

Effect of 1992 weights on Producer Price Indexes

Updated weights reflecting 1992 values of shipments of commodities resulted in increasing relative importance for food at all stages of processing, for energy at the finished and intermediate stages, and for basic industrial materials at the crude stage

Scott Sager

Effective with the release of data for January 1996, the weights used to construct the Producer Price Index (PPI) were updated to reflect the 1992 values of shipments of commodities. From 1992 through 1995, weights were based on 1987 values of shipments. The PPI is constructed by obtaining the prices, each month, of a set of goods representative of the marketed output of domestic industries in some designated base period. Although the weights of items included in the PPI change continuously solely in response to different rates of price change among the various items, production patterns are influenced by factors other than price changes, such as technological advancement and changes in demand. It is therefore necessary periodically to restore the representativeness of the mix of goods that go into making up the PPI to the current mix of domestic outputs by comprehensively recomputing the weights of PPI items based on the value of shipments in a more recent period.

Weights for specific products are based on their value of shipments, as measured by the Census of Manufactures, Census of Mining, Census of Services, and Census of Agriculture.¹ For overall groupings of products, relative importance figures are calculated by aggregating specific product weights together, resulting in a weighted average of the components.

The 1996 weight revision affected all series within the Producer Price Index, including traditional commodity code indexes, industry net

output indexes, stage-of-processing indexes based on both the commodity and the net output classification system, durability-of-product indexes, and special commodity groupings. The proportional allocation of commodity series to specific stage-of-processing categories remains based on 1972 input-output data.

Relative Importance data

Producer Price Index weights are published in the form of relative importance data. This type of data represents a good's or grouping's value of shipments as a proportion of the total value of shipments for a broader category. Shifts in relative importance resulting from a major weight revision are the result of changes in production volume and selling price for individual series, relative to the average change of all other items within a broader category.

From 1987 to 1992, the aggregate value of shipments of commodities that make up the three major stage-of-processing categories (finished goods, intermediate goods, and crude goods) increased about 20 percent. Thus, an individual item whose value of shipments also increased about 20 percent would have a revised relative importance about the same as its former relative importance. By contrast, an item whose actual value of shipments remained the same from 1987 to 1992 would have a revised relative importance about 20 percent less than its former relative importance.

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The U.S. economy expanded at a robust pace between 1987 and 1992, with the gross domestic product increasing 33 percent during that period. Personal consumption expenditures rose more than 35 percent, industrial production rose 6.5 percent, and business investment expenditures increased by more than a third. These factors combined to result in the overall increase in value of shipments of about 20 percent during the period.²

Example of weight shifts

The index for civilian aircraft (commodity code 142102) may serve as an example as to how and why weights have changed. The December 1995 relative importance of civilian aircraft shifted from 2.055 under the 1987 weight base to 3.351 under the 1992 weight base, an increase of 63.1 percent. There were several reasons for this change.

Economically, the Nation was coming out of a recession in 1992 caused by the Persian Gulf crisis in late 1990 and 1991. The Middle Eastern conflict spurred a fear of international terrorism, which manifested itself in reduced travel, primarily by air. As fears subsided in 1992, air travel increased, and airlines sought to obtain additional aircraft in order to keep up with the increased air passenger demand.

During the 1987–92 period, shipments of military aircraft declined as reductions in defense spending, both domestically and internationally, reduced military demand. As a result, companies were able to switch some of their resources to producing civilian-type aircraft, take advantage of economies of scale, and increase production, as measured by value of shipments, from about \$12 billion in 1987 to almost \$29 billion in 1992.

Between 1987 and 1992, the use of air cargo services as an express alternative to the Postal Service also expanded greatly. As a consequence of this expansion, more aircraft were needed to keep up with the increased demand for services.³

Overview of weight changes

The food sector was the only area in which weights expanded across all stages of processing. Weights for the energy components increased for finished and intermediate goods, but declined for crude materials. Conversely, weights for the “core” component (excluding food and energy) fell for both finished and intermediate goods, while rising for the crude component. Table 1 shows the relative importance of many detailed items within the three stages of processing before and after the shift to 1992 weights, as well as the percent change between the 1987- and 1992-based relative importances of these items.⁴

Many of the weight increases for various categories reflected rising industrial demand in 1992, as the United States emerged from the recession of 1990–91. This happened, for

example, for many nondurable manufacturing materials, such as woodpulp, and for basic industrial materials, such as aluminum base scrap. Output in other industries expanded because advances in technology spurred demand. The result was weight gains for items such as tools, dies, jigs, fixtures, and industrial molds, as well as electronic computers, within capital equipment.

Some categories, however, registered a diminished relative importance following the weight shift. For example, a shift to foreign production during the 1987–92 period resulted in a diminished relative importance for most apparel categories, as well as for many fibers and yarns. Similarly, a declining rural population manifested itself as a drop in shipments of mobile homes. And weight declines in book publishing reflected decreased State and local government funding for education, resulting in reduced shipments of school, library, technical, scientific, and professional books.

Finished goods

Within the category of finished goods, weights increased for the capital equipment, consumer foods, and energy components. Weights declined for consumer goods other than food and energy.

The weight for capital equipment increased about 5 percent as a result of the 1996 revision. The relative importance of capital equipment with respect to total finished goods was 24.672 as of December 1995. Before the revision, the figure was 23.470 in that same month. The burgeoning force behind the weight increase was a rise in business expenditures for new plants and equipment, from more than \$410 million in 1987 to almost \$550 million in 1992.⁵ In addition to the sizable weight increase for civilian aircraft described earlier, the weight for electronic computers almost doubled. This reflected a release of pent-up demand following the 1990–91 recession. In order to benefit from technological advances in the form of greater processing power and speed, many corporations reinstated orders they had canceled or deferred during that uncertain economic period. The Federal Government also dramatically increased its computer purchases in an effort to modernize equipment used in many departments. In addition, the demand for computers for use at home expanded greatly, as lower prices made products affordable to more of the population.

The relative importance of railroad equipment increased 60.9 percent with the inception of the revised weights. With railroad operating revenues rising about 8 percent between 1987 and 1992, new equipment was purchased in order to keep up with increasing demand. Additionally, as demand for just-in-time delivery grew over the last few years, the need for new models of specialty cars (for example, truck trailers on flatbed cars) grew as well.

(Text continues on page 18.)

Table 1 Relative importance of selected Producer Price Index commodity groupings by stage of processing, based on 1992 and 1987 weights, December 1995

Commodity code	Grouping	1992 weight	1987 weight (revised)	Percent change
	Finished goods	100.000	100.000	...
0111	Fresh fruits and melons .....	.471	.300	57.0
0113	Fresh and dry vegetables .....	.534	.492	8.5
017107	Eggs for fresh use .....	.270	.335	-19.4
0211	Bakery products	1.898	2.328	-18.5
0213	Milled rice .....	.041	.044	-6.8
021402	Pasta products .....	.099	.095	4.2
022101	Beef and veal	1.574	1.583	-.6
022104	Pork	1.056	1.017	3.8
022203	Processed young chickens	1.109	.700	58.4
022206	Processed turkeys .....	.226	.143	58.0
0223	Finfish and shellfish .....	.763	.772	-1.2
023	Dairy products	2.881	2.941	-2.0
024	Processed fruits and vegetables	1.764	1.731	1.9
0255	Confectionery end products	1.201	1.143	5.1
0261	Alcoholic beverages	1.976	1.975	.1
0262	Soft drinks	2.003	2.022	-.9
026301	Roasted coffee .....	.506	.548	-7.7
0276	Shortening and cooking oils .....	.331	.346	-4.3
038101	Women's apparel	4.084	4.519	-9.6
038102	Men's and boys' apparel	1.718	1.881	-8.7
038103	Girls', children's, and infants' apparel .....	.343	.404	-15.1
0382	Textile housefurnishings .....	.703	.705	-.3
043	Footwear .....	.305	.425	-28.2
0541	Residential electric power	7.143	6.354	12.4
0551	Residential natural gas	1.794	2.311	-22.4
0571	Gasoline	2.948	3.157	-6.6
057302	Fuel oil no. 2 .....	.470	.465	1.1
0635	Pharmaceutical preparations, ethical (prescription)	1.812	1.592	13.8
0636	Pharmaceutical preparations, proprietary (over the counter) .....	.519	.578	-10.2
0671	Soaps and synthetic detergents .....	.702	.711	-1.3
0675	Cosmetics and other toilet preparations	1.399	1.334	4.9
0712	Tires, tubes, tread, etc. ....	.365	.388	-5.9
091501	Sanitary papers and health products	1.508	1.520	-.8
093101	Newspaper circulation .....	.726	.862	-15.8
093201	Periodical circulation .....	.721	.740	-2.6
0933	Book publishing .....	.688	.754	-8.8
111	Agricultural machinery and equipment .....	.802	.546	10.3
112	Construction machinery and equipment .....	.625	.711	-12.1
1137	Metalcutting machine tools .....	.179	.203	-11.8
1138	Metaforming machine tools .....	.077	.100	-23.0
1139	Tools, dies, jigs, fixtures, and independent molds .....	.531	.495	7.3
1141	Pumps, compressors, and equipment .....	.412	.421	-2.1
1144	Industrial material-handling equipment .....	.548	.579	-5.4
1151	Electronic computers .....	.754	.391	92.8
1162	Textile machinery .....	.060	.062	-3.2
1164	Paper industries machinery .....	.113	.106	6.6
1165	Printing trades machinery .....	.160	.210	-23.8
1174	Transformers and power regulators .....	.246	.238	3.4
1176	Communication and related equipment	1.826	1.891	-3.4
117905	X-ray and electromedical equipment .....	.545	.357	52.7
1191	Oil field and gas field machinery .....	.087	.086	1.2
1192	Mining machinery and equipment .....	.052	.054	-3.7
1193	Office and store machines and equipment .....	.353	.392	-9.9
121	Household furniture	1.640	1.837	-10.7
122	Commercial furniture	1.183	1.242	-6.4
123	Floor coverings .....	.562	.586	-4.1
124	Household appliances	1.158	1.190	-2.7
125	Home electronic equipment .....	.497	.408	21.5
1262	Household glassware .....	.069	.083	-16.9

See footnotes at end of table.

Table 1. Continued—Relative importance of selected Producer Price Index commodity groupings by stage of processing, based on 1992 and 1987 weights, December 1995

Commodity code	Grouping	1992 weight	1987 weight (revised)	Percent change
	Finished goods	100.000	100.000	...
1284	Household flatware .....	.022	.022	.0
1286	Lawn and garden equipment, except tractors .....	.272	.300	-9.3
141101	Passenger cars	6.992	8.076	-13.4
141105	Light motor trucks	4.286	3.837	11.7
141106	Heavy motor trucks .....	.953	1.394	-31.8
1414	Truck trailers .....	.265	.318	-16.7
142102	Civilian aircraft	3.351	2.055	63.1
1431	Ships .....	.726	.812	-10.6
144	Railroad equipment .....	.214	.133	60.9
1511	Toys, games, and children's vehicles .....	.299	.308	-2.9
1512	Sporting and athletic goods .....	.540	.412	31.1
152	Tobacco products	1.972	2.372	-16.9
155	Mobile homes .....	.438	.497	-11.9
159402	Jewelry, platinum, and karat gold .....	.254	.301	-15.6
159404	Costume jewelry and novelties .....	.118	.123	-4.1
	Intermediate materials, supplies, and components	100.000	100.000	...
021203	Flour .....	.253	.242	4.5
0221	Meats .....	.637	.625	1.9
022101	Beef and veal .....	.312	.311	.3
022104	Pork .....	.209	.200	4.5
022105	Other meats .....	.112	.106	5.7
023	Dairy products .....	.660	.701	-5.8
0231	Fluid milk products .....	.248	.315	-21.3
0232	Butter .....	.004	.004	.0
0233	Natural, processed, and imitation cheese .....	.282	.237	19.0
0235	Dry, condensed, and evaporated milk products .....	.126	.146	-13.7
023502	Dry milk products .....	.072	.079	-8.9
023503	Liquid milk products .....	.054	.086	-18.2
0253	Refined sugar .....	.220	.227	-3.1
0254	Confectionery materials .....	.270	.297	-9.1
0264	Other beverage materials .....	.214	.204	4.9
0272	Crude vegetable oils .....	.169	.157	7.6
0289	Other miscellaneous processed foods .....	.179	.158	13.3
029	Prepared animal feeds	1.554	1.472	5.6
031	Synthetic fibers .....	.562	.730	-23.0
032	Processed yarns and threads .....	.936	.898	4.2
033	Gray fabrics .....	.735	.822	-10.6
034	Finished fabrics	1.102	1.095	.6
042	Leather .....	.190	.177	7.3
052	Coke oven products .....	.107	.081	32.1
0532	Liquefied petroleum gas .....	.492	.374	15.5
054	Electric power	7.239	6.555	10.4
0542	Commercial electric power	4.087	3.527	15.9
0543	Industrial electric power	3.152	3.028	4.1
055	Utility natural gas .....	.917	1.477	-37.9
0552	Commercial natural gas .....	.513	.686	-25.2
0553	Industrial natural gas .....	.293	.527	-44.4
0554	Natural gas to electric utilities .....	.111	.264	-58.0
0571	Gasoline	1.300	1.381	-5.9
057202	Kerosene .....	.019	.025	-24.0
057303	Jet fuels .....	.831	.826	.6
0574	Residual fuels .....	.311	.342	-9.1
058	Petroleum and coal products, n.e.c. ¹ .....	.097	.114	-14.9
061	Industrial chemicals	4.487	4.301	4.3
0613	Basic inorganic chemicals	1.016	1.031	-1.5
061301	Alkalies and chlorine .....	.226	.228	-9

See footnotes at end of table.

Table 1 Continued—Relative importance of selected Producer Price Index commodity groupings by stage of processing, based on 1992 and 1987 weights, December 1995

Commodity code	Grouping	1992 weight	1987 weight (revised)	Percent change
	Intermediate materials, supplies, and components	100.000	100.000	...
61302	Other inorganic chemicals .....	.781	.803	-1.5
0614	Basic organic chemicals	3.471	3.270	6.1
061401	Primary basic organic chemicals .....	.785	.622	26.2
061402	Intermediate basic organic chemicals .....	.625	.603	3.6
061403	Miscellaneous basic organic chemicals	2.060	2.045	.7
0621	Prepared paint .....	.807	.865	-6.7
0622	Paint materials .....	.415	.445	-6.7
0631	Medicinal and botanical chemicals .....	.459	.381	20.5
064	Fats and oils, inedible .....	.103	.093	10.8
0652	Fertilizer materials .....	.523	.493	6.1
065201	Nitrogenates .....	.262	.260	.8
065202	Phosphates .....	.261	.233	12.0
066	Plastic resins and materials	2.053	1.976	3.9
071102	Synthetic rubber .....	.276	.266	3.8
0721	Plastic construction products .....	.871	.720	21.0
0811	Softwood lumber .....	.884	1.097	-19.4
0812	Hardwood lumber .....	.368	.336	9.5
082	Millwork	1.288	1.529	-15.8
083	Plywood .....	.462	.594	-22.2
0911	Woodpulp .....	.465	.442	5.2
0913	Paper	2.348	2.399	-2.1
0914	Paperboard	1.327	1.333	-.5
092	Building paper and board .....	.267	.227	17.6
1017	Steel mill products	3.363	3.379	-.5
101702	Semifinished steel mill products .....	.225	.233	-3.4
101703	Hot rolled sheet and strip, including tin mill	1.121	1.147	-2.3
101704	Hot rolled bars, shapes, and structural shapes .....	.667	.650	2.6
101705	Steel wire .....	.125	.115	8.7
101707	Cold rolled steel sheets and strips .....	.602	.662	-9.1
101708	Cold rolled steel bars .....	.122	.110	10.9
1022	Primary nonferrous metals	1.008	.842	19.7
102201	Primary nonferrous metals, except precious .....	.957	.811	18.0
102202	Precious metals .....	.051	.031	64.5
1025	Nonferrous mill shapes	1.484	1.862	-20.3
1026	Nonferrous wire and cable .....	.831	.964	-13.8
105	Plumbing fixtures and brass fittings .....	.263	.326	-19.3
106	Heating equipment .....	.268	.294	-8.8
107	Fabricated structural metal products	2.617	2.857	-8.4
1088	Fabricated ferrous wire products .....	.360	.359	.3
1089	Other miscellaneous metal products	2.288	2.396	-4.5
108905	Other metal products	1.580	1.607	-1.7
1148	Air conditioning and refrigeration equipment .....	.743	.738	.7
114902	Metal valves, except fluid power .....	.335	.320	4.7
1171	Wiring devices .....	.472	.522	-9.6
1175	Switchgear, switchboard, etc., equipment .....	.527	.545	-3.3
1311	Flat glass .....	.382	.385	-.8
1322	Cement .....	.288	.336	-14.3
133	Concrete products	1.190	1.466	-18.8
136	Asphalt felts and coatings .....	.229	.220	4.1
137	Gypsum products .....	.173	.195	-11.3
	Crude materials	100.000	100.000	...
0111	Fresh fruits and melons .....	.841	.513	63.9
0113	Fresh and dry vegetables .....	.931	.973	-4.3
011302	Fresh vegetables, except potatoes .....	.409	.370	10.5
011305	Irish potatoes for processing .....	.483	.573	-15.7
012101	Wheat	2.032	2.056	-1.2
012202	Corn	6.131	6.455	-5.0

See footnotes at end of table.

Table 1. Continued—Relative importance of selected Producer Price Index commodity groupings by stage of processing, based on 1992 and 1987 weights, December 1995

Commodity code	Grouping	1992 weight	1987 weight (revised)	Percent change
	Continued—Crude materials	100.000	100.000	...
0131	Slaughter cattle	11.935	11.898	.3
0132	Slaughter hogs	3.581	2.620	36.7
014102	Slaughter broilers/fryers	3.623	3.117	16.2
0142	Slaughter turkeys .....	.970	.906	7.1
0151	Raw cotton	1.570	1.257	24.9
016	Fluid milk	5.921	5.713	3.6
0181	Alfalfa hay	1.200	1.329	-9.7
018301	Soybeans	3.323	3.114	6.7
0192	Leaf tobacco .....	.944	.739	27.7
0223	Unprocessed and packaged fish .....	.408	.484	-15.7
025201	Raw cane sugar .....	.464	.418	11.0
0411	Cattle hides .....	.618	.485	27.4
051	Coal	7.338	6.833	7.4
0531	Natural gas (to pipelines)	13.637	13.107	4.0
0561	Crude petroleum (domestic production)	11.244	14.393	-21.9
065202	Phosphates .....	.328	.281	16.7
085101	Softwood logs, bolts, and timber	3.460	5.262	-34.2
085102	Hardwood logs .....	.337	.257	31.1
085103	Pulpwood .....	.709	.616	15.1
085104	Other roundwood products .....	.135	.145	-6.9
0912	Wastepaper .....	.940	.521	80.4
1011	Iron ore .....	.588	.483	23.8
1012	Iron and steel	3.919	3.760	4.2
1021	Nonferrous metal ores	3.371	1.753	92.3
102102	Copper ores	1.540	.943	63.3
102105	Gold ores	1.450	.568	155.3
102301	Copper base scrap .....	.975	1.254	-22.2
102302	Aluminum base scrap	1.844	1.475	25.0
1321	Construction sand, gravel, and crushed stone	2.609	2.887	-9.6

* n.e.c. = not elsewhere classified.

Note: Data on relative importance for commodity groupings shown here are

only for those major subproduct classes allocated to the respective stage-of-processing groupings.

With the Nation's health care expenditures increasing about 70 percent between 1987 and 1992, and with a steadily rising demand for exports of medical equipment, the relative importance of x-ray and electromedical equipment increased more than 52 percent during the period. Shipments of x-ray and electromedical equipment exhibit cyclical patterns; after remaining steady through most of the mid-1980s, they grew dramatically during the end of the decade and into the 1990s. The relative importance of light trucks increased 11.7 percent after the weight revision, reflecting consumers' infatuation with minivans and sport utility vehicles as substitutes for large cars in the role of the primary family vehicle. The index for agricultural machinery and equipment also recorded a substantial weight increase.

In contrast, the relative importance of heavy trucks declined 31.6 percent. Truck sales hit their peak in 1988, following the 1987 Census of Manufactures, in the aftermath of trucking deregulation in the early 1980s. Sales were at substantially lower levels in 1992 as a result of increased

prices, as well as depressed demand, in the construction and trucking industries.

The relative importance of printing trades machinery fell almost 24 percent as slow growth in the economy and future economic uncertainty forced users of such machinery to postpone new purchases. The relative importance of metal forming machine tools declined 23 percent, while that of metal cutting machine tools fell 11.8 percent. Both the metal forming and metal cutting industries exhibit extremely cyclical patterns and are usually among the first sectors of the economy to suffer with the onset of a recession and the last to rebound as the recession ends. At the time of the 1992 census, these industries still had not fully recovered from the 1990-91 recession, resulting in lower relative importances for each than in 1987. The relative importance of the truck trailer category decreased 16.7 percent, mainly because of falling demand resulting from declining trailer traffic. While most of the reduction in traffic stemmed from the 1990-91 recession, increased competition from the grow-

ing intermodal transportation services sector has also eaten into truck trailer usage. The relative importance of construction machinery and equipment fell 12.1 percent as slow recovery from the recession and economic uncertainty resulted in a surfeit of commercial space and excess inventories at production plants. Demand expanded little for this equipment between 1987 and 1992. The index for ships also registered a considerable decline in weight over the 5-year period.

The relative importance of the finished consumer food index rose 2.6 percent, registering 22.341 based on 1992 weights. The relative importance of young chickens increased 58.4 percent from 1987 to 1992. This reflected an increase in production due partly to record exports, particularly to the Far East, where healthy economies and increasing consumption resulted in greater demand for poultry. The relative importance of turkeys also increased about 58 percent over the 1987–92 period; this reflected a shift in consumer tastes to healthier meat products, which resulted in an increase in consumption of more than 23 percent, while prices declined about 4 percent during the same period.⁶ In addition, turkey exports increased more than 500 percent over the period, as the lower prices and favorable exchange rates made turkey a more competitive meat in world markets.⁷ The relative importance of fresh fruits and melons increased 57 percent as favorable weather in the West resulted in record harvests with many crops maturing earlier than usual. Increased planted acreage, particularly for strawberries and some citrus fruits, resulted in a near-record output. Poor overseas apple crops helped spur an increase in the domestically grown product. In addition, the indexes for fresh and dry vegetables, confectionery end products, pork, and pasta recorded significant weight increases.

By contrast, the relative importance of eggs for fresh use dropped nearly 20 percent, as lower hatchings and more uses for processed eggs reduced demand. This caused prices to fall, further lowering the value of egg shipments. The relative importance of bakery products declined 18.5 percent as a result of the shift from 1987 to 1992 weights; the change reflected increased demand for lower priced goods. Consumer tastes shifted away from fried items such as pies and doughnuts toward healthier snack items. Sales of frozen baked goods declined as consumers switched to goods that did not require thawing or baking, while grocers limited freezer space for bakery goods, preferring instead to increase their space allocation for ice cream and other frozen desserts with a higher turnover rate. Decreases in relative importance also occurred for coffee and milled rice, as well as for shortening and cooking oils.

The relative importance of finished energy goods increased 0.6 percent, registering 13.443 based on 1992 weights. This category underwent a considerable structural change since the previous weight update. Residential elec-

tric power and natural gas components were added to the category in December 1990, with initial weights based on Department of Energy data for the value of shipments of these commodities in 1987. The weights were then moved forward on the basis of price changes between 1987 and 1990, compiled by the Energy Department in accordance with the normal PPI procedure for determining annual changes in relative importance.

The relative importance of residential electric power rose 12.4 percent. The two main factors accounting for this increase were the growing economy as the U.S. emerged from the 1990–91 recession and the differing weather conditions in 1987 and 1992. The summer of 1992 was relatively warm, which increased demand for electricity for cooling purposes, whereas the mild winter of 1987 resulted in diminished electrical demand.

During the 1987–92 period, the weights for both gasoline and heating oil (fuel oil no. 2) were relatively stable, with heating oil increasing 1.1 percent and gasoline falling 6.6 percent. This stability was a result of the continued glut of crude oil supplied primarily from international markets. During the 1990–91 Persian Gulf crisis, prices for crude oil almost doubled on the basis of fears of future shortages, even though other major producers increased production to offset the Iraqi and Kuwaiti losses. Following the Iraqi surrender, prices quickly fell to their original levels as the fears subsided and then dropped even lower with additional oil from the Middle East coming to market as countries began to finance the rebuilding of Kuwait and the increased military presence in the area.

The relative importance of residential natural gas dropped more than 22 percent since the previous update. Natural disasters took their toll on gas infrastructures in 1992, as production fell in the wake of damage to pipelines by Hurricane Andrew. Further, the winter of 1991–92 was relatively mild, diminishing the demand for gas for heating purposes.

The weight for the index for consumer goods less food and energy dropped 4.7 percent, recording a relative importance of 38.544. The index for footwear dropped more than 28 percent, as imports continued to erode the domestic market share. Even though the demand for footwear increased in 1992 as the United States emerged from the 1990–91 recession, domestic output still declined relative to imports. The phenomenon of increasing imports together with declining domestic production has existed since 1988, when orderly marketing agreements, which limited imports from the Far East, expired.

The relative importance of household glassware declined 16.9 percent, as manufacturers switched production from household glassware to the more profitable glass fibers for the growing fiberglass products industry. Increasing imports also eroded domestic producers' market share. The relative

importance of tobacco products fell more than 16 percent to 1.972, reflecting a trend of continuously decreasing consumption since 1987. Restrictions on where people can smoke, the declining social acceptance of smoking, and growing awareness of health risks related to smoking have reduced domestic demand for tobacco. Export production also declined in 1992 as companies licensed production to overseas manufacturers. Another factor partially accounting for the decline in the relative importance of tobacco products has been a gradual switch to generic cigarettes, which are less expensive than name brands, thus resulting in a lower overall value of shipments.

The relative importance of girls', children's, and infants' apparel declined more than 15 percent as imports increased and consumer buying habits shifted to discount and off-price stores, resulting in a lower value of shipments for these products. The relative importance of passenger cars fell 13.4 percent, chiefly because of declining consumer confidence, economic uncertainty in the wake of the recession of 1990–91, and stricter financing terms. Also, as prices and quality increased through the late 1980s and into the early 1990s, consumers tended to retain their existing vehicles for longer periods.

The relative importance of platinum and gold jewelry decreased as demand was restrained by the recession. Financial difficulties forced several major jewelry retailers to close many of their outlets in an attempt to cut costs, further reducing shipments. The relative importance of periodicals fell mainly because newsstand sales decreased as consumers exhibited more cautious purchasing patterns during the recession. Higher cover prices relative to subscription rates, reduced display space for an increasing number of magazines, and fewer outlets for publication sales diminished the demand for periodicals further. The failure rate of magazines picked up as advertising revenue declined in the wake of the recession, postal costs increased in 1991, and competition from other types of media grew.

By contrast, the relative importance of sporting goods expanded 31.1 percent. Greater interest sparked by the 1992 Olympic games drove demand higher, as people sought to participate in high-profile sports such as skiing, tennis, and hockey. Shipments of golf equipment continued to grow with the sport's steady increases in popularity; the value of shipments for golf equipment was almost 65 percent above the 1987 level.⁸

The relative importance of home electronic equipment increased more than 21 percent, fueled by rising demand for big-screen televisions and home theater products. Shipments of compact disc players have grown to the point where they are almost as widely used as televisions and videocassette recorders. This dramatic increase has also driven the audio component upgrade market, in the form of greater demand for higher quality amplifiers, receivers, and speakers. The relative importance of prescription pharmaceuticals rose

about 14 percent. As the general population continues to age, there is typically a greater utilization of medical care, of which prescription drugs are a vital component. In addition, many manufacturers raised prices during the 1987–92 period, particularly for patented medications, in an effort to offset hefty research and development costs.

Intermediate goods

The Producer Price Index for intermediate goods encompasses more items than do the indexes for the other stages of processing. Consequently, the shifts in relative importance within the intermediate stage-of-processing category exhibited a greater range than did those of finished goods or crude materials. The most prominent increases were recorded for the categories of energy goods, nondurable manufacturing materials, and foods and feeds. In contrast, the relative importance of construction materials and durable manufacturing materials declined.

The relative importance of intermediate energy materials edged up 0.3 percent, to 12.501, in December 1995. That of coke oven products increased more than 32 percent. Coke oven products are used mainly in the steel-manufacturing process. About half the ovens in use are more than 25 years old and do not burn coke as efficiently as newer ovens do. Although the Clean Air Act of 1990 requires that more environmentally "friendly" production methods be introduced by 1995, many companies did not feel compelled to invest in new technology at a time when profits lagged due to low steel prices. Thus, they continued to produce with existing technology, purchasing additional fuel for their less efficient ovens. In addition, the other widely used power source—electricity—increased in price more than 10 percent during the 1987–92 period.

The relative importance of liquefied petroleum gas rose 15.5 percent, principally due to strong demand for propane and butane. One of the main uses of propane is in the drying process for corn, and a record corn harvest in 1992 boosted demand dramatically. Liquefied petroleum gas is also used in the production of feedstock, which increased, too, as a result of the greater corn supply. Additionally, excess inventories of relatively inexpensive butane were used for winter-grade gasoline-blending operations. The relative importance of electric power advanced more than 10 percent as demand increased among both commercial (15.6 percent) and industrial (14.2 percent) users.⁹

The relative importance of utility natural gas, however, fell 38 percent. (Like the natural gas items, utility natural gas was added to the category of finished goods in December 1990.) The principal force contributing to this dramatic decline was the deregulation of the natural gas industry. Before 1987, commercial and industrial natural gas was purchased exclusively from utilities. Deregulation allowed com-

mercial and industrial customers to purchase gas from other sources and pay a fee to the utility companies to transport the gas through their pipelines. The result was declining natural gas shipments from utilities, which gradually went from being suppliers to being middlemen.

The relative importance of liquid asphalt declined about 22 percent. Shipments of this product are largely dependent on the construction industry, and in particular, on public road construction. In 1987, the amount spent on road construction was extremely high, thanks in part to the Surface Transportation Assistance and Uniform Relocation Act of that year, which renewed previous Federal highway aid programs through 1991. This legislation was not immediately renewed in 1991, however, thus delaying its further implementation until after the 1992 census survey was conducted. The delay resulted in a dramatic dropoff in the allocation of Federal highway funds in 1992. In addition, State and local government financial difficulties limited available funds for public construction projects. Significant declines in relative importance were also observed for kerosene, residual fuel, and gasoline.

The relative importance of nondurable manufacturing materials increased 1.1 percent, registering 16.240 as of December 1995. Within this category, the relative importance of medicinal and botanical chemicals rose more than 20 percent. Consumer health concerns have led to an increased interest in natural products, which has spurred companies to add more natural and herbal chemicals to their products. In addition, there has been an increase in pharmaceutical research into disease cures using extracts from natural flora.

The relative importance of phosphates increased 12 percent from the previous figure, as a strong export market in the late 1980s boosted shipments dramatically. While shipment levels have stabilized since 1990, they remain considerably higher than when the previous census was conducted in 1987. The relative importance of inedible fats and oils increased about 11 percent as export demand, particularly from the Far East, rose steadily since 1987. Noteworthy increases in relative importance were also observed for leather and basic organic chemicals.

The relative importance of synthetic fibers, on the other hand, declined more than 23 percent as the trend of consumers favoring natural fibers in apparel and household goods continued. The use of synthetic fibers in nonhousehold manufactured goods also declined as the 1990-91 recession slowed demand for consumer products manufactured with these fibers. Additionally, the closure in 1990 of a major synthetic fiber supplier further constrained industry output. The relative importance of gray fabrics fell 10.6 percent as the combination of the recession and overcapacity in the industry severely depressed output in the early 1990s. No-

ticeable decreases in relative importance also were registered for the categories of paint materials and prepared paint.

The relative importance of the foods and feeds category expanded 1.0 percent, registering 4.845 as of December 1995. This increase was led by natural and processed cheese, whose relative importance rose 19 percent since the last weight revision. Commercial manufacturers of frozen entrees and snack-type crackers utilized more cheese in their products, thus increasing shipment values from slightly less than \$13 million in 1987 to more than \$16 million in 1992.¹⁰ The relative importance of miscellaneous processed food grew 13.3 percent, reflecting a continued shift in consumer preferences from fast food to partially prepared meals. Within the category, nonfrozen perishable prepared foods, dairy product substitutes, peanut butter, food colorings, and dry mix preparations registered substantial increases. Considerable gains in relative importance were also observed for crude vegetable oils, miscellaneous meat products, and prepared animal feeds.

In contrast, a decline of more than 21 percent was noted for fluid milk products. Many dairy farmers left the industry in the early 1990s when prices started to fall after reaching peak levels in 1990. The result was diminishing supplies and thus lower levels of shipments. The relative importance of dry, condensed, and evaporated milk and of confectionery materials also declined significantly from 1987 to 1992.

The relative importance of the construction materials category dropped 10.2 percent, to 12.541 as of December 1995. Although mortgage rates fell from 10.2 percent in 1987 to 8.4 percent in 1992, total private construction activity declined 3.4 percent, from almost 328,700 units in 1987 to 317,300 units in 1992, reflecting the economic uncertainty that arose after the Persian Gulf conflict.¹¹ Housing starts declined from more than 1.6 million in 1987 to less than 1.2 million in 1992. Over the same period, the number of new housing permits authorized fell from more than 1.5 million to slightly less than 1.1 million.¹² Spending on private non-residential construction also declined, reflecting high vacancy rates for commercial buildings in most major cities, as well as more restrictive lending standards for real estate development. The drop in the relative importance of construction materials was driven by reduced shipments of wood-derived products, as restrictive logging policies stemming from environmental concerns in the Pacific Northwest reduced supplies of raw materials. The relative importance of plywood slumped 22 percent from 1987 to 1992. The demand for plywood was also affected by changing consumer tastes, with hardwood plywood falling out of favor as a paneling material relative to gypsum board. Shipments of softwood plywood declined as higher prices pushed many consumers to search for substitute products.

The relative importance of softwood lumber fell 19.4 percent, again reflecting the slowdown in housing starts and re-

duced supplies stemming from logging restrictions in the Pacific Northwest. The relative importance of plumbing fixtures and brass fittings declined more than 19 percent due to the construction slowdown, as well as a shift in consumer tastes from traditional metal and brass products to plastic-type plumbing products. The relative importance of concrete products and cement fell about 19 percent and 14 percent, respectively; these industries also suffered from the recession-dominated construction slowdown. Millwork shipments declined almost 16 percent, and the relative importance of nonferrous wire and cable also dropped significantly.

In contrast, the relative importance of plastic construction products increased 21 percent as their use, principally to replace metal pipes in plumbing fixtures, grew substantially due to their durability and the perception that they were better able than metal to reduce contaminants, especially in consumable water.

The relative importance of durable manufacturing materials fell 3.5 percent, to 11.189 as of December 1995. A substantial decrease of more than 20 percent was recorded for nonferrous mill shapes as slow recoveries, particularly in the automotive and construction industries in the wake of the 1990–91 recession, reduced demand. The categories of cement, cold rolled steel sheets and strips, prepared paint, and plywood also declined, again reflecting the slowdown in the construction industry and the general softness of the overall economy following the recession.

The relative importance of primary nonferrous metals, however, increased almost 20 percent. Aluminum shipments grew drastically as inventory levels on the London Metal Exchange reached all-time records in every month in 1992, while the weak dollar helped push exports to the Far East up dramatically. Domestic copper shipments were aided by supply problems in Zaire, another major copper producer, and increased demand from China, which has a limited production capability and needs raw copper to continue its economic expansion. Significant increases also occurred for building paper and board, cold finished bars, and hardwood lumber.

Crude goods

There was relatively little shifting of relative importance among the major components of crude goods as a result of the 1992 weight revision. The relative importance of basic industrial materials and crude foodstuffs and feedstuffs increased, while that of energy materials declined.

The relative importance of crude nonfood materials less energy rose 4.4 percent, to 23.736. The relative importance of nonferrous metal ores swelled 92.3 percent, as civil unrest and labor strikes in many major mining countries reduced mining activity, thus increasing demand for U.S. mined ore, both domestically and internationally. The relative importance of wastepaper rose more than 80 percent from 1987

to 1992. This dramatic increase reflects growing recycling efforts during the period. Many communities instituted mandatory policies as landfills rapidly filled up. The result was an incredible surge in wastepaper shipments, overwhelming recycling companies, which did not have enough capacity to process all available supplies. The relative importance of hardwood logs increased more than 30 percent as output grew in the South, where most forest land is privately owned and therefore not subject to Government regulations as strict as those imposed on much of the public land in the West. A greater number of Southern timber cuttings more than offset shortages of hardwood logs from the West. Significant increases in relative importance were also recorded for leaf tobacco and cattle hides.

In contrast, the relative importance of softwood lumber declined more than 34 percent as the industry was hit by the logging restrictions in the Pacific Northwest, but did not expand in the South due to the absence of softwood forests. In addition, the slowdown in construction resulted in decreased demand for many softwood lumber products, leading to even fewer shipments.

The relative importance of crude foodstuffs and feedstuffs climbed 2.6 percent, reaching 44.045. Within this category, the relative importance of fresh fruits and melons expanded by 63.9 percent. Strong domestic demand and increased exports resulted in a record value for the 1992 apple crop. Apple exports have been increasing each year since 1985. In 1992, reduced European supplies further spurred demand for American apples. Apple exports have also exploded to many countries in the Far East and Latin America since 1988, when trade barriers were reduced. In addition, mild weather resulted in many California growers recording larger than average harvests for many fruits. The relative importance of citrus fruit increased more than 50 percent as the planting area in Florida grew steadily from slightly more than 500,000 acres in 1986 to about 800,000 acres in 1992.¹³ The relative importance of slaughter hogs rose nearly 37 percent, thanks in part to record high production in 1992. Imports declined, with domestic producers picking up the slack. The relative weight of slaughter broilers advanced 16.2 percent as consumption of healthier meat products increased and export demand, particularly to the Far East and former Soviet countries, rose. Significant increases in relative importance also were recorded for raw cane sugar and fresh vegetables, except potatoes.

In contrast, the relative importance of Irish potatoes for processing fell 15.7 percent; although production increased, lower prices drove down the value of shipments to levels that lagged behind those reached in the late 1980s. The relative importance of unprocessed and packaged fish declined almost 16 percent; per-capita consumption declined from 16.2 pounds in 1987 to 14.8 pounds in 1992 as Government

regulations limited fishing grounds and the size of catches, resulting in a 12-percent increase in imports in order to keep up with demand.¹⁴ The relative importance of alfalfa hay also declined significantly as prices for alternative animal feeds dropped, making them more economical as nutrients for livestock.

The relative importance of crude energy materials fell 6.2 percent, to a level of 32.219. The weight for crude petroleum was responsible for this contraction, dropping 21.9 percent for many of the reasons discussed earlier. Additionally, field production declined more than 14 percent, while

imports rose more than 30 percent, as many Middle Eastern countries increased production in order to capture lost revenue and gain currency to rebuild following the Gulf War.¹⁵ The relative importance of coal grew 7.4 percent as demand increased from electric utilities, which rely principally on hydroelectric plants to generate much of their power. In 1992, dry conditions in the Western States diminished water levels, and thus hydroelectric activity, forcing many utilities to burn coal as a supplemental power source. The relative importance of natural gas to pipelines increased about 4 percent. □

Footnotes

¹ For a detailed analysis of the concepts underlying PPI weights, see *BLS Handbook of Methods*, Bulletin 2414 (Bureau of Labor Statistics, September 1992), Chapter 16, "Producer Prices."

² *Economic Report of the President—February 1994* (Washington, DC, February 1994).

³ *U.S. Industrial Outlook 1993* (U.S. Department of Commerce, International Trade Administration, January 1993).

⁴ A comprehensive listing of the revised (1992) and former (1987) weights can be found in the tables of relative importance that appear in *Supplement to Producer Price Indexes Data for 1995* (Bureau of Labor Statistics, forthcoming, August 1996). This supplement includes three tables of data on relative importance: table 10, which gives the relative importance of classes of subproducts, by detailed stage-of-processing category; table 11, which shows the relative importance of commodity groupings by major stage-of-processing category; and table 12, which lists the relative importance of commodity groupings and individual items with respect to the all-commodities index.

⁵ *Economic Report of the President*, table B-55.

⁶ *Poultry Yearbook 1995*, Statistical Bulletin 927 (U.S. Department of

Agriculture, Economic Research Service, December 1995), table 146. See also Ron L. Hetrick, "Why did employment expand in poultry processing plants?" *Monthly Labor Review*, June 1994, pp. 31-34.

⁷ *Poultry Yearbook 1995*, table 145.

⁸ *U.S. Industrial Outlook 1993*.

⁹ *Electric Power Monthly* (U.S. Department of Energy, Energy Information Administration, December 1993), table 51.

¹⁰ *U.S. Industrial Outlook 1993*.

¹¹ Information obtained from the Federal Home Loan Mortgage Corporation; see *Economic Report of the President*, table B-53.

¹² *Economic Report of the President*, table B-54.

¹³ *Agricultural Outlook* (U.S. Department of Agriculture, Economic Research Service, November 1992).

¹⁴ *Fisheries of the United States 1993* (U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service, May 1994).

¹⁵ *Petroleum Supply Monthly* (U.S. Department of Energy, Energy Information Administration, December 1993), table S1.