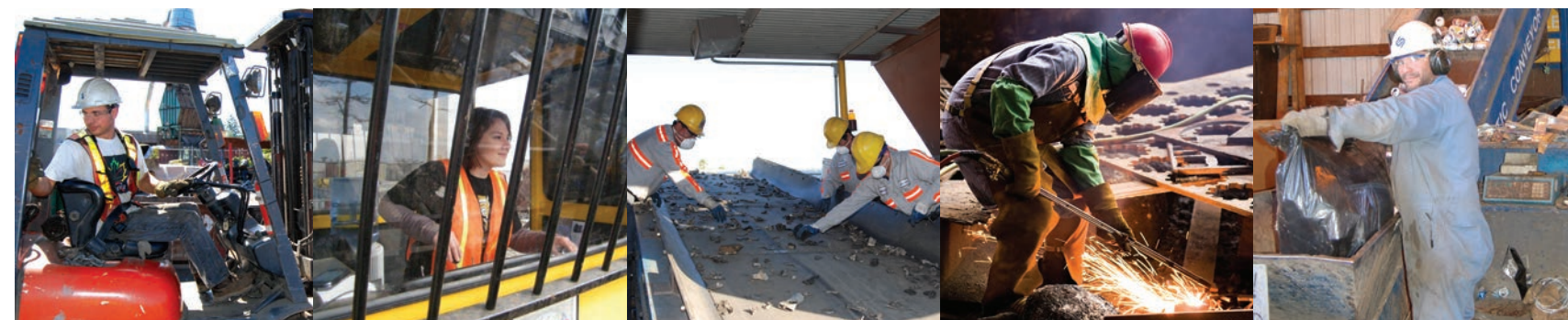


Economic Impact Study

U.S.- Based Scrap Recycling Industry
2015



Prepared for
the **Institute
for Scrap
Recycling
Industries, Inc.**

Executive Summary



Scrap recycling is a major U.S.-based industry dedicated to transforming end-of-life products and industrial scrap into new commodity grade materials and driving economies by making the old, new again. Recognized as one of the world's first green industries, scrap recycling creates and supports jobs and has a positive impact on the environment by reducing greenhouse gas emissions, saving energy, and protecting our natural resources.

In 2015, the Institute of Scrap Recycling Industries, Inc. (ISRI) retained the independent economic consulting firm of John Dunham and Associates



(guerrillaeconomics.com) to perform an economic impact analysis to document the size and scope of the scrap recycling industry in the United States and document its significant contribution to the U.S. economy, in terms of employment, tax generation, and overall economic benefit.

The U.S. scrap recycling industry is not only a thriving economic engine, but also a pivotal player in environmental protection, resource conservation, and sustainability. The industry recycled more than 135 million metric tons of materials in 2014, transforming outdated or obsolete scrap into useful raw materials needed to produce a range of new products.¹

	Direct	Supplier	Induced	Total
Jobs	149,010	171,350	151,227	471,587
Wages	\$11,496,501,800	\$11,344,450,100	\$7,950,256,600	\$30,791,208,500
Economic Impact	\$45,644,002,300	\$35,727,836,800	\$24,442,618,900	\$105,814,458,000

Recycling reduces greenhouse gas emissions by significantly saving the amount of energy needed to manufacture the products that we buy, build, and use every day. The energy saved by recycling may then be used for other purposes, such as heating our homes and powering our automobiles.

In addition to being an environmental steward, the study confirmed that the U.S. scrap recycling industry plays a prominent role as an economic leader, job creator, and major exporter. Specifically, the study found that the people and firms that purchase, process, and broker old materials to be manufactured into new products in America provide 471,587 adults with good jobs in the United States² and generate more than \$105.81 billion annually in economic activity.



¹ Data from The ISRI Scrap Yearbook 2014, Institute of Scrap Recycling Industries, Inc. (ISRI)

² Based on the Economic Impact of the Scrap Recycling Industry in the United States (2015), produced for the Institute of Scrap Recycling Industries, Inc. (ISRI) by John Dunham and Associates, 2015.

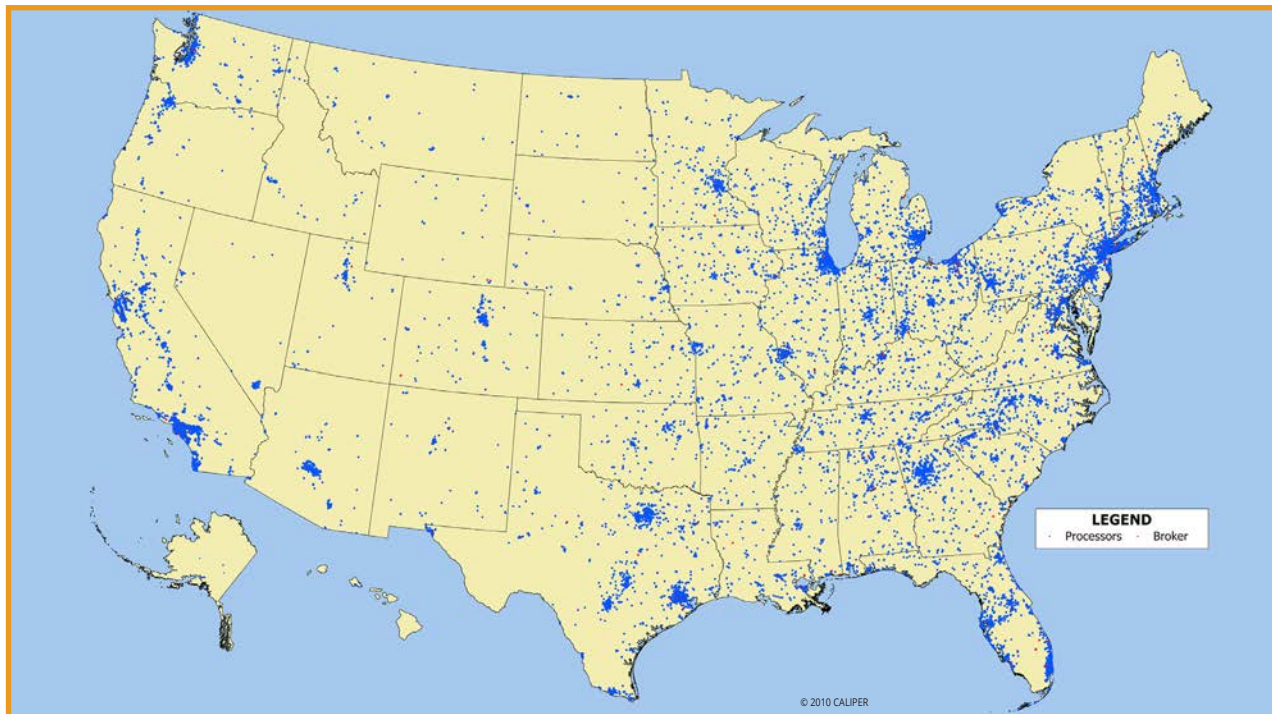
Summary of Findings

Employment: Source of Green

While many in the public policy world talk about the need for more green jobs, the scrap recycling industry has already been creating these environmentally friendly jobs and other opportunities here in the United States for decades. The study found that in 2015, 149,010 jobs are being supported by the manufacturing and brokerage operations of the scrap recycling industry in the United States.³ These are good jobs paying an average of \$77,153 in wages and benefits to American workers. In addition to this, 322,577 jobs throughout the U.S. economy are indirectly supported by the scrap recycling industry through suppliers and the indirect impact of the industry's expenditures.⁴

“The economic benefits generated by the scrap recycling industry are widespread.”

U.S. Scrap Recycling Industry Facilities



These are real people with real jobs -- not only in firms that process scrap materials into new, usable commodity inputs, but in firms that supply the industry with recycled materials, like auto yards and independent peddlers, as well as firms that supply machinery, trucks, and services to processors. In addition, thousands of people in industries seemingly unrelated to scrap materials recycling, from servers in restaurants, to construction workers, to teachers in local schools, depend on the re-spending of the wages and taxes paid by scrap recycling industry to their workers and suppliers.

The economic benefits generated by the scrap recycling industry are widespread. Not only are scrap facilities located in every state throughout the country and in both urban and rural communities, but the firms that supply materials, goods, and services to processors and brokers are also located in every part of the country. This means that the U.S. scrap recycling industry provides good-paying jobs in every state in the union. The study results are broken down by state, congressional district, and state legislative districts at ISRI.org/jobstudy.

³ This includes firms involved in the purchasing, processing, and brokering of scrap materials including ferrous and nonferrous metals, paper, electronics, rubber, plastics, glass, and textiles.
⁴ Direct impacts are those associated with scrap processors and brokers. Supplier impacts are associated with firms providing goods and services to scrap recyclers and brokers, including peddlers, and induced impacts are those resulting from the re-spending of wages by workers in the direct and supplier sectors.

Overall Economic Activity

The activities of the scrap recycling industry in the United States generate nearly \$105.81 billion annually in economic benefits here at home. All told, the U.S. scrap recycling industry accounts for 0.68 percent of the nation's total economic activity,⁵ making it similar in size to the data processing and hosting industry, the dental industry, and the automotive repair industry.



Tax Revenues to Federal, State, and Local Governments

The scrap recycling industry generates substantial revenues for state and local governments throughout the United States, as well as for the federal government.

- The industry generates about \$4.39 billion in state and local revenues annually, revenues that are used to help communities and people throughout the country.
- Another \$6.76 billion in federal taxes are paid annually by the industry and its employees.

Export Activities: Creating Thousands of Jobs Here at Home



Scrap commodities are among the nation's largest exports by value, and overall, exports account for 26.79 percent of the industry's economic activity. These exports create approximately 125,276 good green jobs in the United States and help strengthen the national economy. According to the study, in 2015, 39,022 jobs are directly supported by the export activities associated with the processing and brokerage operations of scrap recyclers operating in the United States.⁶ An additional 86,254 jobs are supported by supplier operations and through the indirect effects of scrap recycling exports. These jobs pay a total of \$5.43 billion in wages. All of this

activity generates \$28.34 billion in economic benefits in the United States and contributes \$1.31 billion in tax revenues for the federal government and \$1.65 billion in state and local taxes.

Summary Table: Economic Impact of U.S. Scrap Recycling Exports

	Direct	Supplier	Induced	Total
Jobs	39,022	46,023	40,231	125,276
Wages	\$3,082,127,100	\$3,189,718,500	\$2,241,913,200	\$8,513,758,800
Economic Impact	\$12,086,507,400	\$9,575,993,600	\$6,682,391,100	\$28,344,892,100

This is because scrap materials that are intended for export must be collected, separated, and prepared for transport out of the United States. The steps in this process provide well-paying U.S. jobs.

5 Bureau of Economic Analysis. GDP based on fourth quarter 2014, value of \$17.703 trillion, see: *Gross Domestic Product: Fourth Quarter and Annual 2014* (Third Estimate); *Corporate Profits: Fourth Quarter and Annual 2014*, March 27, 2015.

6 This includes firms involved in the purchasing, processing, and brokering of scrap materials including ferrous and nonferrous metals, paper, electronics, rubber, plastics, glass, and textiles.

In fact, were it not for these export markets, many materials, including post-consumer paper and electronics, would probably not be recycled at all simply because there is limited demand for them in the United States.⁷ By opening up new markets, the nation's recycled materials producers create demand for materials that might otherwise end up in landfills.

In the case of electronic products, for example, there simply is not enough demand in the United States for the more expensive post consumer materials, including gold and titanium, that may be smelted out of circuit boards, capacitors, and other electronic parts. On the other hand, countries like India, where demand for gold is particularly high,

“The scrap industry is the first link in the global supply chain for the growing demand of all manner of commodities...”

see value in these materials.⁸



The scrap industry is the first link in the global supply chain for the growing demand of all manner of commodities ranging from iron and steel to paper, nonferrous metals such as aluminum, copper, and zinc, plastics, electronics, rubber, and more. The result is economic and environmental sustainability for our nation and our world through the supply of high quality, environmentally-friendly and energy saving raw materials to the global marketplace.

In 2014, the industry exported nearly \$21 billion in commodity grade scrap products to more than 160 countries, significantly helping the U.S. balance of trade. In fact, in terms of volume, scrap materials are

among the nation's largest commodity exports, in line with other important commodity export products like grain and corn, cotton, timber, and petroleum. The scrap materials processed in the United States are exported to other countries for manufacture into new products. Rather than encouraging the use of virgin materials, America's recycled materials help reduce worldwide energy demand and greenhouse gases as well as the need to mine and harvest virgin materials.

Economic Benefits of Exporting Scrap Commodities Are No Different Than Those That Occur Exporting Any Other Product

International trade is an important part of the American economy. In 2014, nearly \$2.344 trillion in goods and services were exported from the United States, and about \$2.849 trillion were imported.⁹ More than 38 million Americans work for companies that engage in international trade, according to the U.S. Chamber of Commerce, and one in four manufacturing jobs depends on exports.¹⁰



7 One reason that so much waste paper is sent to China for reprocessing is that wood pulp is very expensive in Asia. In the United States, on the other hand, integrated paper manufacturers use a mixture of pre- and post-consumer recycled paper as well as wood pulp from specially raised forests to manufacture paper products.

8 India accounted for over one-quarter of world gold demand in the 2014. Together, India and China accounted for about 53 percent of world demand. The United States, on the other hand accounted for just about 5 percent. About 9 percent of India's gold comes from recycled materials. See Gold Demand Trends Full Year 2014 (<http://www.gold.org/supply-and-demand/gold-demand-trends>), World Gold Council, February 2015.

9 *US International Trade in Goods and Services: February 2015*, Press Release, US Department of Commerce, Bureau of Economic Analysis, April 17, 2015. Available on-line at: https://www.census.gov/foreign-trade/Press-Release/current_press_release/

10 *The Benefits of International Trade* (2014), US Chamber of Commerce, accessed April 2015, on-line at: <https://www.uschamber.com/international/international-policy/benefits-international-trade-0>

The U.S. International Trade Association projects that U.S. exports supported an estimated 11.7 million jobs in 2014, up from 11.4 million in 2013.¹¹

To suggest that the export of recycled commodities would somehow destroy jobs in the United States is no different than stating that the export of corn, or of coal, or of cotton, somehow takes away American jobs. In fact, President Barack Obama, in his first State of the Union address to Congress, highlighted exports as a pillar of economic growth on which the country will depend in the future.¹²

Economic and Job Impacts on a State-by-State Level

Economic Contribution of Scrap Recycling Industry, 2015
(\$ 000)
All Industries

	Direct			Suppliers			Induced			Total		
	Jobs	Wages	Output	Jobs	Wages	Output	Jobs	Wages	Output	Jobs	Wages	Output
Alabama	2,761	\$204,013	\$907,604	3,309	\$185,810	\$667,696	2,437	\$102,321	\$351,782	8,507	\$492,144	\$1,927,082
Alaska	201	\$18,573	\$61,911	271	\$24,585	\$94,054	234	\$11,988	\$38,135	706	\$55,146	\$194,100
Arizona	2,829	\$352,417	\$1,082,820	3,327	\$210,073	\$665,397	3,763	\$185,658	\$579,104	9,919	\$748,148	\$2,327,320
Arkansas	1,412	\$86,056	\$392,435	1,459	\$78,608	\$294,086	1,174	\$48,790	\$179,907	4,045	\$213,454	\$866,427
California	17,141	\$1,362,434	\$5,122,638	21,382	\$1,543,308	\$4,397,632	16,999	\$1,047,445	\$3,031,064	55,522	\$3,953,186	\$12,551,334
Colorado	1,917	\$223,797	\$609,318	2,162	\$155,702	\$443,038	2,535	\$136,509	\$398,433	6,614	\$516,009	\$1,450,789
Connecticut	1,406	\$122,651	\$437,581	1,269	\$109,779	\$311,987	1,339	\$91,438	\$290,340	4,014	\$323,868	\$1,039,908
Delaware	173	\$13,018	\$56,240	226	\$17,360	\$68,378	268	\$14,307	\$50,415	667	\$44,685	\$175,033
District of Columbia	58	\$5,589	\$33,113	173	\$22,470	\$40,562	272	\$24,215	\$39,760	503	\$52,274	\$113,434
Florida	7,082	\$497,395	\$1,804,691	8,736	\$494,723	\$1,398,691	8,951	\$439,371	\$1,295,157	24,749	\$1,431,489	\$4,498,540
Georgia	5,154	\$345,595	\$1,599,666	6,489	\$396,961	\$1,168,632	5,121	\$252,471	\$781,616	16,764	\$995,027	\$3,549,914
Hawaii	357	\$26,416	\$88,689	464	\$30,584	\$81,299	464	\$21,388	\$59,048	1,285	\$78,388	\$229,036
Idaho	456	\$25,527	\$127,519	611	\$32,439	\$116,467	559	\$22,685	\$78,903	1,626	\$80,652	\$322,889
Illinois	7,329	\$722,391	\$2,546,430	8,357	\$629,683	\$1,847,730	7,859	\$452,302	\$1,339,956	23,545	\$1,804,376	\$5,734,115
Indiana	4,556	\$340,228	\$1,807,481	5,198	\$306,431	\$1,196,236	4,090	\$184,230	\$639,647	13,844	\$830,889	\$3,643,364
Iowa	1,913	\$103,602	\$601,963	1,890	\$99,073	\$374,017	1,541	\$67,306	\$254,017	5,344	\$269,981	\$1,229,996
Kansas	1,232	\$79,611	\$300,813	1,170	\$63,179	\$232,595	1,186	\$54,513	\$198,316	3,588	\$197,304	\$731,723
Kentucky	2,808	\$179,938	\$867,086	3,056	\$169,807	\$612,239	2,311	\$97,907	\$323,388	8,175	\$447,651	\$1,802,713
Louisiana	1,902	\$134,256	\$454,589	1,936	\$119,973	\$637,105	1,832	\$84,631	\$287,673	5,670	\$338,860	\$1,379,366
Maine	649	\$35,509	\$148,542	723	\$37,964	\$110,284	617	\$25,532	\$77,290	1,989	\$99,005	\$336,116
Maryland	1,680	\$123,833	\$496,953	1,860	\$129,012	\$349,015	1,857	\$107,017	\$276,609	5,397	\$359,861	\$1,122,577
Massachusetts	2,946	\$250,652	\$859,033	3,155	\$256,529	\$637,664	3,037	\$197,965	\$500,401	9,138	\$705,146	\$1,997,098
Michigan	5,129	\$373,712	\$1,579,780	6,134	\$382,205	\$1,248,388	5,410	\$257,852	\$851,907	16,673	\$1,013,770	\$3,680,075
Minnesota	2,232	\$148,343	\$603,754	2,847	\$200,556	\$681,174	2,602	\$140,850	\$477,644	7,681	\$489,750	\$1,762,572
Mississippi	991	\$60,238	\$281,572	1,178	\$58,798	\$233,054	971	\$38,040	\$138,985	3,140	\$157,075	\$653,610
Missouri	3,572	\$241,891	\$1,028,908	3,379	\$200,800	\$601,836	3,204	\$151,490	\$472,151	10,155	\$594,182	\$2,102,895
Montana	372	\$25,823	\$161,882	398	\$22,736	\$89,238	396	\$15,022	\$46,930	1,166	\$63,581	\$298,051
Nebraska	930	\$60,594	\$305,637	1,083	\$64,491	\$218,273	952	\$43,368	\$149,987	2,965	\$168,452	\$673,896
Nevada	1,261	\$92,190	\$321,423	1,240	\$87,641	\$280,213	1,106	\$52,855	\$158,098	3,607	\$232,685	\$759,734
New Hampshire	888	\$47,321	\$164,523	631	\$39,197	\$113,267	621	\$31,385	\$90,450	1,940	\$117,902	\$368,240
New Jersey	5,353	\$482,772	\$1,683,489	4,642	\$364,339	\$975,321	4,088	\$258,404	\$736,426	14,083	\$1,105,515	\$3,395,236
New Mexico	518	\$37,321	\$153,498	585	\$34,633	\$128,017	603	\$25,744	\$76,558	1,706	\$97,698	\$358,072
New York	7,032	\$546,762	\$2,171,996	7,920	\$691,908	\$1,765,878	7,221	\$499,394	\$1,318,510	22,173	\$1,738,064	\$5,256,384
North Carolina	4,881	\$291,901	\$1,277,571	5,466	\$302,679	\$972,884	4,399	\$208,615	\$694,156	14,746	\$803,194	\$2,944,610
North Dakota	238	\$22,438	\$150,729	214	\$13,951	\$59,318	281	\$13,947	\$45,005	733	\$50,337	\$255,052
Ohio	8,750	\$626,992	\$2,638,805	9,702	\$590,580	\$1,917,421	8,228	\$388,121	\$1,237,174	26,680	\$1,605,693	\$5,793,400
Oklahoma	1,336	\$79,746	\$390,815	1,734	\$97,325	\$381,140	1,427	\$64,059	\$228,454	4,497	\$241,130	\$1,000,408
Oregon	2,189	\$169,611	\$617,632	2,596	\$163,584	\$529,109	2,236	\$104,007	\$404,002	7,021	\$437,202	\$1,550,742
Pennsylvania	7,089	\$534,598	\$2,450,096	8,214	\$563,253	\$1,784,246	6,947	\$370,680	\$1,103,944	22,250	\$1,468,531	\$5,338,286
Rhode Island	725	\$51,425	\$207,379	569	\$35,812	\$101,426	534	\$26,727	\$75,462	1,828	\$113,964	\$384,267
South Carolina	2,665	\$252,908	\$787,000	2,840	\$164,711	\$525,816	2,864	\$114,588	\$369,280	8,369	\$532,206	\$1,682,096
South Dakota	234	\$11,140	\$58,167	281	\$13,034	\$55,224	303	\$12,252	\$46,675	818	\$36,426	\$160,066
Tennessee	4,428	\$338,963	\$1,380,729	5,064	\$298,935	\$938,296	4,268	\$208,580	\$643,270	13,760	\$846,478	\$2,962,294
Texas	11,947	\$946,889	\$3,736,206	15,444	\$1,045,558	\$3,881,846	13,003	\$688,874	\$2,250,172	40,394	\$2,681,321	\$9,868,224
Utah	887	\$71,136	\$253,534	1,172	\$67,966	\$253,459	1,269	\$56,771	\$189,209	3,328	\$195,872	\$696,202
Vermont	221	\$13,092	\$56,744	231	\$10,923	\$39,405	243	\$9,902	\$29,588	695	\$33,918	\$125,738
Virginia	2,970	\$209,987	\$936,692	3,186	\$227,779	\$619,407	2,747	\$152,658	\$429,542	8,903	\$590,424	\$1,985,640
Washington	2,831	\$277,880	\$957,225	3,172	\$230,533	\$693,202	3,185	\$175,154	\$533,293	9,188	\$683,567	\$2,183,721
West Virginia	696	\$37,606	\$148,017	782	\$54,146	\$205,697	578	\$23,449	\$79,846	2,056	\$115,201	\$433,561
Wisconsin	2,743	\$180,001	\$699,330	3,188	\$183,382	\$596,317	2,912	\$139,016	\$465,439	8,843	\$502,399	\$1,761,086
Wyoming	160	\$9,722	\$33,759	235	\$18,946	\$94,164	183	\$8,466	\$29,505	578	\$37,134	\$157,427
Total	149,010	\$11,496,502	\$45,644,002	171,350	\$11,344,450	\$35,727,837	151,227	\$7,950,257	\$24,442,619	471,587	\$30,791,209	\$105,814,458

John Dunham and Associates: 2015

The study also calculated the impact of the U.S.-based scrap recycling industry on a state-by-state basis (as well as by state legislative district). The table above summarizes those impacts. Specific tables -- by state, congressional district, and state legislative district -- can be found at ISRI.org/jobstudy.

11 *Jobs Supported by Exports 2014: An Update*: March 4, 2015, International Trade Association. Available on-line at: http://www.trade.gov/mas/ian/build/groups/public/@tg_ian/documents/webcontent/tg_ian_005406.pdf

12 *International Trade Administration*, ITA News Letters. Available on-line at: http://trade.gov/press/publications/newsletters/ita_0210/nei_0210.asp

Study Methodology

The Scrap Recycling Industry Economic Impact Study estimates the economic contributions made by the various components of the scrap processing industry to the U.S. economy in 2015. John Dunham and Associates conducted this research, which was funded by the Institute of Scrap Recycling Industries, Inc. (ISRI). This work used standard econometric models maintained by the IMPLAN Group LLC. Data came from industry sources, government publications, and Dun and Bradstreet, Inc. (D&B). The study defines the scrap recycling industry as firms in the private sector involved in the processing and brokerage of scrap metals, plastics, rubber, paper, textiles, glass, and electronics. The study measures the number of jobs in the sector, the wages paid to employees, the value added, and total output.

The study also estimates taxes paid by the industry and its employees. Federal taxes include industry-specific excise and sales taxes, business and personal income taxes, FICA, and unemployment insurance. State and local tax systems vary widely. Direct retail taxes include state and local sales taxes, license fees, and applicable gross receipt taxes. Processors pay real estate and personal property taxes, business income taxes, and other business levies that vary in each state and municipality. All entities engaged in business activity generated by the industry pay similar taxes.

The economic impact study begins with an accounting of the direct employment in the processing of recycled scrap materials and the materials brokerage sectors. The data come from a variety of government and private sources. It is sometimes mistakenly thought that initial spending accounts for all of the impact of an economic activity or a product. For example, at first glance it may appear that consumer expenditures for a product are the sum total of the impact on the local economy. However, one economic activity always leads to a ripple effect whereby other sectors and industries benefit from this initial spending. This inter-industry effect of an economic activity can be assessed using multipliers from regional input-output models.

Industries are linked to each other when one industry buys from another to produce its own products. Each industry in turn makes purchases from a different mix of other industries, and so on. Employees in all industries extend the economic impact when they spend their earnings. Thus, economic activity started by the scrap recycling industry is linked to other industries in the state and national economies. The activities required to process a ton of scrap iron; from sorting, to cutting, to baling, to shipping, generate the direct effects on the economy. Regional (or indirect) impacts occur when these activities require purchases of goods and services, such as machinery or electricity, from local or regional suppliers. Additional induced impacts occur when workers involved in direct and indirect activities spend their wages. The ratio between induced economic and direct impact is termed the multiplier.

Once the direct impact of the industry has been calculated, the impact of supplier firms, and the "Induced Impact" of the re-spending by employees of industry and supplier firms, is calculated using an input/output model of the United States. The study calculates the impact on a national basis, by state, by congressional district, and by state legislative district.

This method of analysis allows the impact of local production activities to be quantified in terms of final demand, earnings, and employment in the states and the nation as a whole. In the case of the ISRI model, only the most conservative estimate of the induced impact has been used.

Additional detail on the methodology used for this study can be found in ISRI.org/jobstudy.



*Scrap Recycling Industry Impact
Summary and Methodology John
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