
Iowa Machinery Manufacturing industry: Strengths, Weaknesses, Opportunities and Threats (SWOT)

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Preface:

Iowa State University's Center for Industrial Research and Service (CIRAS) explored the business characteristics of the Iowa machinery manufacturing industry. The results summarized in this report might be used to enhance the profitability and growth of the machinery manufacturing industry in Iowa.¹ The report was prepared using the following perspectives

- Industry perspective
- Company perspective

Strengths (internal)

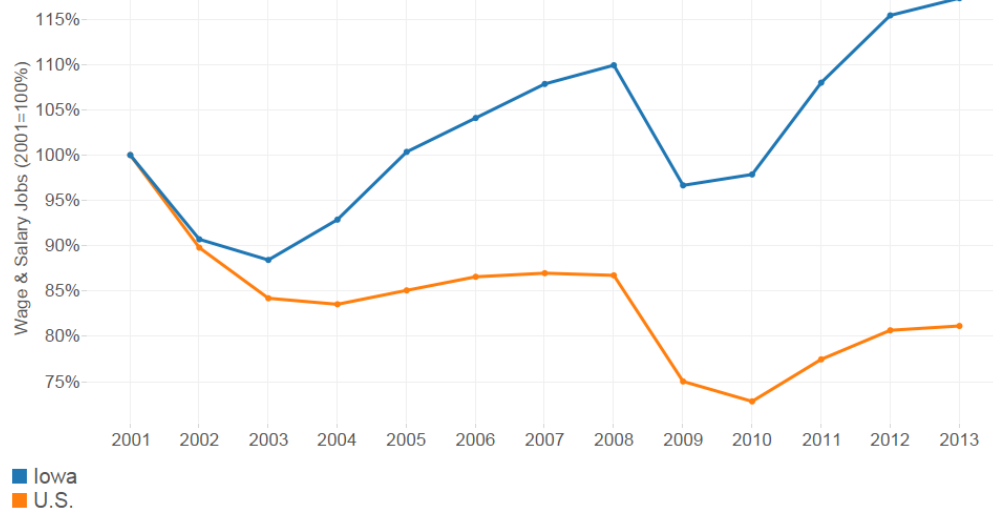
- **Size-**
 - Machinery manufacturing's 41,530 jobs represented 19 percent of Iowa's manufacturing jobs and 2.1 percent of its total jobs in 2013. In the U.S., machinery manufacturing accounts for 9 percent of manufacturing sector jobs and less than one percent of all jobs.[1]
- **Location quotient**
 - Location quotients, which measure the state's share of national employment in a particular industry in relation to the state's share of all U.S. jobs, show that Iowa has more than three times the number of jobs in machinery manufacturing than would be expected based on national averages. Iowa's strongest advantages lie within the agricultural implements and construction machinery industries. In both of those industries, Iowa's location quotient exceeds ten.[1]

¹ The SWOT analysis was created based on data from the U.S. Department of Labor- Bureau of Labor Statistics, U.S. Department of Commerce- Bureau of Economic Analysis, National Science Foundation, industry articles, and from a Fall 2013 CIRAS survey of the Iowa plastics and rubber manufacturing industry (NAICS Code: 333). The survey was conducted with a sample size of 201 recipients, and had a response rate of 16%.

- **Employment**

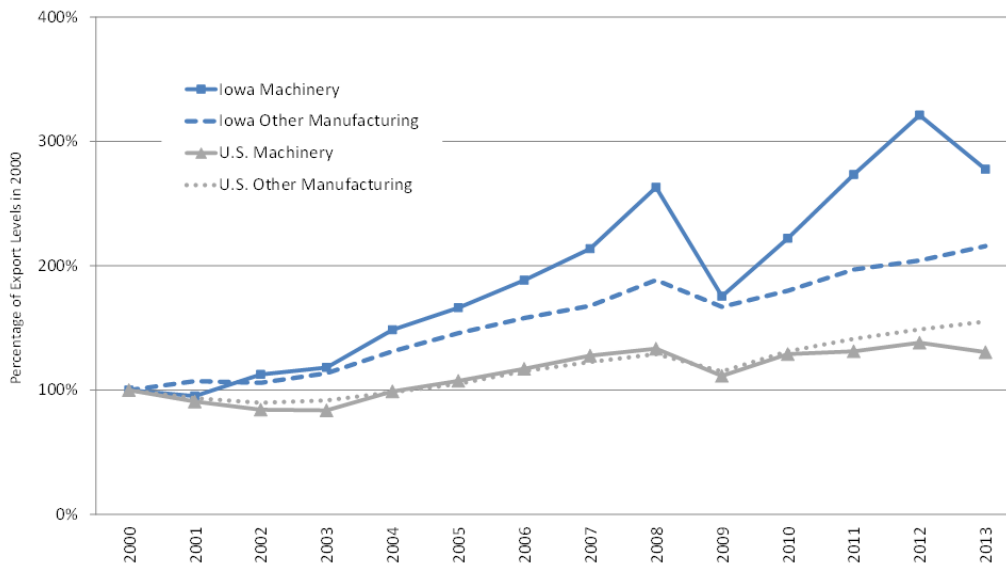
- The U.S. machinery manufacturing sub-sector had 1,156,300 jobs in 2013. Nationally, the sub-sector has lost 18 percent of its jobs since 2001. Iowa's machinery sub-sector, in contrast, had 18 percent more jobs in 2013 than in 2001, with all of the net gain accumulating since 2010. Both in Iowa and nationally, the machinery sub-sector has experienced comparatively fewer job losses than other manufacturing industries.[1]

Index of Machinery Manufacturing Employment Change



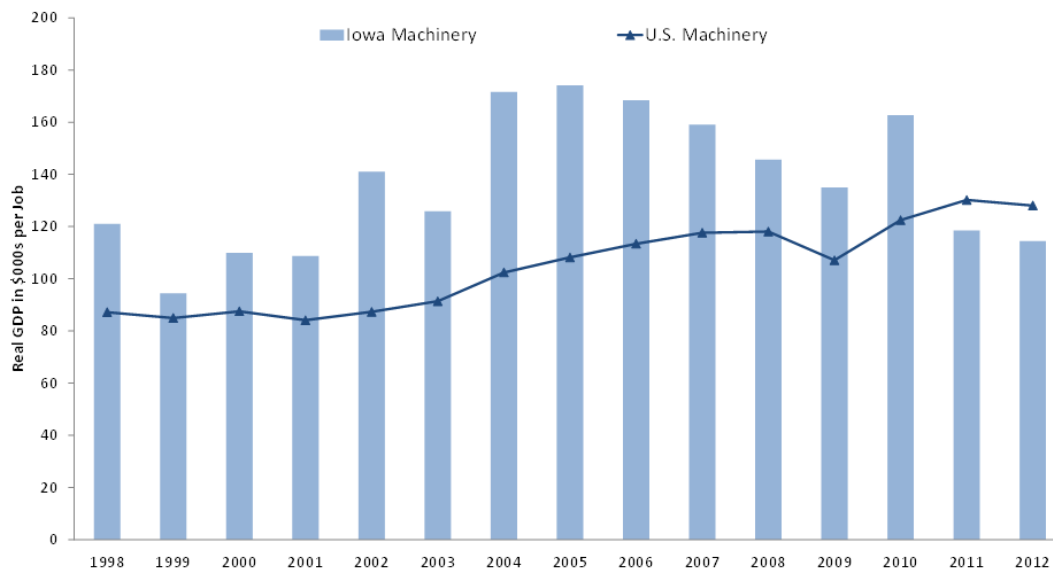
- **Exports**

- Agricultural implement manufacturing, while not the highest-paying of Iowa's machinery manufacturing industries, is the most competitive with respect to U.S. average annual pay. Iowa workers in that industry earn \$67,000 annually, more than 20 percent higher than the national average of \$54,150. [1]



Weaknesses (internal)

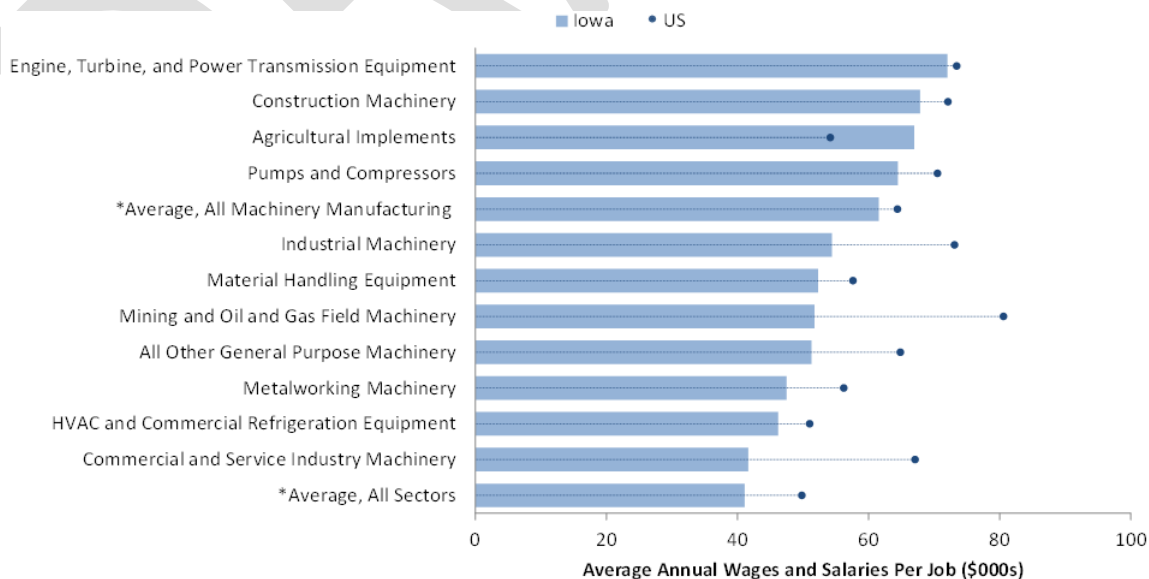
- **32nd in patent activity**
 - Iowa's machinery-related patenting efforts rank 32nd among all states. Iowa originates an average of one patent per every three machinery manufacturing firms per year. The top five states on this measure are Hawaii, Delaware, Utah, Maryland, and New York[1]
- **40% fewer engineering-related employees**
 - Almost 50% fewer in ag + construction[1&2]
- **Real GDP per job**
 - Iowa's real GDP per job also climbed from 2000-2005, but has gradually declined nearly every year since. A sustained period of above-average productivity ended in 2011, when Iowa's average GDP per job dropped below the national average. [1]



- Earnings per job**

- Iowa's machinery manufacturing workers earned \$61,555 in wages and salaries per job in 2013, which was 96 percent of the national average for the machinery sub-sector.

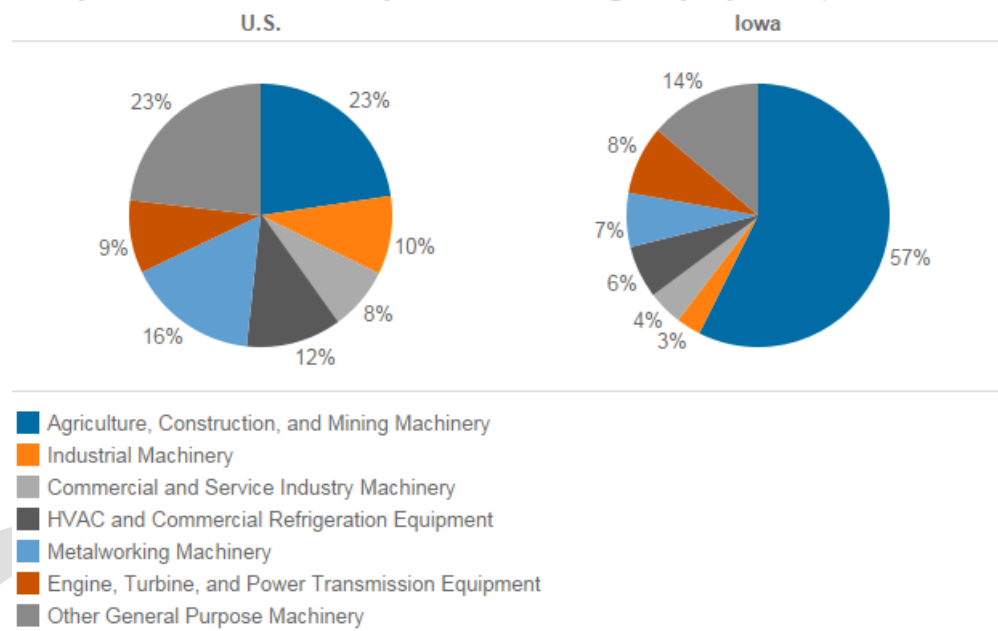
Workers in engine, turbine, and power transmission equipment, Iowa's highest-paying machinery manufacturing industry, earned \$72,000 in wages and salaries in 2013. U.S. average pay in that industry was slightly higher at \$73,400. [1]



Opportunities (external)

- **Exports**
 - Data shows strong growth trend in Iowa exports and[1]
 - Exports offer growth opportunities for firms. However, there are legal, economic and political risks associated with dealing in foreign countries.[3,5,6]
- **Domestic growth**

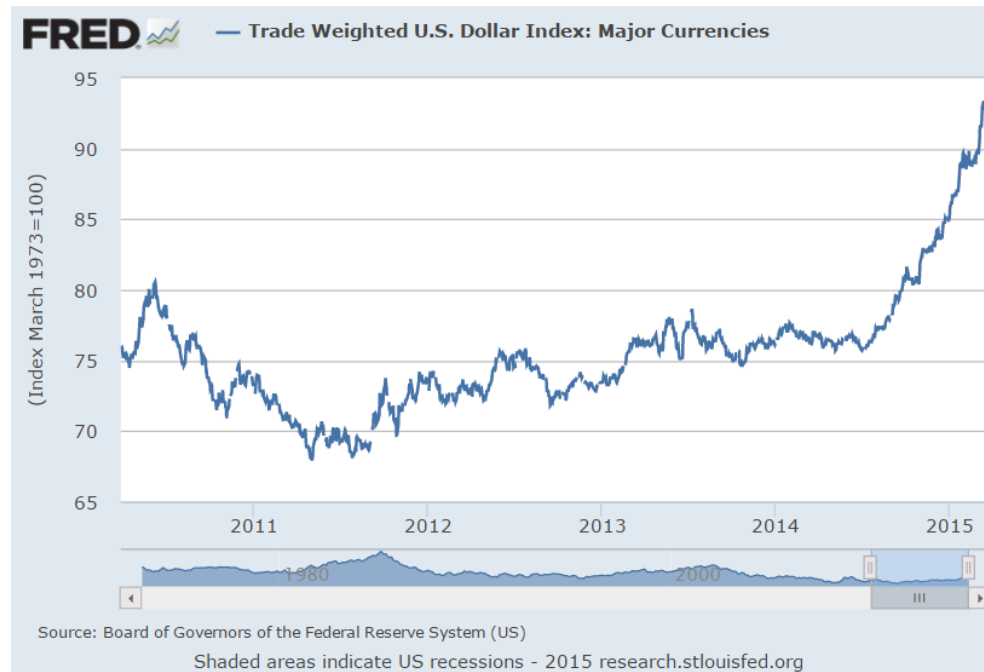
Composition of Machinery Manufacturing Employment, 2013



Threats (external)

- **Commodity grain prices**
 - Agricultural businesses form this industry's key market, and any increases in agricultural production (especially crop production) will increase demand for tractors and related machinery. Crop production revenue is expected to decrease during 2014, posing a threat to the industry. [3]

- **Real GDP per job**
- **Workforce**
- **Weighted currency value**



SWOT Strategies for Iowa Machinery Manufacturers

	Strengths	Weaknesses
Opportunities	Enhance marketing - diversify into new markets - grow in existing markets Grow exports Increase government sales	Innovative workforce solutions Higher value products New marketing strategies
Threats	Develop new/improve products Reduce process costs Improve purchasing	New high tech products/services Workforce training programs

References

- [1] IOWA MACHINERY MANUFACTURING PROFILE- Prepared by L. Eathington and D. Swenson, ISU-CIRAS
- [2] Iowa AMIN Industry Survey 2014- ISU CIRAS
- [3] IBISWorld Industry Report 33311 Tractors & Agricultural Machinery Manufacturing in the US, October 2014
- [4] IBISWorld Industry Report 33312 Construction Machinery Manufacturing in the US, December 2014
- [5] IBISWorld Industry Report 33351 Metalworking Machinery Manufacturing in the US, January 2015
- [6] IBISWorld Industry Report 33399 Power Tools & Other General Purpose Machinery Manufacturing in the US, September 2015