Historical Recycled Commodity Values
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Commodity markets are places to purchase and sell secondary (scrap) and primary (virgin) materials and agricultural products and livestock. Scrap materials include commonly recycled materials such as steel and aluminum cans, paper and paperboard, plastic containers and wrap, glass containers, rubber and tires and textile items. Primary materials include natural resources mined or extracted such as metals and oil.

Scrap[1] commodity markets set the price for materials that are being recycled, such as various types of paper or plastic. Manufacturers realize cost, energy and environmental savings when scrap commodities are used as raw materials instead of virgin materials.[2] The prices for these markets are determined by the perceived value of the commodity and the relative supply and demand at any given point in time. These markets provide us with an indication of the value of a specific recycled material at a given time. This could provide insight on how municipalities or other organizations responsible for recycling may change their behavior to promote recycling practices and the resulting prices could be a driver toward the overall incentive to recycle across the country.

For this analysis of historical recycled commodity values, we are focusing on the market set prices of a variety of postconsumer paper, glass, plastics and steel and aluminum cans, which represent a subset of all recycled commodity markets. The postconsumer commodities chosen for this analysis represent commonly collected products by municipalities in the early 1990s providing robust historical market data and reflect products tracked by EPA in the Facts and Figures series.[3]

Recycled Commodity Data

Table 1 shows available commodity values for high-density polyethylene (HPDE) natural bottles, polyethylene terephthalate (PET) clear bottles, aluminum used beverage cans (UBC), steel cans, old newspaper (ONP), old corrugated containers (OCC), paper stock (PS) 1 (soft mixed paper) and three types of glass from 1990 to 2018, normalized to 2018 dollars ($2018) using the Consumer Price Index (CPI) from the Bureau of Labor Statistics (BLS) to account for inflation. Data were not available for ONP, metals, plastics and glass in 1997 and 1998. For plastics, glass and metals, there was a transition in data sources due to sources being discontinued between 1996 and 1999 and between 2004 and 2005, so some of the change between years could be due to the methodology of the data source for capturing data.

[1] Scrap can refer to both postconsumer as well as pre-consumer commodities; however, this memorandum addresses postconsumer commodity values only.

[2] Institute of Scrap Recycling Industries (ISRI) 2020. *2019 Recycling Industry Yearbook*. https://www.isri.org/recycling-commodities/recycling-industry-yearbook

[3] U.S. EPA. *Advancing Sustainable Materials Management: Facts and Figures Report*. https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/advancing-sustainable-materials-management

There has been a general downward trend in commodity values from 2010 to 2018 except HDPE and glass; all three glass types have increased in price during that time period. The average U.S. scrap commodity values shown in Table 1 are from single source data for each year and may not reflect local or regional conditions.

Table 1. Recycled Commodity Values by Year ($2018 per ton)

Year	HDPE Natural[a]	PET Clear[b]	Aluminum UBC[c]	Steel Can[d]	ONP (6)[e]	OCC (11)[f]	Soft Mixed Paper (1)[g]	Glass Flint[h]	Glass Amber[i]	Glass Green[j]
1990	$267	$290	$1,998	$136	$23	$65	$7	$45	$44	$42
1991	$245	$218	$1,615	$100	$29	$72	$3	$20	$14	$9
1992	$240	$231	$1,362	$113	$23	$54	$9	$12	$8	$3
1993	$259	$240	$1,116	$118	$28	$47	$8	$15	$12	$7
1994	$346	$264	$1,564	$115	$81	$132	$49	$23	$17	$9
1995	$677	$618	$2,126	$107	$163	$211	$111	$27	$21	$14
1996	$341	$432	$1,719	$94	$37	$82	$5	$18	$13	$3
1997						$119	$13			
1998						$83	$20			
1999	$348	$209	$956	$17	$20	$106	$37	$41	$40	$12
2000	$546	$374	$1,065	$26	$40	$115	$70	$40	$38	$11
2001	$366	$301	$929	$20	$26	$57	$28	$37	$35	$4
2002	$373	$206	$856	$31	$32	$95	$41	$37	$29	-$7
2003	$445	$318	$863	$52	$68	$91	$67	$34	$22	-$3
2004	$594	$433	$862	$84	$84	$119	$87	$33	$21	-$2
2005	$828	$540	$1,628	$197	$83	$108	$77	$32	$19	$1
2006	$780	$361	$2,057	$208	$71	$97	$68	$32	$19	$6
2007	$779	$435	$2,053	$235	$104	$145	$114	$33	$22	$11
2008	$786	$405	$1,950	$225	$93	$120	$94	$36	$19	$10
2009	$458	$247	$1,236	$95	$45	$69	$49	$28	$14	$8
2010	$605	$453	$1,694	$138	$83	$160	$98	$28	$14	$8
2011	$764	$702	$1,908	$136	$93	$182	$124	$29	$19	$9
2012	$664	$508	$1,640	$134	$66	$136	$88	$31	$25	$12
2013	$710	$422	$1,567	$131	$57	$130	$69	$31	$25	$12
2014	$927	$414	$1,619	$129	$54	$113	$59	$30	$24	$12
2015	$597	$273	$1,330	$82	$51	$92	$55	$31	$25	$11
2016	$597	$210	$1,182	$34	$50	$99	$66	$31	$28	$14
2017	$587	$289	$1,352	$30	$51	$147	$67	$32	$28	$12
2018	$729	$309	$1,432	$29	$30	$81	$6	$33	$28	$11

[a] baled; end user; 2005-2018 (Secondary Fibers Pricing (SFP) and Secondary Materials Pricing (SMP), 2020); 1999-2004 (Waste News); 1990-1996 (Recycling Times)

[b] baled; end user; 2005-2018 (SFP and SMP, 2020); 1999-2004 (Waste News); 1990-1996 (Recycling Times)

[c] loose price, end user; 2005-2018 (SFP and SMP, 2020); 1999-2004 (Waste News); 1990-1996 (Waste Age Recycling Times)

[d] sorted, densified, end user; 2005-2018 (SFP and SMP, 2020); 1999-2004 (Waste News); 1970-1996 (Waste Age Recycling Times)

[e] mill, Free on Board (FOB) seller's dock; 2003-2017 (SFP and SMP, 2020); 1999-2002 (Waste News); 1970-1996 (Paper Recycler) 2018 (SFP and SMP, 2020) changed to (56) Sorted Residential Papers & News (SRPN) as ONP (6) was discontinued: Consists of sorted newspapers, junk mail, magazines, printing and writing papers and other acceptable papers generated from residential programs (such as residential household and apartment collections and drop-off centers) sorted and

processed at a recycling facility. Material should be free of containerboard and brown grades (OCC, Kraft bags, boxboard and Kraft carrier board). Prohibitive Materials may not exceed 2%. Outthrows may not exceed 3%

[f] mill, FOB seller's dock; 2003-2018 (SFP and SMP, 2020); 1970-2002 (Paper Recycler)

[g] FOB seller's dock; 2003-2017 is soft mixed paper (1) (last year data are available) (SFP and SMP, 2020), consisting of a clean, sorted mixture of various qualities of paper not limited as to type of fiber content. Prohibitive Materials may not exceed 1%. Outthrows plus prohibitives may not exceed 5%; 1983-2002 (Pulp & Paper) and 2018 (SFP and SMP, 2020) is mixed paper (54) consisting of all paper and paperboard, sorted mixture of various qualities of paper not limited as to type of fiber content. Prohibitive Materials may not exceed 2%. Outthrows plus prohibitives may not exceed 3%

[h] delivered; end user; 2005-2018 (SFP and SMP, 2020); 1999-2004 (Waste News); 1989-1996 (Waste Age Recycling Times)

[i] delivered; end user; 2005-2018 (SFP and SMP, 2020); 1999-2004 (Waste News); 1989-1996 (Waste Age Recycling Times)

[j] delivered; end user; 2005-2018 (SFP and SMP, 2020); 1999-2004 (Waste News); 1989-1996 (Waste Age Recycling Times)

Figures 1a and 1b present different visualizations of the trends in commodity prices from 1990 to 2018 shown in Table 1.

Figure 1a shows the indexed values by year for all recycled commodities shown in Table 1 (three glass types were averaged). The values are normalized to 2018 using the Consumer Price Index (CPI) from the Bureau of Labor Statistics (BLS). They are indexed to allow commodity values with different metrics, such as dollars per ton, dollars per gross ton and dollars per short ton, to be shown on the same graph and to compare their relative rates of change. The indexed value indicates the change in value of the data since 1990, where one is equal to the value in 1990. For example, an indexed value of two would mean that the commodity value for that year would be two times the 1990 value.

This figure shows similar trends across all commodities for indexed values, where one is equal to the value in 1990. For example, all commodity values spiked in 1995, except steel cans, and dipped in 2009. Many commodities also experienced a price spike in 2000, 2007, and 2011. In contrast, the indexed lines for glass, aluminum and steel cans appear to fluctuate less frequently. Additionally, ONP, OCC, and mixed paper all dropped in 2018.

Figure 1b shows the indexed values by year for all recycled commodities, except soft mixed paper. Soft mixed paper is excluded to allow for reduction of the vertical axis and expansion of the graphical depiction of the other commodities.

Figure 1a. Indexed Recycled Commodities by Year

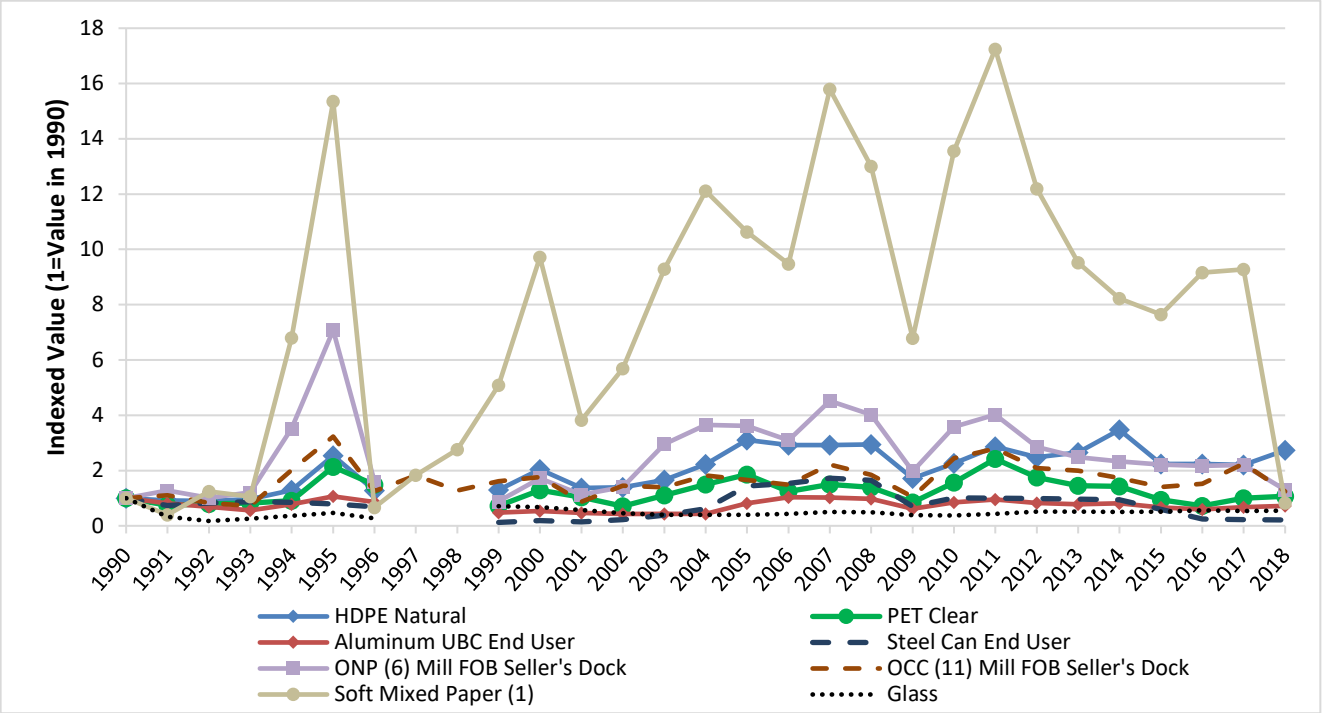
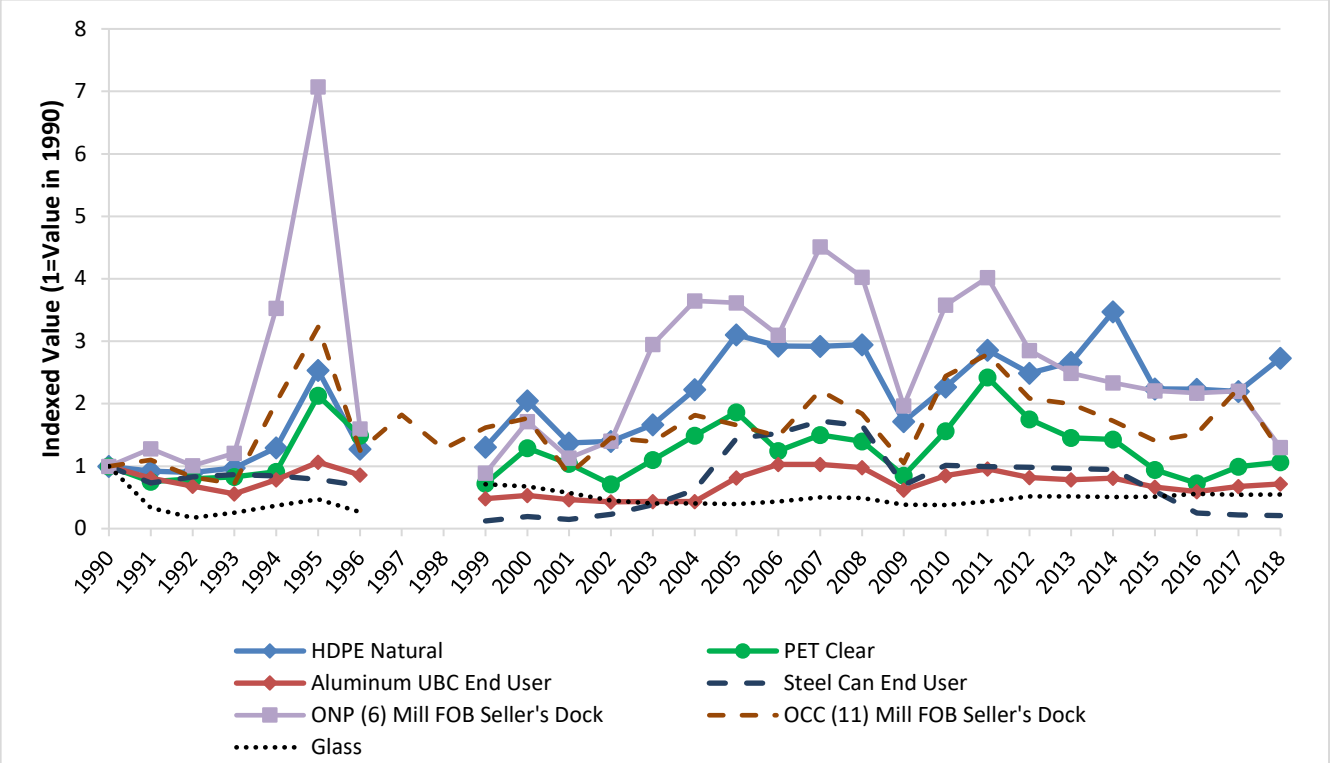


Figure 1a. Indexed Recycled Commodities by Year (excludes soft mixed paper)



References

Pulp & Paper Global Fact & Price Book, 2003-2004. Page 128. Paperloop, Inc. 2004.

Secondary Materials Pricing and Secondary Fiber Pricing. Recyclingmarkets.net (2020). Downloaded February 2020. Available at http://www.recyclingmarkets.net/ (for-purchase data).

1970 to 2004 historical data tabulated from weekly or monthly industry publications and averaged annually during the time periods shown. Publications included *Waste Age Recycling Times*, *Waste News*, *Paper Recycler,* Miller Freeman, Inc