

## Abstract

The goal of this research is to develop a better understanding of World War II war production and its role in the development of the U.S. economy in the 1940s. This project serves to build on Professor Brunet's previous research on the economic effects of U.S. war production.

After obtaining summary data covering more than 190,000 contracts issued for U.S. war production, the primary work of this project is to systematically code the products specified in each contract using Standard Industrial Classification (SIC) codes matching the 1947 Census of Manufactures. Through coding war products by industry, in this case The Rubber Industry, we are able to produce a much richer dataset that can be used to address a wide variety of economic questions relating to the industry's effects on employment, income, consumption, firm-level investment, etc.

## Background

The United States officially joined World War II in December 1941 after the Japanese bombing of Pearl Harbor. However, the defense period actually began in June 1940 as the U.S. government was gaining awareness and war production began with mass production of arms and munitions.

Beginning in 1942, civilian manufacturing was being displaced by war industries as many existing manufacturing firms went from making consumer goods to war supplies. Rubber quickly became among a list of critical materials that were available in very limited quantities. When the Japanese attacked Pearl Harbor, over 90% of the crude rubber imports were cut off. The country was limited in terms of substitutes and so came the invention of synthetic rubber.

Still, war production demand exceeded the nation's capacity and there was a huge rubber deficit. A strict rationing program began in late 1942, where allotments were submitted to the War Production Board and the rubber director was responsible for making allocations to manufacturers. Direct government control did not only cover crude and synthetic rubber but also extended to rubber footwear and rubber tires and tubes.

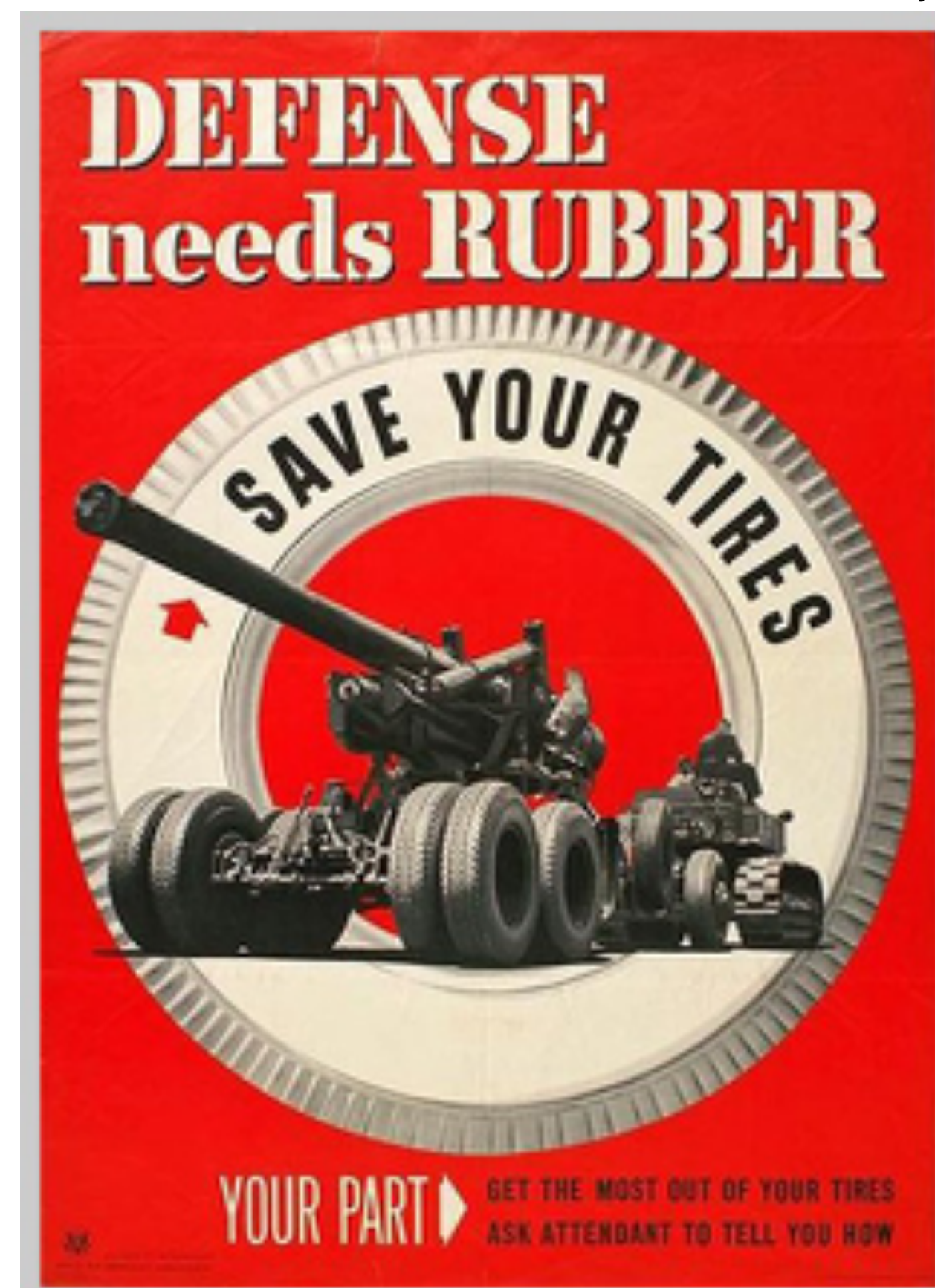


Figure 1. Public Service Campaign encouraging people to conserve tires

## Industry Coding

### Data

- The data was taken from the Civilian Production Administration and includes 191,709 war production contracts from the 1940s with the following information: firm names, location (city/state), brief product description, dollar amount of each contract and the month and year in which each product was awarded and completed.

### Measures

Unique product descriptions were coded using the following criteria:

- 1-digit, 2-digit, 3-digit and 4-digit SIC codes that correspond to the industry classifications outlined in the 1947 Census of Manufactures
- Whether a product was a war good or has civilian uses
- Whether a product was an intermediate input or final good
- Whether a product was subject to rationing
- Whether a product was new or used

## Results

- Rubber products fall under major product group SIC 30

MAJOR GROUP 30—RUBBER PRODUCTS			
3011	1111	Tires and inner tubes.....	-----
3021	1121	Rubber footwear.....	-----
3031	1191	Reclaimed rubber.....	-----
3099	1199	Rubber industries, n.e.c.....	-----

Figure 2. 1947 Census of Manufactures, Appendix D, Major Group 30

- 193 of 30,000 unique product descriptions were coded within the rubber industry. 23.8% tires and inner tubes, 8.3% rubber footwear, 1% reclaimed rubber, and 65.8% miscellaneous rubber specialties.
- The map below shows US per capita spending for rubber products within each county in thousands of dollars (not adjusted for inflation).

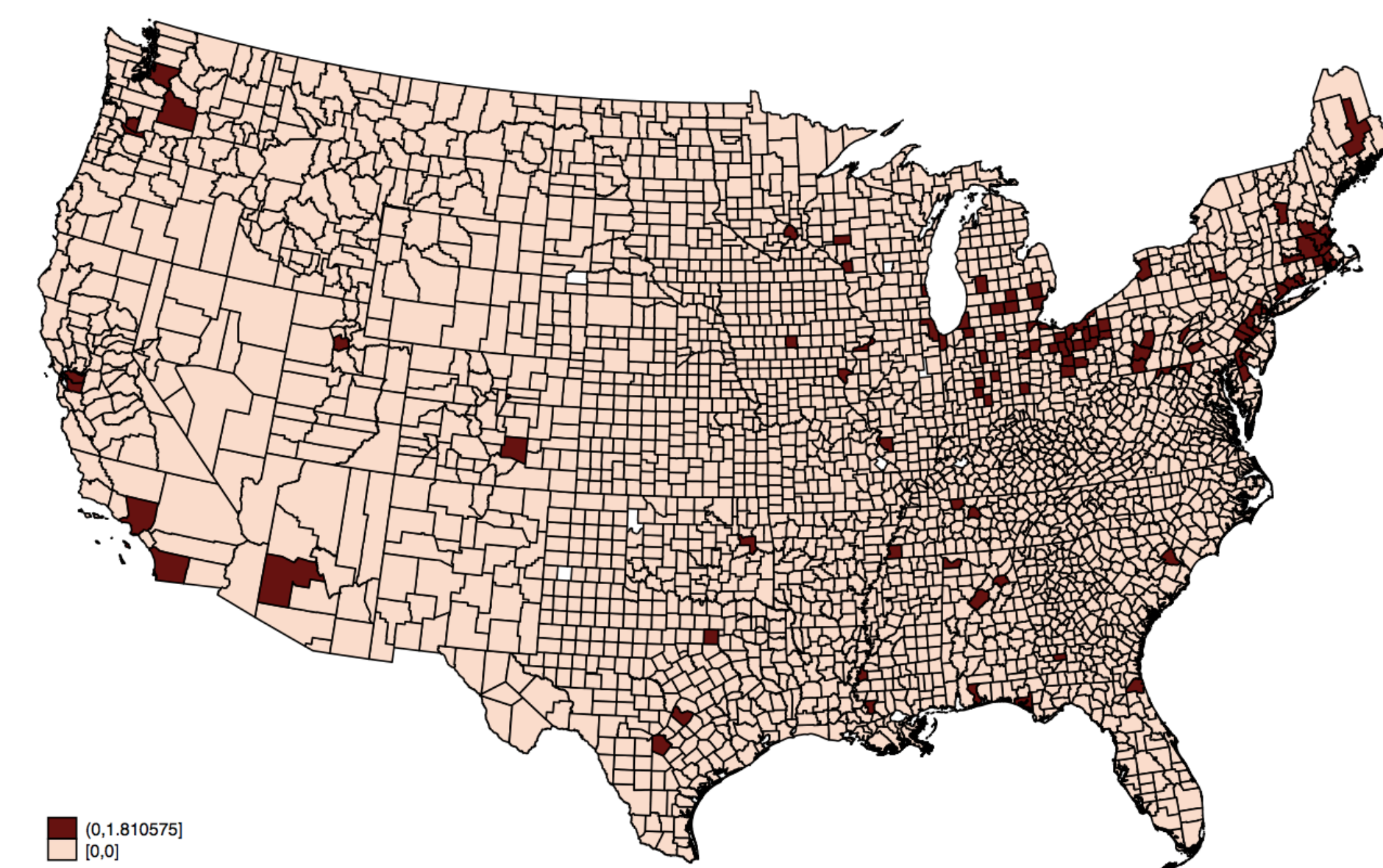


Figure 3. U.S. Spending County Level Map

- The map below shows the distribution of US per capita spending for rubber products among counties in thousands of dollars (not adjusted for inflation).

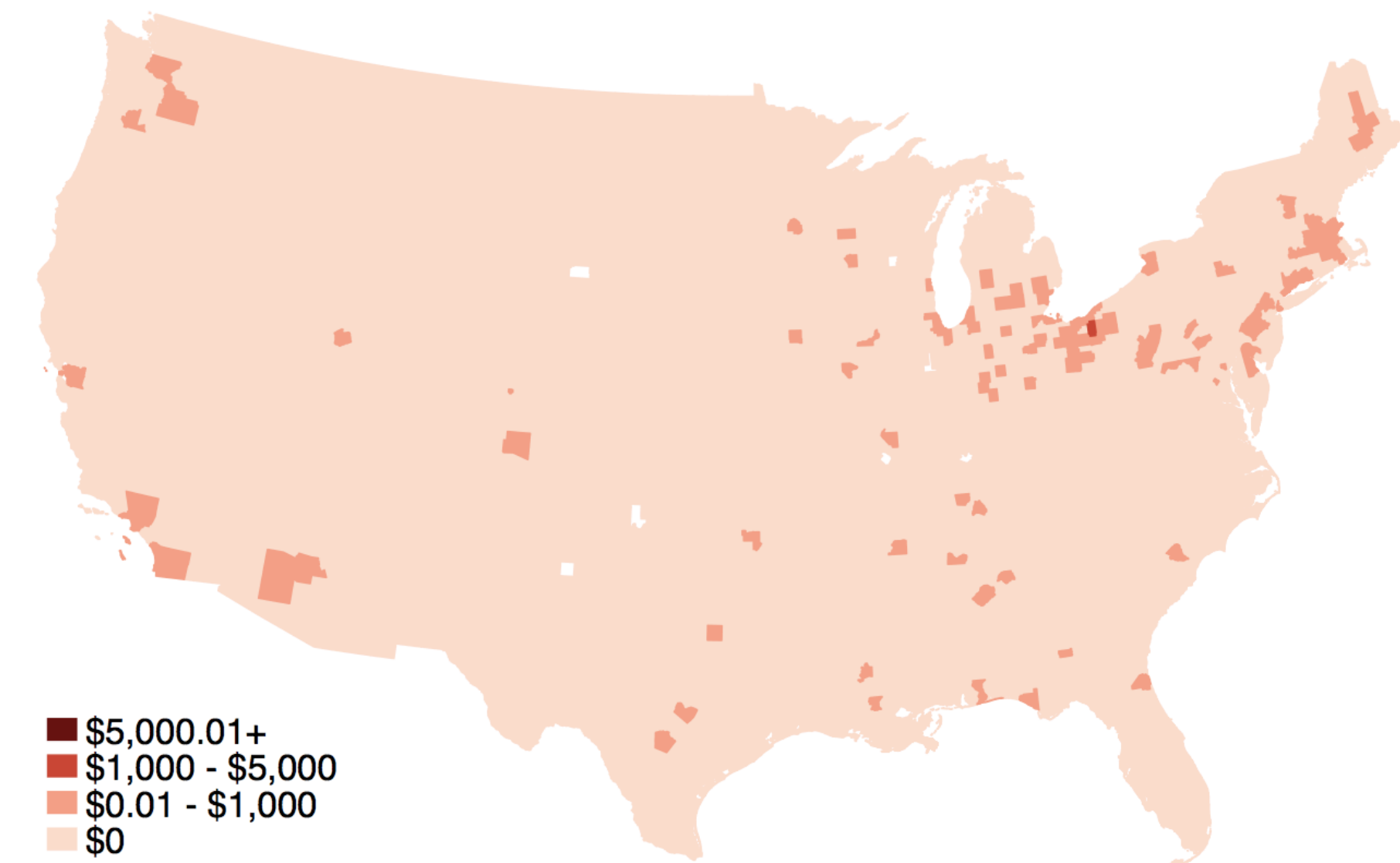


Figure 4. U.S. Detailed County Level Map

## Discussion

Most of the war spending in the rubber industry seems to be concentrated in the Northeast and Midwest Regions. Ohio was awarded the most contracts followed by Pennsylvania, Massachusetts and New York. Summit county in Akron, Ohio also had the largest per capita spending in the rubber industry and came to be known as "rubber capital of the world" in the 1900s.

U.S. per capita spending is merely a single metric by which this data can be used. The scope of this research can also be extended to observe many other economic factors over one or many war industries.

## Conclusions

World War II was a major event in the history of the U.S. rubber industry. Rubber was wrapped around every inch of military wiring and some battleships contained around 20,000 rubber parts.

Rubber consumption quickly exceeded the rate that natural rubber was being produced and as a result, very strict rationing initiatives were put into place. Chemists were forced to invent new supplies of synthetic rubber which eventually outgrew that of crude rubber. This effort to find, recycle and create new rubber is believed to be a significant contributor in the military success of the United States.

## Acknowledgements

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## References

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