise from differences in the data used and when they arise from differences in the econometric methodology employed.

The obvious need for occasional updates of the series is in marked contrast with the absence of an accessible central reference for suitable data sources and the appropriate weights to be applied to individual commodity prices over the various subindices. This note aims to identify suitable data sources and composite index and subindex weights. These have not all been directly and publicly available from an accessible source.² The data sources identified are a compromise between continuity with the original Grilli and Yang data and accessibility. The intention is to allow individual researchers a realistic opportunity to obtain identical updates of the Grilli and Yang index from clearly identified sources.

I. DATA SOURCES FOR UPDATES

Data for updating the commodity price data come directly from the World Bank Development Prospects Group's primary commodity price database, the International Monetary Fund (IMF) commodity price tables, and the Organization for Economic Cooperation and Development (OECD) international trade by commodities statistics. Most of the World Bank's primary commodity prices and the IMF's commodity price tables are available online. Online access to the OECD trade statistics requires a subscription. MUV updates were obtained from the Global Economic Prospects team of the World Bank's Development Prospects Group.³

A possible cause of confusion is the frequent revisions of the reported data and the occasional lack of continuity in the available data series. Often, more than one series is available for one commodity, and the researcher will have to use discretion in selecting the most appropriate one. Obviously, a close correspondence to the historic series is desirable, but a perfect match may not always be possible.

The following list of the 24 commodities in the Grilli and Yang data set identifies the data series used to update them from 1987 onward. The IMF commodity price table data are identified by their series descriptors or series code. OECD trade data are identified by their four-digit Standard International Trade Classification, Revision 2 (SITC Rev. 2) code. Data obtained directly from the primary commodity price database of the World Bank's Development Prospects Group are also identified.⁴ Any decision to deviate from the data series used in the original GYCI data set is identified in the commodity description.⁵

2. At least some of this information was reportedly published in a working paper preceding Grilli and Yang (1988). However, we have been unable to obtain a copy despite repeated efforts.

3. The data are quoted online in the commodity price appendix to *World Development Indicators*. The 2005 edition is available at http://devdata.worldbank.org/wdi2005/Table6_4.htm.

4. Updates are available online from the World Bank's "Pink Sheets" (www.worldbank.org/prospects).

5. Information on the original data sources was obtained from a list kindly provided by Enzo Grilli detailing data sources and definitions for Grilli and Yang's work.

- Aluminium: London Metal Exchange (LME), unalloyed primary ingots, high grade, minimum 99.7 percent purity, from the primary commodity price database.
- Bananas: Central and South American, U.S. import price, free on truck (f.o.t.) gulf ports, from the primary commodity price database.
- Beef: IMF commodity price tables series *PBEEF*, beef, Australian and New Zealand 85 percent lean fores. These data deviate from the Argentinean export unit values used in the original study, which were obtained from Argentinean national statistics (“Comercio Exterior” Argentina, Instituto Nacional de Estadística y Censos). The national statistics are not readily available online or in print at the required level of detail.
- Cocoa: International Cocoa Organization daily price, average of the first three positions on the terminal markets of New York and London, nearest three future trading months, from the primary commodity price database.
- Coffee: International Coffee Organization, other mild Arabica, from the primary commodity price database.
- Copper: LME grade A minimum 99.9935 percent purity, cathodes and wire bar shapes, settlement price, from the primary commodity price database.
- Cotton: Cotton Outlook A Index, middling 1 (3/32) inch staple, Europe cost, insurance, and freight (c.i.f.), from the primary commodity price database.
- Hides: IMF commodity price tables series *PHIDE*, hides, heavy native steers, over 53 pounds.
- Jute: Raw white D, free on board (f.o.b.) Chittagong. This series, obtained directly from the World Bank and quoted on the Pink Sheets, was discontinued after 2004. More recent jute prices are quoted by the Food and Agriculture Organization (FAO).⁶
- Lamb: New Zealand, frozen whole carcasses, wholesale price; London, from the primary commodity price database.
- Lead: LME refined, 99.97 percent purity, settlement price, from the primary commodity price database.
- Maize: U.S. no. 2 yellow, f.o.b. gulf port, from the primary commodity price database.
- Palm oil: 5 percent bulk, Malaysian, c.i.f. NW Europe, from the primary commodity price database.
- Rice: Thai 5 percent, milled, indicative price based on weekly surveys of export transactions, government standard, f.o.b. Bangkok, from the primary commodity price database. The original Grilli and Yang data set used the Board of Trade–posted price series, which was phased out after 1991. In the interest of continuity, the series from the primary commodity price database is used for the updated series from 1987 onward.

6. These are available online from the Food and Agriculture Organization Commodities and Trade home page (www.fao.org/es/esc/en/index.html). At the time of writing, prices could be obtained from an interactive databank by following the “Prices” link under “Publications.”

- Rubber: RSS no.1 Rubber Traders Association spot New York, from the primary commodity price database.
- Silver: Handy & Harman 99.9 percent New York, from the primary commodity price database.
- Sugar: International Sugar Agreement daily price, raw, f.o.b. and stowed at greater Caribbean ports, from the primary commodity price database.
- Tea: Three-auction average (Kolkata, Colombo, Mombasa), from the primary commodity price database. The original Grilli and Yang data set used the London auctions series, which was phased out in 1998. In the interest of continuity, the three-auction average listed in the World Bank's Pink Sheets is used in the updated series from 1987 onward.
- Timber: OECD international trade by commodities statistics, through ESDS International, UK import unit values, SITC Rev.2 series 2482 (sawn wood, coniferous species).
- Tin: LME 99.85 percent purity, settlement price, from the primary commodity price database.
- Tobacco: U.S. import unit values, unmanufactured leaves. Data were obtained directly from the primary commodity price database of the World Bank's Development Prospects Group.⁷
- Wheat: No.1 Canadian western red spring, in store, St Lawrence, export price, from the primary commodity price database.
- Wool: IMF commodity price tables series *PWOOLC*, wool, coarse, 23 micron, Australian Wool Exchange spot quote.
- Zinc: LME, special high grade, minimum 99.995 percent purity, weekly average bid/asked price, official morning session; prior to April 1990, high grade, minimum 99.95 percent purity, settlement price, from the primary commodity price database.

II. FURTHER DETAILS ON COMMODITY PRICES

All commodity price series have been indexed to their 1977–79 average in constructing the GYCPI and its subindices. Both the new data and the original Grilli and Yang component series were first indexed to their 1980 values, and the updated component of this series was subsequently indexed to the 1977–79 average of the combined index series. Table 1 shows the 1977–79 index values for each commodity, as well as the 1990 and 2000 index values, to facilitate future extensions of the series.

The individual commodity price series can be used to update the GYCPI and its various subindices.

7. The data series is not listed in the Pink Sheets but is available online from the commodity price data appendix of *World Development Indicators*. The 2005 edition is available at http://devdata.worldbank.org/wdi2005/Table6_4.htm.

TABLE 1. Commodity Price Index Data for Selected Years and Index Weights (1980 = 100)

Commodity	1977	1978	1979	1990	2000	Weights (% share)	
						GYCPI	Subindices
Food							
Bananas	72.479	75.803	85.909	142.718	111.873	0.9	1.64
Beef	47.098	50.394	84.283	92.872	70.125	5.1	9.27
Cocoa	145.689	130.935	126.619	48.654	34.791	2.7	4.91
Coffee	154.493	106.410	110.897	56.901	55.386	10.3	18.73
Lamb	57.191	69.049	87.550	92.044	90.722	0.9	1.64
Maize	76.060	80.370	92.185	87.231	70.658	6.8	12.36
Palm oil	89.146	102.340	111.137	49.666	53.171	8.3	15.09
Rice	62.732	84.693	76.354	65.942	49.275	3.0	5.45
Sugar	28.322	27.206	33.693	43.805	28.544	7.3	13.27
Tea	120.454	98.122	96.640	124.000	113.076	1.6	2.91
Wheat	60.691	70.649	90.356	81.855	77.113	8.1	14.73
Nonfood primary commodities							
Cotton	85.951	77.863	88.414	88.862	63.613	4.3	15.81
Hides	80.559	102.785	159.132	200.862	174.718	2.3	8.46
Jute	91.034	106.476	107.462	132.565	90.077	0.2	0.74
Rubber	56.410	68.171	87.568	62.836	51.217	2.8	10.29
Timber	66.483	65.982	82.204	114.992	94.658	12.0	44.12
Tobacco	80.101	93.367	97.632	149.051	130.773	2.9	10.66
Wool	80.750	83.702	96.032	79.887	52.185	2.7	9.93
Metals							
Aluminium	73.917	76.511	85.587	112.569	106.397	5.1	28.65
Copper	64.282	63.988	90.114	121.975	83.110	5.9	33.15
Lead	72.358	79.311	124.092	89.514	50.104	1.3	7.30
Silver	22.406	26.172	53.749	23.688	24.226	1.7	9.55
Tin	63.191	74.420	84.186	36.277	32.404	2.2	12.36
Zinc	91.958	82.810	99.707	198.817	148.244	1.6	8.99

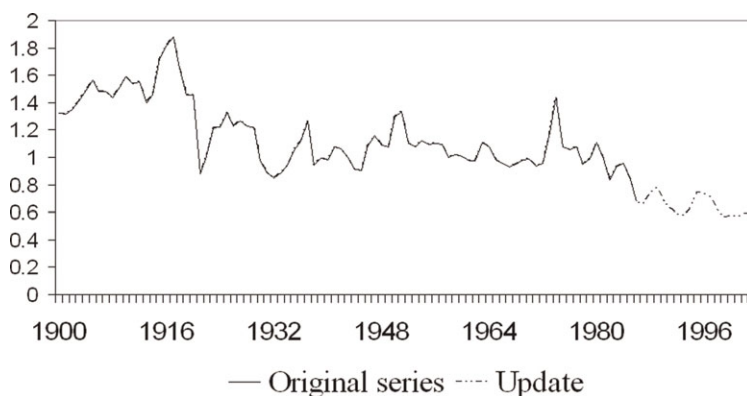
III. RECONSTRUCTING THE GRILLI AND YANG COMMODITY PRICE INDEX

This section provides further information on how to reconstruct the GYCPI commodity price index and the various subindices mentioned in Grilli and Yang (1988) from individual price series.

The Index and Subindices

The basic GYCPI is a trade-weighted average of all 24 of the commodity price series shown in table 1. In addition, Grilli and Yang (1988) constructed subindices for agricultural food commodities (GYCPIF), nonfood agricultural commodities (GYCPINF), and metals (GYCPIM). The weights are based on each commodity's average export share during the 1977–79 base period and are quoted for the GYCPI as percentage weights in Cuddington (1992) and in table 1.

FIGURE 1. GYCPI/MUV Index and Update



The composite index is then computed simply as a weighted average of the commodity prices in question as

$$(1) \quad \text{CPI}_t = \sum_{i=1}^n a_i P_{i,t}$$

where CPI is the commodity price index in question, $n = 24$ for the overall GYCPI, a_i is the appropriate commodity weight, and $P_{i,t}$ is commodity i 's price in period t indexed to its 1977–79 average.

The GYCPI relative to the MUV index and the update undertaken here are shown in figure 1. Weights for the subindices are easily reconstructed from the percentage shares for the overall index.⁸

The arithmetically weighted index described in equation (1) has been used most frequently in the literature. However, Cuddington and Wei (1992) argued that a geometric aggregation is more appropriate. Such a geometric index would be computed as

$$(2) \quad \text{GPI}_t = \prod_{i=1}^n P_{i,t}^{a_i}$$

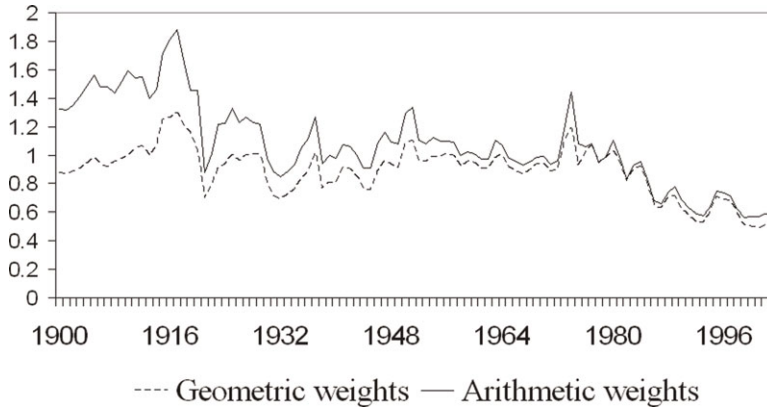
The properties of this alternative index are discussed in depth by Cuddington and Wei (1992). This note reports geometric index alternatives alongside the conventional arithmetic aggregations in the Appendix and in figure 2.

8. With one commodity (commodity 1) used as the numeraire, the i th commodity's weight in any subindex is given by

$$a_i = \frac{s_i}{s_1} \left(\sum_{i=1}^n \frac{s_i}{s_1} \right)^{-1},$$

where the i subscript refers to the i th commodity in the relevant subindex and s_i is the i th commodity's share in the overall GYCPI.

FIGURE 2. GYCPI/MUV Arithmetic and Geometric Indices



The GYCPIF, GYCPIFN, and GYCPIFM subindices are listed together with the GYCPI and the MUV in Grilli and Yang (1988) for the period 1900–86. A comparison of the indices reconstructed on the basis of the weights shown in table 1 with those in Grilli and Yang (1988) shows a close overall correspondence for the 1900–86 period.

Table 1 lists the percentage shares for each commodity in the overall GYCPI index and the weights for the food, nonfood, and metals indices (last column).

The Manufacturing Unit Value index

The deflator used alongside the GYCPI index is the manufacturing unit value index, currently implemented as the MUV-G5 index.⁹ It is a trade-weighted index of the five major developed countries' (France, Germany, Japan, United Kingdom, and United States) exports of manufactured commodities to developing countries. The most frequently used deflator in the literature, the MUV, is also used by the World Bank. As a measure of developing country imports, it is far from perfect. Its use in the present context is based on the rather strong assumption that G-5 manufacturing exports are generally representative of developing country imports. However, the MUV is the only readily available trade-based manufacturing price measure available over a suitably long time horizon, which explains its continued use.

Updates of the MUV index were obtained from the World Bank Development Prospects Group, Global Economic Prospects team.¹⁰ At the time of writing, the MUV is typically indexed to a 1990 base, whereas Grilli and

9. This index is referred to as either the MUV or the MUV-G5. The MUV-G5 is more specific, since it takes the current definition of the MUV index as an explicit point of reference. Grilli and Yang (1988) refer to the index as the MUVUN.

10. The MUV series from Cashin and McDermott (2002), kindly supplied by Dr Cashin, was used for the 1987–98 period.

Yang consistently use the 1977–79 average as their base period. The 1977–79 average for the MUV with a base year of 1990 is 60.008. This figure can be used to reindex the series.

IV. CONCLUSION

This note has explained how to update the Grilli and Yang index and how to obtain index weights for the various subindices of the GYCPI. This method can also be used to compile new subindices from subsets of the individual data series. In the future, it would seem highly desirable for the World Bank or the IMF to publish updates to the GYCPI and its component indices. Meanwhile, this note should enable interested researchers to extend the Grilli and Yang index series further in the absence of a published updated version.

APPENDIX. COMMODITY PRICE INDICES

This appendix lists the various commodity price indices¹¹ and the MUV as well as an update of the data published in Grilli and Yang (1988). All series are indexed to their 1977–79 averages.

The price indices listed are as follows:

GYCPI: the Grilli and Yang commodity price index;

MUV: the manufacturing unit value index;

GYCPIM: the metals index (aluminium, copper, lead, silver, tin, and zinc);

GYCPINF: the index of agricultural nonfood commodities (cotton, hides, jute, rubber, timber, tobacco, and wool);

GYCPIF: the index of agricultural food commodities (bananas, beef, cocoa, coffee, lamb, maize, palm oil, rice, sugar, tea, and wheat).

Alternative geometric aggregations of the composite indices are identified by a CW suffix in the following table.

11. A spreadsheet with the individual commodity price indices and the composite index series is available in appendix S.1. at <http://wber.oxfordjournals.org/>.

Year	GYCPI	MUV	GYCPIM	GYCPINF	GYCPIF	GYCPI-CW	GYCPIM-CW	GYCPINF-CW	GYCPIF-CW
1900	19.309	14.607	27.778	21.310	15.587	12.866	20.064	11.049	12.014
1901	18.236	13.858	27.522	19.292	14.716	12.008	18.485	10.366	11.232
1902	18.145	13.483	25.518	19.268	15.209	11.878	17.268	10.433	11.220
1903	19.006	13.483	26.668	22.860	14.634	12.173	18.672	11.424	10.938
1904	20.586	13.858	27.526	24.450	16.444	13.070	18.835	11.337	12.459
1905	21.621	13.858	29.150	26.226	16.924	13.624	20.898	11.693	12.793
1906	21.610	14.607	31.726	27.547	15.422	13.759	23.904	12.519	12.057
1907	22.757	15.356	36.699	25.967	16.672	14.089	25.435	12.420	12.386
1908	20.427	14.232	24.245	22.291	18.276	13.526	17.797	11.501	13.410
1909	21.554	14.232	20.822	28.973	18.143	13.787	16.623	12.837	13.443
1910	22.630	14.232	21.026	32.924	18.088	14.224	16.781	13.504	13.834
1911	21.909	14.232	19.923	28.122	19.498	14.773	16.731	12.863	15.195
1912	22.640	14.607	23.176	28.166	19.739	15.611	19.731	13.338	15.642
1913	20.461	14.607	23.134	25.440	17.149	14.592	19.151	13.488	13.893
1914	20.210	13.858	19.291	22.239	19.509	14.642	16.272	13.231	14.878
1915	24.468	14.232	31.321	24.388	22.292	17.723	23.260	15.839	17.158
1916	31.933	17.603	50.327	30.897	26.497	22.237	34.085	21.671	19.614
1917	39.396	20.974	45.271	40.257	37.074	27.255	34.109	30.256	24.070
1918	42.028	25.468	35.121	42.841	43.861	30.731	30.419	35.787	28.595
1919	39.208	26.966	30.853	43.292	39.902	31.150	25.861	34.477	31.464
1920	41.951	28.839	29.684	39.641	47.052	29.631	24.672	32.652	29.968
1921	21.356	24.345	20.219	21.605	21.602	16.904	16.433	18.896	16.145
1922	21.910	21.723	19.919	24.771	21.147	17.176	17.097	19.401	16.195
1923	26.407	21.723	24.587	29.989	25.234	19.615	20.316	22.481	18.128
1924	26.521	21.723	25.066	28.365	26.086	20.319	20.534	20.843	19.996
1925	29.381	22.097	26.315	36.778	26.637	22.112	22.075	24.005	21.243
1926	25.758	20.974	25.962	28.691	24.250	20.117	21.822	20.045	19.628
1927	25.143	19.850	24.028	26.823	24.677	19.759	20.124	19.904	19.570
1928	24.423	19.850	23.585	25.393	24.217	19.970	20.015	19.890	19.995

(Continued)

Continued

Year	GYCPI	MUV	GYCPIM	GYCPINF	GYCPIF	GYCPI-CW	GYCPIM-CW	GYCPINF-CW	GYCPIF-CW
1929	23.266	19.101	25.210	22.332	23.098	19.114	21.143	18.161	18.975
1930	18.277	18.727	21.655	16.949	17.838	15.085	16.727	15.769	14.272
1931	13.610	15.356	18.479	12.308	12.675	11.002	12.894	10.130	10.888
1932	10.797	12.734	16.883	8.958	9.734	8.787	10.734	7.722	8.779
1933	12.591	14.232	18.388	12.357	10.833	10.243	13.292	10.291	9.393
1934	15.763	16.854	18.591	16.427	14.522	12.825	14.813	13.623	11.880
1935	17.294	16.479	18.383	16.229	17.465	13.654	15.178	13.270	13.382
1936	18.418	16.479	18.677	18.348	18.369	14.543	15.299	14.632	14.263
1937	21.361	16.854	20.931	20.366	21.988	17.127	18.064	16.840	16.976
1938	16.552	17.603	18.474	16.198	16.105	13.481	15.153	14.173	12.663
1939	16.019	16.105	19.188	17.499	14.267	13.062	16.027	14.749	11.513
1940	17.237	17.603	18.932	20.547	15.063	14.122	16.023	17.897	12.058
1941	20.093	18.727	18.452	24.844	18.288	17.032	16.131	22.107	15.237
1942	23.073	21.723	18.039	27.716	22.419	19.593	16.107	24.761	18.594
1943	24.283	24.345	18.132	29.094	23.905	20.605	16.350	26.568	19.583
1944	25.243	27.715	18.132	30.786	24.816	21.278	16.350	28.627	20.010
1945	25.832	28.464	18.232	30.112	26.186	21.504	16.584	27.149	20.843
1946	31.232	28.839	19.485	32.688	34.314	25.501	18.361	29.720	26.293
1947	40.389	34.831	24.709	37.349	46.952	33.426	23.146	33.635	37.532
1948	38.722	35.581	27.980	40.934	41.107	33.168	26.122	37.349	33.790
1949	35.845	33.333	26.479	35.727	38.930	30.331	24.901	30.596	32.192
1950	39.263	30.337	27.767	45.060	40.130	32.653	26.036	36.674	33.175
1951	48.093	35.955	32.466	58.702	47.929	39.647	30.557	48.526	39.031
1952	40.508	36.704	31.825	45.983	40.623	35.287	29.973	41.726	34.241
1953	37.897	35.206	32.214	40.839	38.289	33.477	29.985	36.948	33.041
1954	38.565	34.457	33.066	39.797	39.738	34.216	30.543	35.714	34.752
1955	38.233	34.831	38.267	42.537	36.107	34.213	34.695	38.528	32.116
1956	39.895	36.330	40.977	41.517	38.747	36.664	36.931	38.421	35.741
1957	40.108	36.704	35.376	42.372	40.525	36.585	32.541	39.059	36.790
1958	36.231	36.330	32.546	38.647	36.235	33.525	30.069	36.057	33.498
1959	37.113	36.330	35.379	40.667	35.926	34.707	32.675	37.072	34.256

1960	37.327	37.079	36.781	41.799	35.305	35.045	33.763	39.222	33.548
1961	36.466	37.453	35.242	40.424	34.917	34.053	32.738	38.153	32.604
1962	36.486	37.453	34.734	39.893	35.377	33.719	32.650	37.110	32.495
1963	41.419	37.453	34.747	39.084	44.723	36.693	33.158	36.075	38.236
1964	41.046	38.202	37.620	39.782	42.774	38.251	36.349	37.174	39.441
1965	38.119	38.951	40.499	39.990	36.429	35.758	39.095	38.326	33.569
1966	37.935	39.700	40.568	37.445	37.325	35.297	38.953	35.370	34.154
1967	36.846	39.700	41.509	33.813	36.830	34.425	39.874	32.214	33.921
1968	37.431	39.326	43.914	34.620	36.718	35.211	42.213	33.233	34.167
1969	39.761	40.449	47.712	37.459	38.322	37.805	45.324	36.109	36.468
1970	42.201	42.697	53.500	36.438	41.381	40.194	49.763	35.596	39.833
1971	42.324	45.318	50.293	37.638	42.051	40.034	46.982	37.038	39.504
1972	46.625	48.689	49.613	43.823	47.037	43.607	46.895	42.538	43.119
1973	69.472	58.801	55.720	69.054	74.123	63.951	53.118	66.967	66.380
1974	102.410	71.161	79.813	74.718	123.330	84.803	77.415	73.730	93.600
1975	85.156	79.026	76.090	65.807	97.598	73.494	74.452	65.020	77.757
1976	83.110	78.652	81.408	78.946	85.707	80.105	79.964	77.760	81.336
1977	93.125	86.517	87.752	90.681	96.064	92.193	87.316	90.251	94.823
1978	93.627	98.876	91.149	94.173	94.159	93.426	90.943	94.141	93.890
1979	113.250	114.610	121.100	115.150	109.780	112.388	120.204	114.786	108.827
1980	138.830	125.470	144.720	126.490	142.990	128.818	138.845	125.138	127.547
1981	117.940	119.100	124.210	108.870	120.380	113.227	123.156	108.409	112.583
1982	96.784	115.730	110.540	96.727	92.364	94.597	108.241	95.845	89.976
1983	102.780	110.490	118.370	103.150	97.566	100.094	114.464	102.299	94.814
1984	103.540	108.610	112.810	105.290	99.686	100.297	108.995	104.256	95.783
1985	91.268	109.590	105.590	90.490	87.022	88.034	100.879	89.379	83.608
1986	88.358	130.300	105.340	86.026	84.013	84.122	97.014	84.284	80.253
1987	95.215	142.900	108.047	118.203	79.694	90.567	103.931	117.070	76.295
1988	116.574	153.300	155.777	124.230	100.101	109.537	142.006	121.927	95.511
1989	118.705	152.925	151.529	129.335	102.826	108.972	140.342	127.158	93.027
1990	113.918	166.647	135.879	139.309	94.255	102.306	124.454	135.078	83.691
1991	103.689	165.558	111.752	130.249	87.945	94.312	102.724	125.237	79.734

(Continued)

Continued

Year	GYCPI	MUV	GYCPIM	GYCPINF	GYCPIF	GYCPI-CW	GYCPIM-CW	GYCPINF-CW	GYCPIF-CW
1992	101.897	171.841	111.151	122.767	88.580	91.564	102.345	117.187	78.179
1993	99.068	170.123	95.373	115.683	92.048	89.730	88.804	111.072	81.015
1994	114.839	170.123	115.390	132.639	105.858	109.502	107.210	130.351	101.148
1995	128.768	171.841	138.508	154.315	112.983	121.763	126.433	151.673	107.908
1996	123.471	168.075	118.752	146.121	113.797	115.837	112.093	142.603	105.637
1997	120.882	168.634	122.247	142.559	109.720	115.790	112.656	138.579	106.891
1998	106.333	167.617	99.364	125.907	98.909	101.750	94.276	119.959	96.139
1999	93.311	165.445	97.679	115.649	80.850	87.322	92.105	108.425	77.115
2000	92.753	161.945	107.338	112.766	78.136	84.939	99.488	107.261	71.907
2001	88.680	157.179	95.077	106.410	77.842	79.425	88.170	100.669	68.292
2002	92.114	155.212	90.655	112.585	82.463	83.803	84.233	107.987	73.805
2003	98.879	166.853	99.672	127.848	84.297	90.456	93.482	125.158	76.220

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