

# **Farmers Market In the US**

Northeastern University

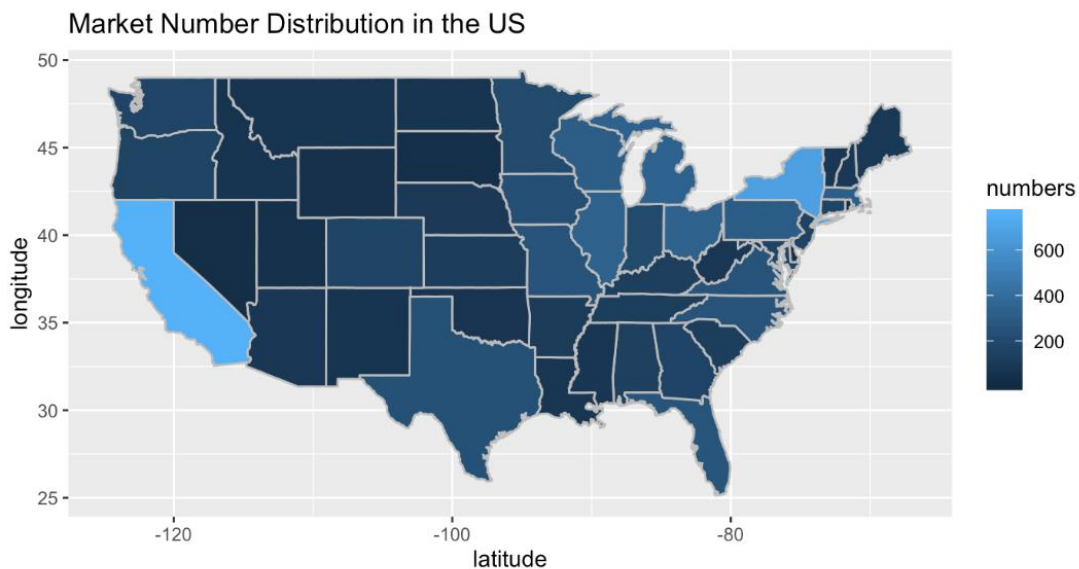
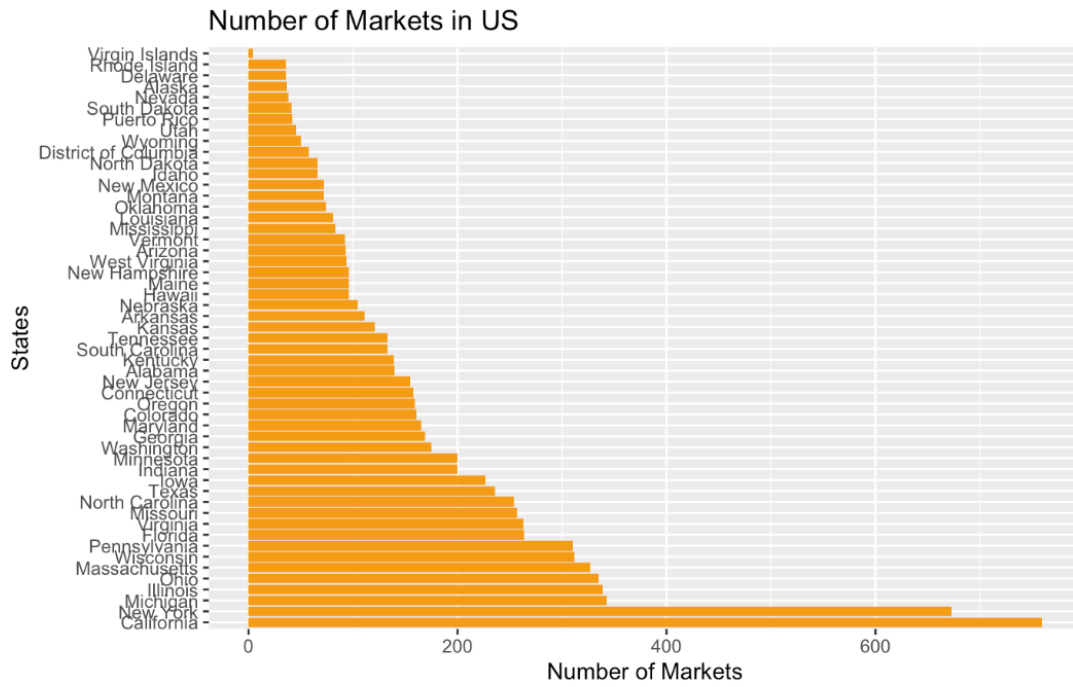
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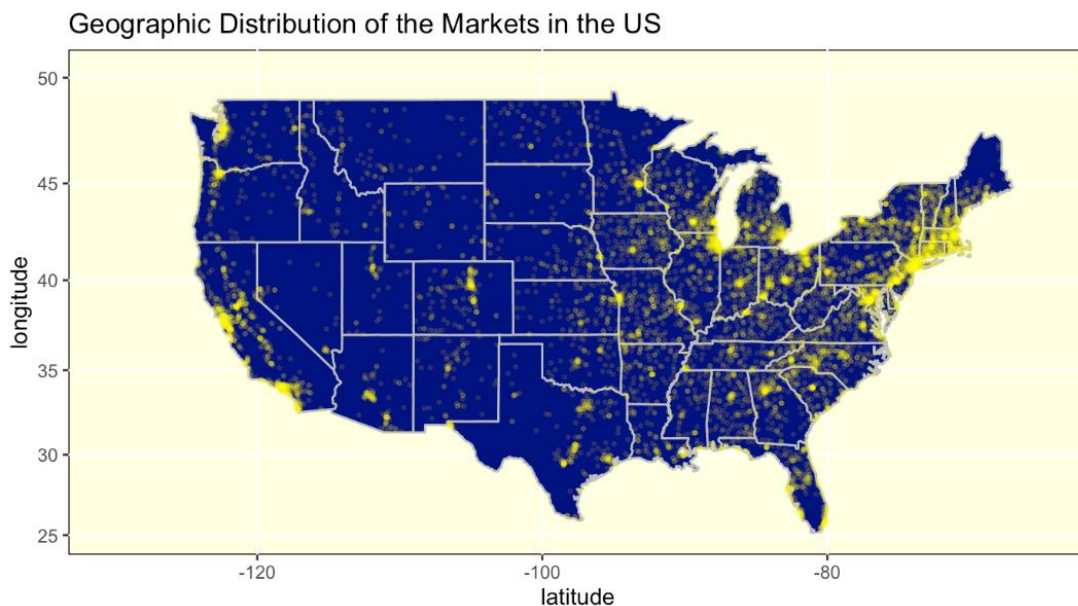
## I. Geographic Analysis

Generate a detailed report on the growth of the farmers market in the US. First, we want to know how the data is distributed in the US and gain some visual insights on the geographic.



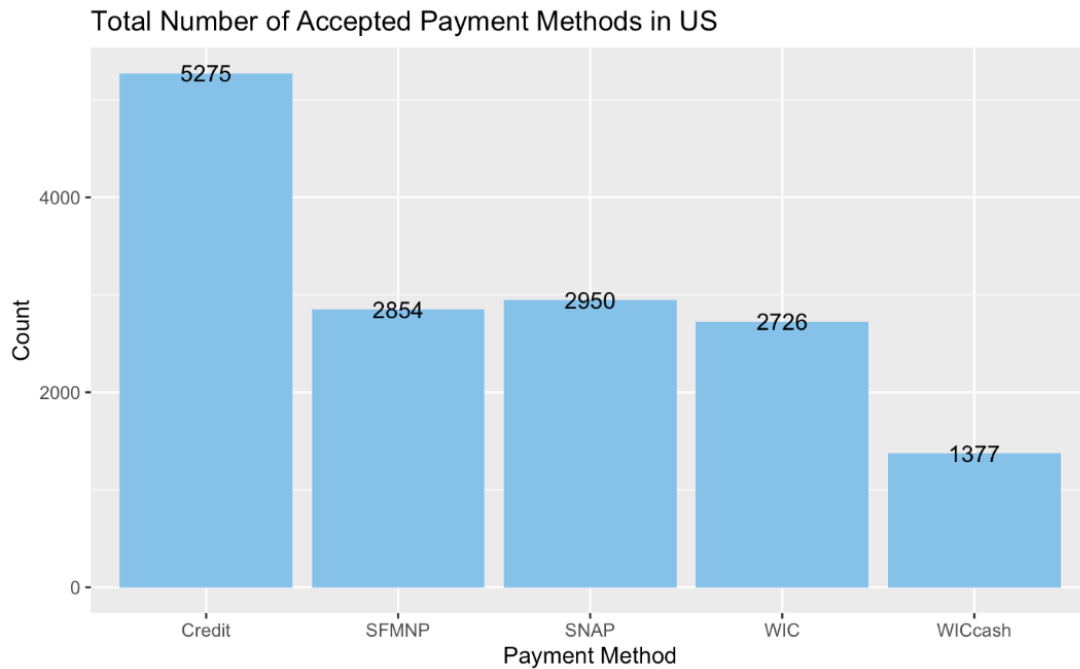
From the above barplot and ggplot, we show all states in the US with the number of markets. In the bar plot, the x-axis represents the number of markets, and the y-axis represents the state name. In the ggplot of the US, the x-axis represents the longitude, and the y-axis represents the latitude. We can tell

from the graph that state California and New York show a significant number of markets, and they have a lot more demands than the remaining states. We can infer that the population of the country has a substantial impact on the number of markets. There need to be more farmer markets to have enough supply because more people are buying. We can say that the more population of a state, the more farmer markets. Additionally, farmers are more likely to put the store in a big city so that they get more profits from the transactions.



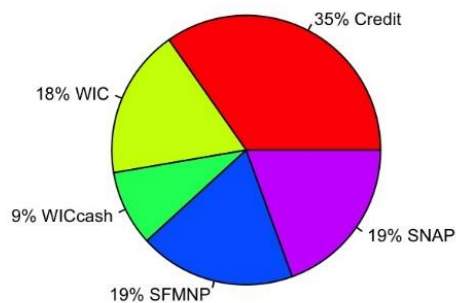
From our map graph, we get a clear view of how those markets are distributed. Each yellow dot represents a market location. The yellow dot gets brighter if there is overlap. From the map, we can tell that the majority of the markets are located in the west coast (CA, OR, WA), east coast (NY, NJ, MA, PA, CT, RI), and mid-west (IL, IN, OH, MI) area. Again, the majority of the business is mainly concentrated in cities with large populations, so that producers can obtain more purchasing power from consumers and maximize their benefits. The famer markets in those big cities also indicates that customers have an opportunity to buy fresh and healthy food locally, which also fosters the relationship between customers and farmers. The dot location map also accords with the map showing earlier, and it gives us a more detailed view of their locations.

## II. Payment method of the farmers market in the US

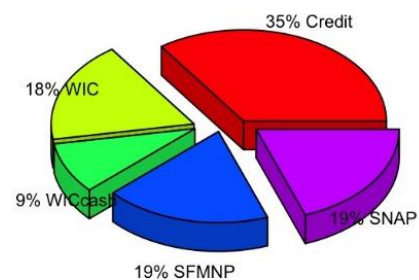


Accepted payment portion using the Pie chart

Accepted Payment Pie Chart



3D Pie chart of Payment



The credit card payment has 35% of the overall accepted payment method.

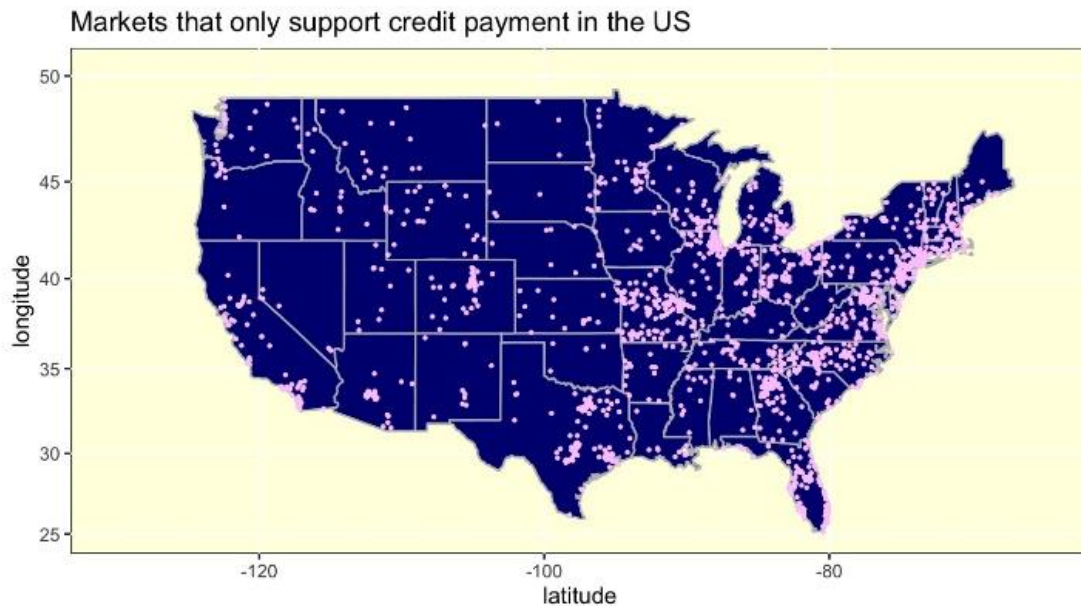
The SNAP payment has 19% of the overall accepted payment method.

The SFMNP payment has 19% of the overall accepted payment method.

The WIC payment has 18% of the overall accepted payment method.

The WICcash only has a 9% of overall accepted payment method.

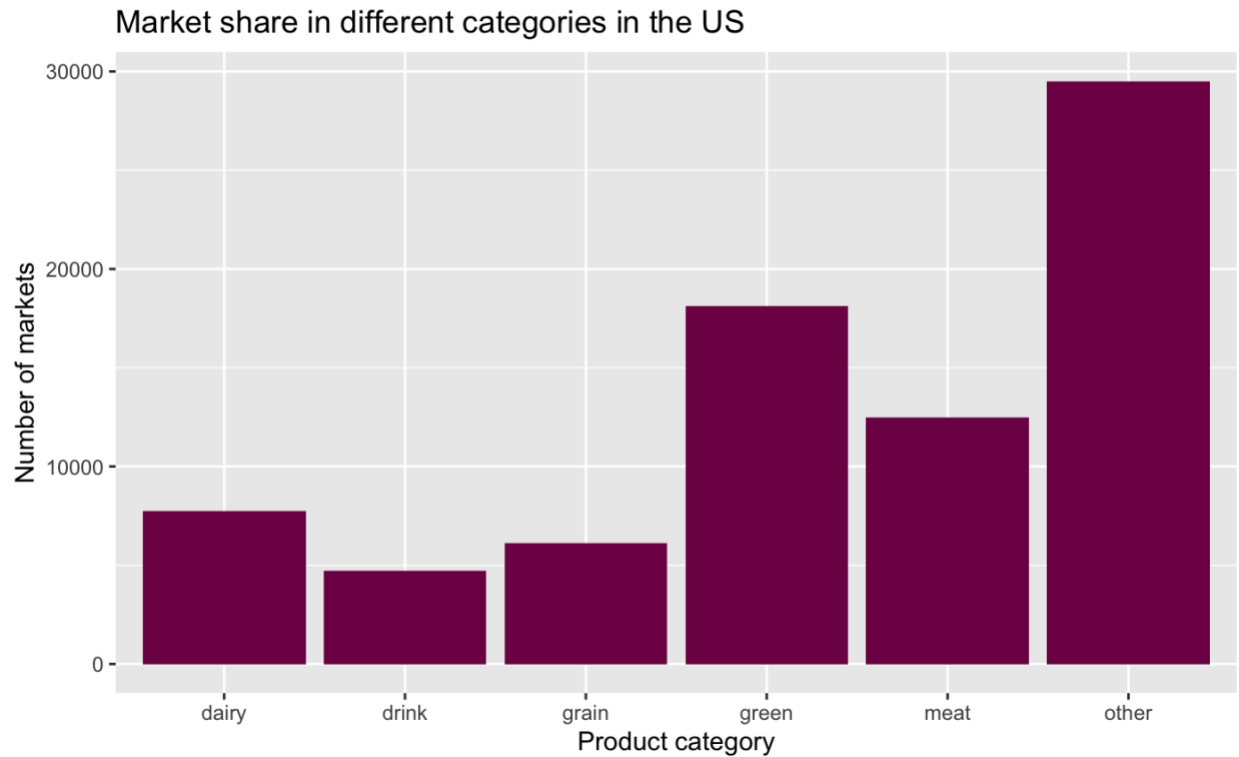
The barplot displays the total counts for the different accepted payment methods in the US. The x-axis represents the payment method (There are five different payment methods). The y-axis represents the total counts for each payment method. From the barplot of varying payment methods throughout the country, we conclude that the credit card payment is the most commonly accepted payment, and WICcash is the least common approach.





Furthermore, there are three us maps showing different data distribution after filtering the data. The first graph shows the markets that accept all kinds of payment methods in the US. From the result, we can see that the number of markets is small (there are only 705 markets from the R calculation), and most of the markets are located in the west and east coast. The top right graph shows the markets that only support credit card payment in the US. We learn that credit card is widespread in the US. The third graph shows the markets that do not endorse any payment methods in the US. Surprisingly that the number is high (there are 2867 markets), maybe those markets are cash only. Well, if those farmers' markets are trying to increase their sales and profits, one of the solutions could be set up credit card payment methods so that people will come in the market and purchase with their credit card. Some people might not like cash only, so that they are more willing to go to a market that has their preferred payment method.

### III. Products Distribution



The bar plot shows the product distribution throughout the US farmer markets. The x-axis represents the different kinds of the product (after product classification). The y-axis represents the number of markets that accept what type of product. From the graph, we learn that the majority of markets have "other" category products (mostly botany). And the second highest is "green" representing healthy food. It is obvious that farmer markets provide a lot of healthy and fresh vegetables for customers to choose from. The least is the "drink" category. In conclusion, farmer markets are closely connected with the customers, and they aim to provide natural and healthy goods to the customers.



#### IV. Additional Insights

From the bar plot above we learn that farmers aim to provide natural and healthy goods to the consumers. The idea of Farmers Market Promotion Program (FMPP) aligns with the intention of the farmers, producers and helps to build a win-win community. The FMPP program not only foster the relationship between producers and consumers, but also helps to maximize the profit on both sides. It makes sense that the majority of the markets are located in big city area so that farmers and producers would be able to increase their sales. The establishment of a local farmer's market has shortened the time and loss of intermediate transportation of products, and eliminated the costs of middlemen, so that the price of products will also be reduced. Customers can buy cheap and fresh products. The program promotes and encourages and rewards producers to do so, so that more producers can join this form, and the entire market forms a “direct farm-to-consumer” community. (USDA)



(Credit by USDA)

When we look at the highlights of the grants across the nation from 2016, large portions are from the west coast, southeast and mid-west area. The map of the grants accords with the distribution map provided above. Therefore, in large densely populated cities, where people have a lot of demand, these cities provide farmers and producers with an excellent opportunity to shorten the distance with customers through direct transactions between producers and customers. This program not only achieves a win-win situation through the funding of producer, attracts more rural business to urban community, but also promotes the development of agricultural marketing.



## References

Farmers Market Promotion Program 2016 Highlights

<https://www.ams.usda.gov/sites/default/files/media/FMPP2016Highlights.pdf>

Farmers Market Promotion Program 2016 Report – Connecting Rural & Urban Communities

<https://www.ams.usda.gov/sites/default/files/media/FMPP2016Report.pdf>