

Economic Benefits of the Recycling Industry in Missouri

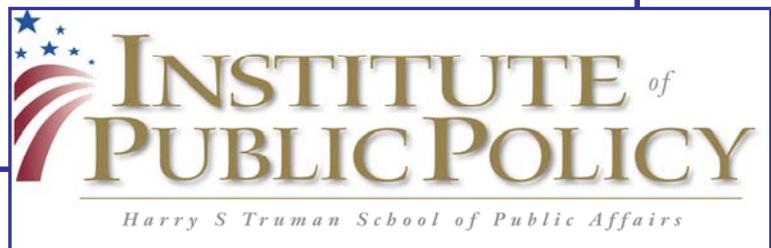
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Based upon the Missouri Recycling Economic Information Study (MOREIS) submitted to the Department of Natural Resources. Conclusions are those of the authors, not necessarily the Department of Natural Resources.



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Ann Ulmer & David Valentine ¹

The recycling, remanufacturing, and reuse industry (RRR) plays an important role in Missouri by reducing the use of raw natural resources and by reducing energy consumption. Recycling activities also provide important economic benefits beyond environmental benefits. The Missouri Recycling Economic Information Study (MOREIS), funded by the Environmental Improvement and Energy Resources Authority (EIERA), was conducted to determine the extent of economic benefits of recycling for Missourians.

A survey was conducted of potential recycling, remanufacturing, and reuse firms in the state. The survey data along with data from the North American Industry Classification System (NAICS) were used to estimate the direct economic impact of the industry in Missouri. Secondary impacts were then calculated from the direct economic impact.

The study examined four business sectors, recycling collection, recycling processing, recycling manufacturing, and reuse and remanufacturing. The four business sectors are subdivided into 26 business categories. Data gathered from a mail survey were used in 11 business categories, a calculation based on industry data for 2 categories, and existing data were drawn from the NAICS for the remaining 13 categories. The approach used here permits comparison with the United States Recycling Economic Information Study

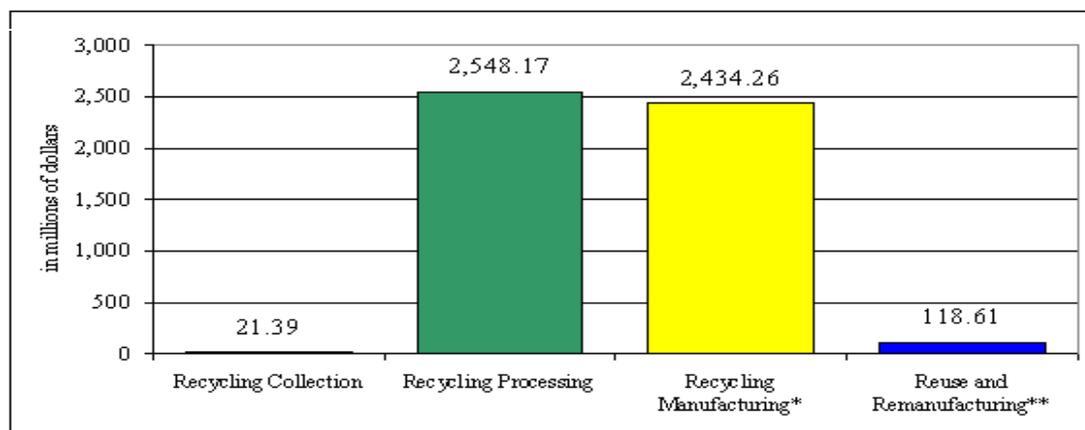
(USREIS) and other state studies that were based upon the methodology used in USREIS.

Three levels of economic impact were used. Data are presented according to the direct effects (actual business employees, sales, and payroll), indirect effects (the effect of purchasing products and services from other business in order to produce a product), and induced effects (wages paid to employees in the direct and supporting industries that are available for employees to purchase goods and services). The induced effect is the total effect the industry has on the region.

Direct Effects of the RRR Industry

The study identified 1,228 firms with 28,026 employees directly involved in the RRR industry in Missouri, with \$707.3 million in annual payroll, and \$5.1 billion in sales. The Recycling Processing sector has the largest number of establishments (358) followed by the Reuse and Remanufacturing sector (357); however the Recycling Manufacturing sector provides the most benefit to the state with \$2.4 billion in direct sales, \$475.5 million in direct payroll, and 17,962 in direct employees. The Recycling Manufacturing sector provides 48% of total direct sales, 67% of direct payroll, and 64% of direct employment. These totals reflect the estimated impact of the firms identified as potential RRR firms in the survey.

Figure 1.
Total Direct Sales by Industry Sector

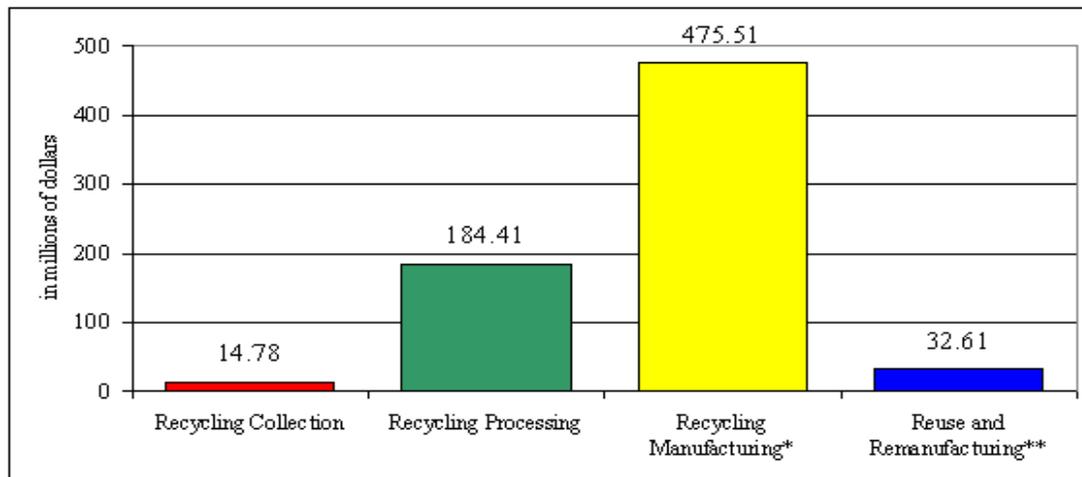


* Three NAICS codes did not disclose data and two business categories of the survey did not provide enough data to draw conclusions.

** Two NAICS codes did not disclose data.



Figure 2. Total Direct Payroll by Industry Sector



* Three NAICS codes did not disclose data and two business categories of the survey did not provide enough data to draw conclusions.
 ** Two NAICS codes did not disclose data.

Table 1

Direct Effects of the Missouri RRR Industry

	Number of Establishments	Sales (\$1,000)	Payroll (\$1,000)	Employees
Recycling Collection	199	21,392	14,777	547
Recycling Processing	358	2,548,167	184,414	6,248
Recycling Manufacturing ¹	314	2,434,264	475,510	17,962
Reuse and Remanufacturing ²	357	118,613	32,606	3,269
Total	1,228	5,122,436	707,307	28,026

¹ Three NAICS codes did not disclose data and two business categories of the survey did not provide enough data to draw conclusions.
² Two NAICS codes did not disclose data.

The direct totals represent a conservative estimate of the industry because the researchers did not make any assumptions about the firms not identified as part of the original database.

Total Effects of the RRR Industry

The total impact of the RRR Industry on the state of Missouri includes 80,019 employees, \$1.7 billion in payroll, and \$8.8 billion in sales. The total impact of the RRR industry includes all employees, payroll, and sales directly related to the industry as well as all secondary impacts to support industries.

Table 2

Total Effects of the RRR Industry by Business Sector

	Sales (\$1,000)	Payroll (\$1,000)	Employees
Recycling Collection	40,777	27,813	1,188
Recycling Processing	4,503,707	461,059	17,215
Recycling Manufacturing ¹	4,072,534	1,201,991	54,738
Reuse and Remanufacturing ²	226,242	68,474	6,878
Total	8,843,260	1,759,337	80,019

¹ Three NAICS codes did not disclose data and two business categories of the survey did not provide enough data to draw conclusions.
² Two NAICS codes did not disclose data.

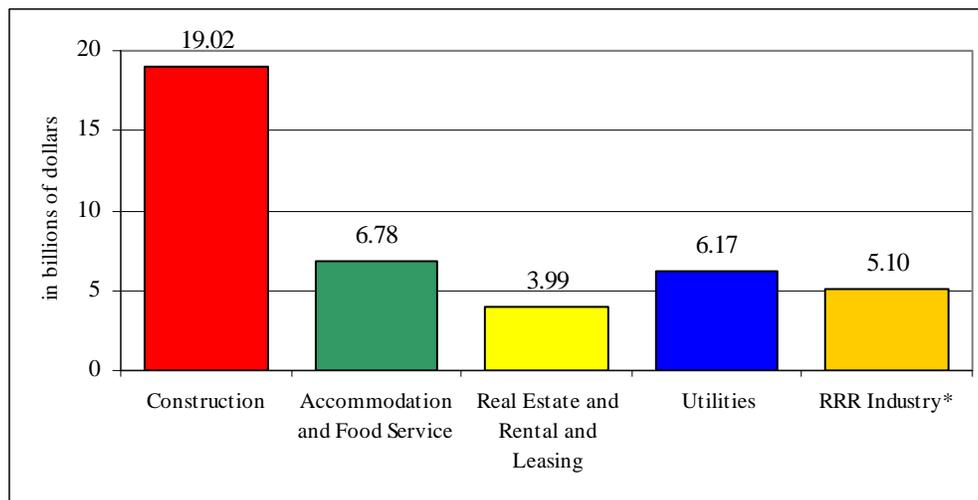
Comparison of the RRR Industry to Other Missouri Industries

According to the 1997 NAICS data, there are a total of 133,402 business establishments in the state of Missouri that fall into 19 two digit industry codes.² The RRR industry is compared with four other similar size and more well understood industries, Construction, Accommodation and Food Service, Real Estate and Rental and Leasing, and Utilities.



Figure 3

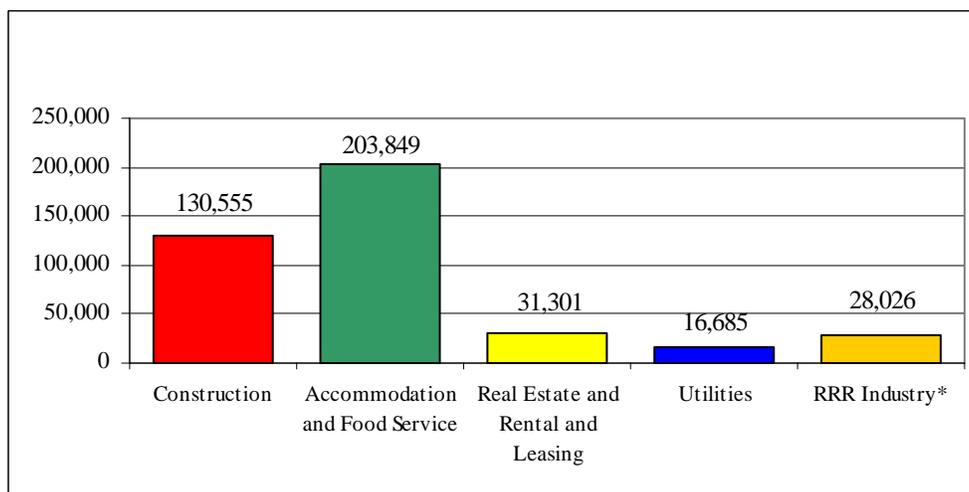
Total Direct Sales by Various Missouri Industries



* Based on study results.

Figure 4

Total Direct Employees in Various Missouri Industries



* Based on study results.

Conclusion

The RRR industry benefits Missouri over and above the obvious reduction in the use of raw materials and a decrease in energy usage by providing jobs and sales in the state of Missouri. The direct impact of the industry includes 28,026 employees, \$707.3 million in

payroll, and \$5.1 billion in sales. The total impact of the industry accounts for 80,019 employees, \$1.7 billion in payroll, and \$8.8 billion in sales.



Endnotes

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² Mining; Utilities; Construction; Manufacturing; Wholesale Trade; Retail Trade; Transportation and Warehousing; Information; Finance and Insurance; Real Estate and Rental and Leasing; Professional, Scientific, and Technical Services; Management of Companies and Enterprises; Administrative and Support and Waste Management and Remediation Services; Educational Services; Health Care and Social Assistance; Arts, Entertainment, and Recreation; Accommodation and Food Service; Other Services (except Public Administration); and Auxiliaries, except Corporate, Subsidiary, and Regional Managing Offices

Author Biographies

Ann Ulmer

Ann Ulmer earned a master's in agricultural economics from Oklahoma State University. Her master's thesis focused on the economic impact of firms assisted by the Oklahoma Food and Agricultural Research and Technology Center. Ann's research areas at the Institute include obesity, the economics of recycling, and traffic safety policy.

David Valentine

Dr. Valentine is the project coordinator for the Legislative Academy, a cooperative effort of all four campuses to provide service to and support for legislators. In addition, he teaches and directs the internship program of the Truman School of Public Affairs. He previously served as the director of the Division of Research, Missouri Senate. His research interests include environmental policy, election laws and health policy.

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