

The Big Push: Federal Road Building in the Early Days of the Automobile

Jody Lin, Connor Meadows, Anthony Menold, with William Cockriel

Department of Economics

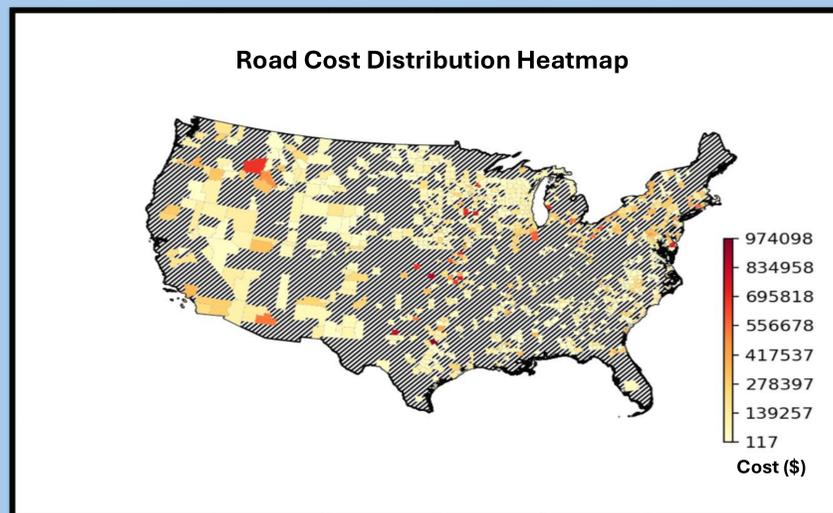
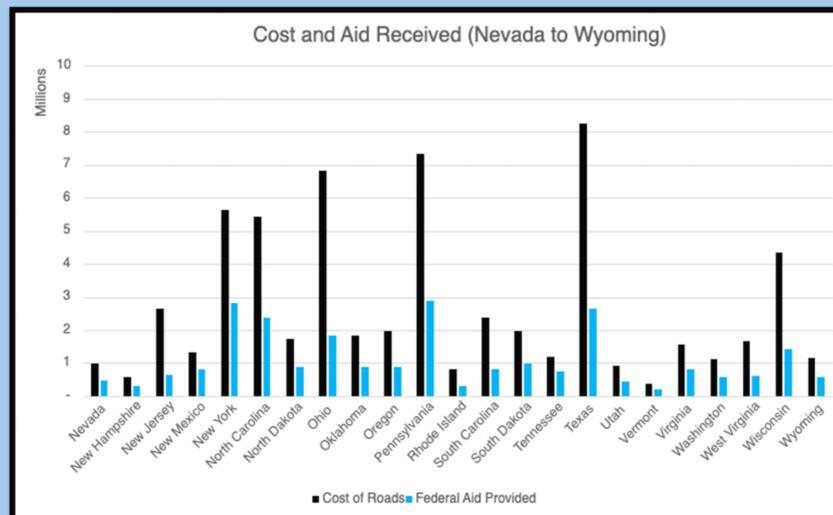
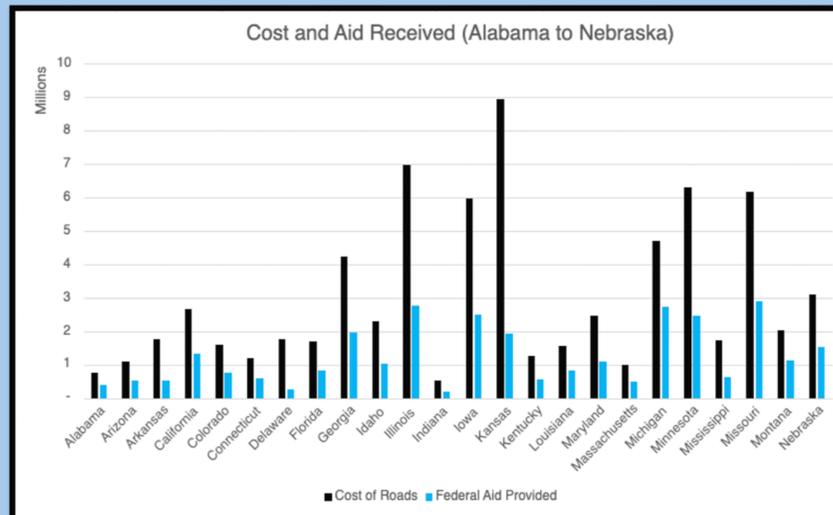


Introduction/Background

- The start of the 20th century serves as a threshold between the new and old worlds. New technologies rapidly began to develop and upend the way of life traditionally held by most Americans. One of these was the development and rapid adoption of the automobile during the 1920s and 1930s, which led to the modern structure of the United States.
- The objective of this study is to examine the distribution of government-provided road funding across various states in the early 20th century, as automobiles began revolutionizing the United States economy.
- In the early 1900s, most roads were made of cheap materials like mud and dirt. However, they were unable to withstand the rise of vehicle adoptions. As a result, the United States enacted the Federal Road Act of 1916 to facilitate infrastructure development and encourage economic growth, which allowed for more road financing. This allowed the government to cover up to 50% of the cost of a road. However, it is still unclear why the government finances some states more than others.
- Some states and counties proposed large, expensive projects but received less funding from the federal government than other state projects.
- The study relied on data entry from reports the U.S. Department of Agriculture published. This project aims to pave the way for more research to further dive into what certain economic developments and trends influenced the U.S. government to neglect financing roads in some states and allocate more time and resources to other states.

Methods

- The main source of data for this project was compiled from documents released by the U.S. Department of Agriculture from 1918 to 1920. These documents proved to be the most comprehensive and reliable sources available.
- With the data, the variables measured were the dates, state, county, length of miles of the roads, type of construction, cost of the road, and federal aid provided. More emphasis was put on the location (state and county) and the cost/aid.
- The data was first digitized in Excel. After that, pivot tables were created that pooled some selected data within the larger dataset to determine any correlation between the variables.
- Anaconda, a program used to run Python language, was also utilized to create the visual heat map that showcases which counties/states cost the most in terms of road building.
- The Excel graphs highlighted which states have the most cost/funding compared to others. However, the heat map allows for a better visual of the spatial distribution of costs across the entire country.



Results

- After analyzing the graphs, it was discovered that Kansas, Texas, and Pennsylvania cost the most in terms of road building. However, despite having some of the highest costs, Kansas and Texas did not receive the most federal aid.
- The state that received the most funding is Missouri, followed closely by Pennsylvania, and New York.
- As shown on the graphs, typically, on average, it seems that most states received around 30-35% of their initial funding proposal. However, some states received close to or over 50% of federal funding, such as Michigan, New York, and Missouri.
- Michigan received federal aid covering over 50% of the estimated roadbuilding costs. Michigan produced most automobiles, which may have increased its national importance in building automobile infrastructure.
- The heat map delved deeper into the geographic distribution of road costs across the United States in 1918-1920. It was discovered that the most significant road-building costs are located around the central U.S., with Wisconsin and surrounding areas witnessing the most counties initiating construction.

Future Implications

- The results of this project are significant as it lays the foundation for further studies in the future, allowing other researchers to find out why these states cost the most or why the government provided them with the most funding. In addition, by understanding past funding inequalities, policymakers can better address modern infrastructure gaps in terms of road-building.
- Future projects can utilize the data to pinpoint specifically what economic factors were present during construction, which could answer how these roads influenced automobile adoption, economic development, and productivity, especially in regions that received larger amounts of funding, such as the Midwest.
- For example, researchers can inspect what economic or political events were happening in Texas during 1918-1920, causing it to have one of the highest road costs yet receiving less than 35% of the aid needed to construct the roads. While this research has answered the "what" concerning the dispersions of road cost and aid, future observations can answer the "why?"

References

- States, United. *Public Roads: Vol.1 No.2*. 1918. Bureau of Public Roads.
- States, United. *Public Roads: Vol.1 No.3*. 1918. Bureau of Public Roads.
- States, United. *Public Roads: Vol.1 No.4*. 1918. Bureau of Public Roads.
- Holt, W. Stull. (1923). *The Bureau of Public Roads: Its History, Activities, and Organization*. The Johns Hopkins Press: Baltimore, MY.