GROWTH OF FARMERS

MARKET IN THE US

PROJECT 1

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1. <u>Overview</u>

Farmers market was started in the United States in the year 1992 with an aim to increase domestic consumption of , and access to, locally and regionally developed agricultural products and to give consumers a direct access to locally produced organic foods. It connects consumers with how the food is grown, develops new opportunities for farmers, promotes organic foods and connects the younger generation back to rural areas for more technological advancements in agriculture. One of the USDA grant programs is Farmers Market Promotion Program(FMPP) whose aim is to expand direct producer to consumer market opportunities such as farmers market, roadside stands and agritourism opportunities

Till now, FMPP has granted 879 grants for over $58million since the 2008 farm act was enacted in comparison to over 2700 applications for over $201million. Till September 2016, there have been 8675 markets with consumers purchasing worth $1.4Billion products from the farmers market.

2. <u>Dataset used</u>

We have used Farmers market data for visualization. The main aim is to see how farmers markets has expanded over the period of time. We will also be seeing how many markets and products have evolved over a period of time. This includes the type of products added, payments method used etc.
The datafile contains the following:

1. Variables indicating the geographical location of the farmers market (lat, long, street, county, state etc.)
2. Variables indicating types of products (herbs, vegetables, seafood etc.)
3. Variables indicating type of payment accepted (cash, WIC, SNAP, SFMNP etc.)
4. Variables indicating online social media presence
5. Variables indicating date and time

3. Different regions of Farmers Market

The farmers market has more than 30 different products which are sold across 50 different states in the US. These products include Coffee, Meat, Eggs, Seafood, Vegetables to name a few.

Mapping all these products on the US map is a difficult task. So I have grouped these products according to various divisions around the US.

All these regions have been grouped into various categories which include Mid-west, Pacific Coastal, New England, Islands, Mid-Atlantic, South-west, Southern etc. Here, the count of farmer market in different states is grouped together as various regions and plotted as a bar graph. Let me explain which states constitute which category

- The New England region includes Maine, Massachusetts, Rhode Island, Vermont, New Hampshire, Connecticut
- The Mid-Atlantic region includes New Jersey, New York, Pennsylvania
- The South-West region includes Texas, Oklahoma, Arizona, New Mexico
- The Rocky Mountain includes Colorado, Wyoming, Utah, Nevada, Montana, Idaho
- The Pacific Coastal region includes California, Alaska, Oregon, Washington
- The Mid-West region includes Michigan, Illinois, North Dakota, South Dakota, Iowa, Minnesota, Kansas, Ohio, Indiana, Wisconsin, Missouri, Nebraska
- The Southern region includes Mississippi, Alabama, District of Columbia, Georgia, Florida, Louisiana, South Carolina, Tennessee, Arkansas, North Carolina, Maryland, Delaware, Virginia, Kentucky, West Virginia

Distribution of Farmers Market based on Region
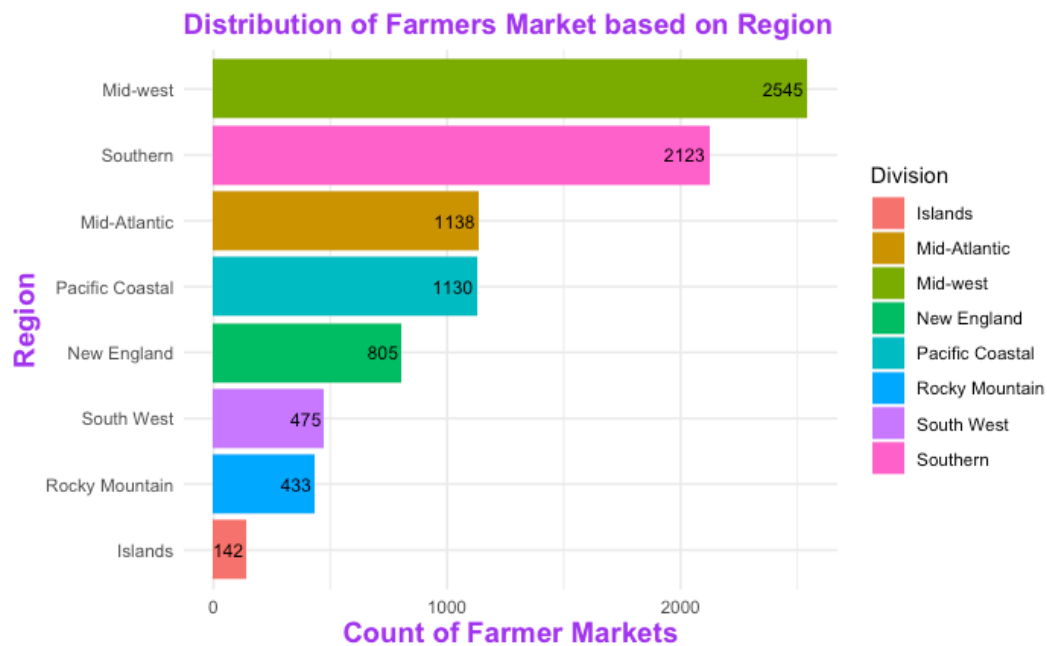
This is the bar graph which has been plotted across various regions. As we can see the markets were distributed unevenly throughout the country. The Mid-west region have the highest number of Farmers market and the Islands seem to have the lowest number of Farmers market

I also tried to map these points on the US map to have a better clarification on the Farmers Market


US State wise Market Distribution
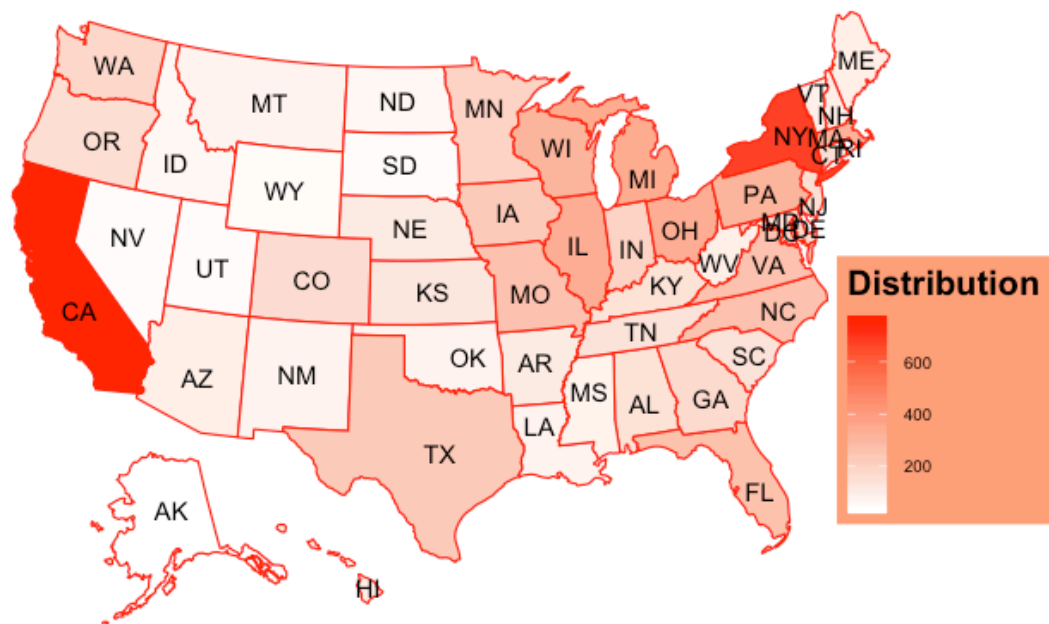
This figure shows us the distribution of farmers market across different states around the US. We can see that California has the highest amount of farmers market.

4. Trend of Farmers Market across the US

Below is a graph which shows the timeline for the increase of farmers market from the year 2010 onwards. We can see that as population increased over a period of time and as the popularity increased, growth in farmers market saw an upward trend.

Year wise Farmers Market (Season 1)
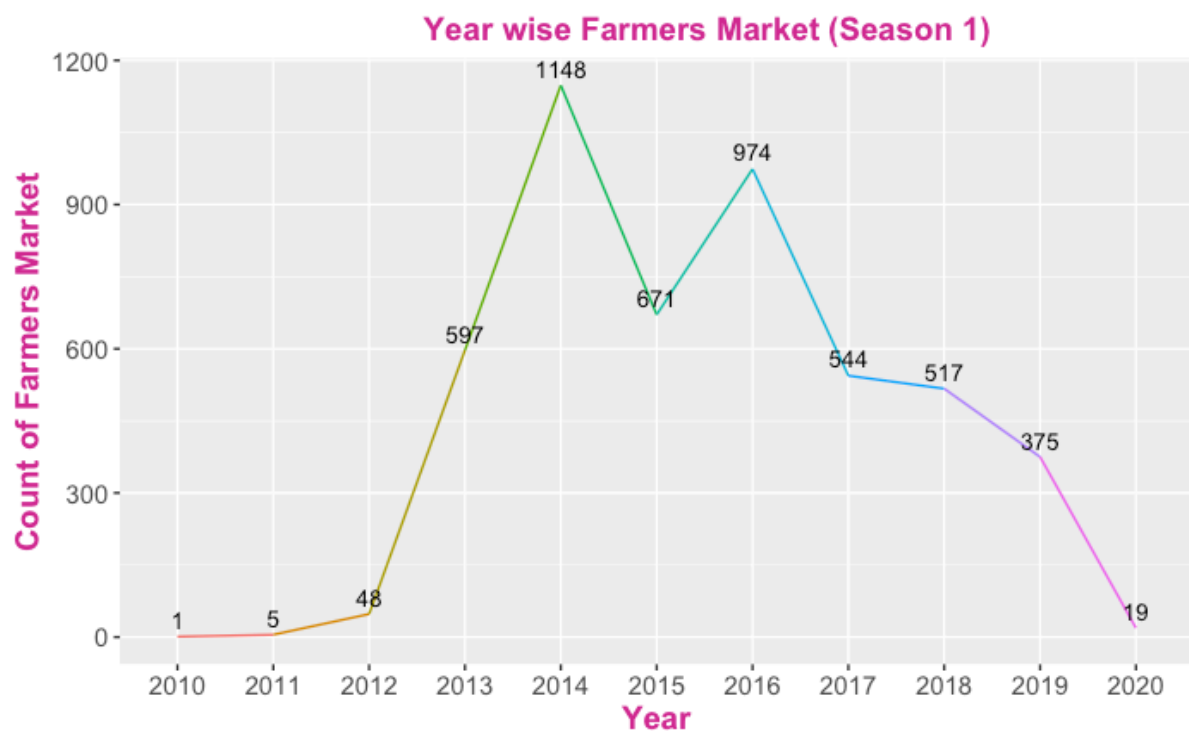
Here, we can see that, in the year 2014, farmers market saw the highest count of 1148.
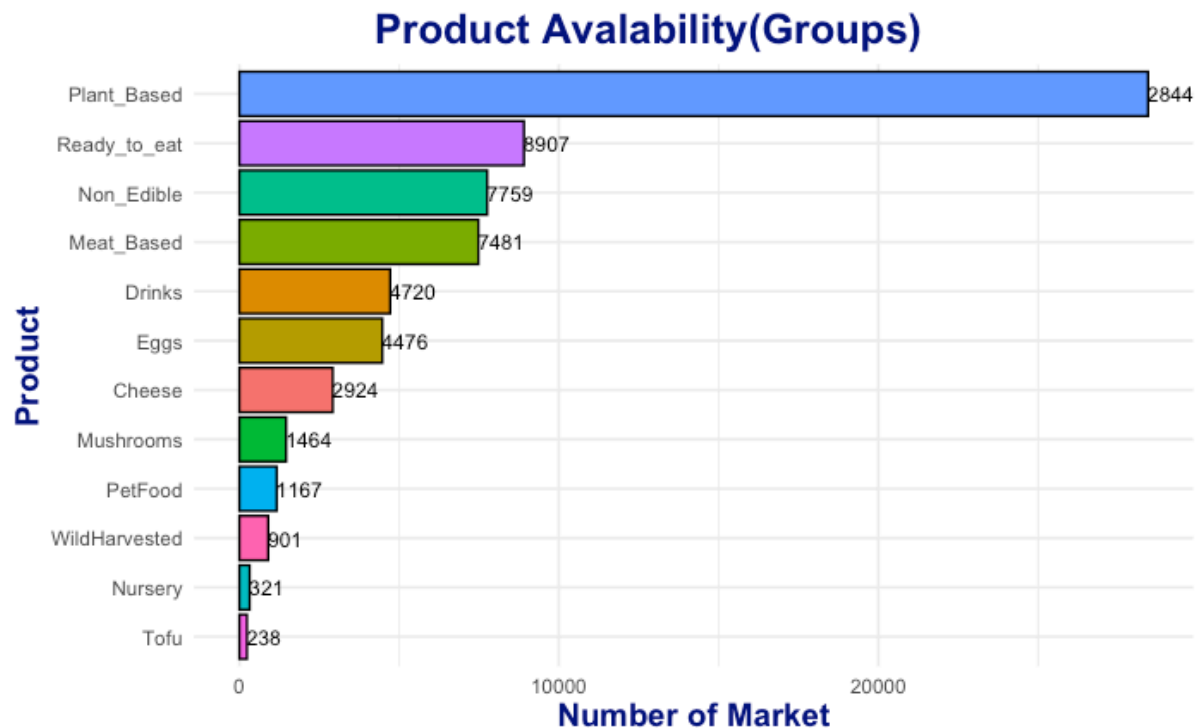
5. Different products sold across the US

Below is a graph which shows different products that are sold through these farmer markets and the number of farmer markets that have been selling these products.

All Products availability
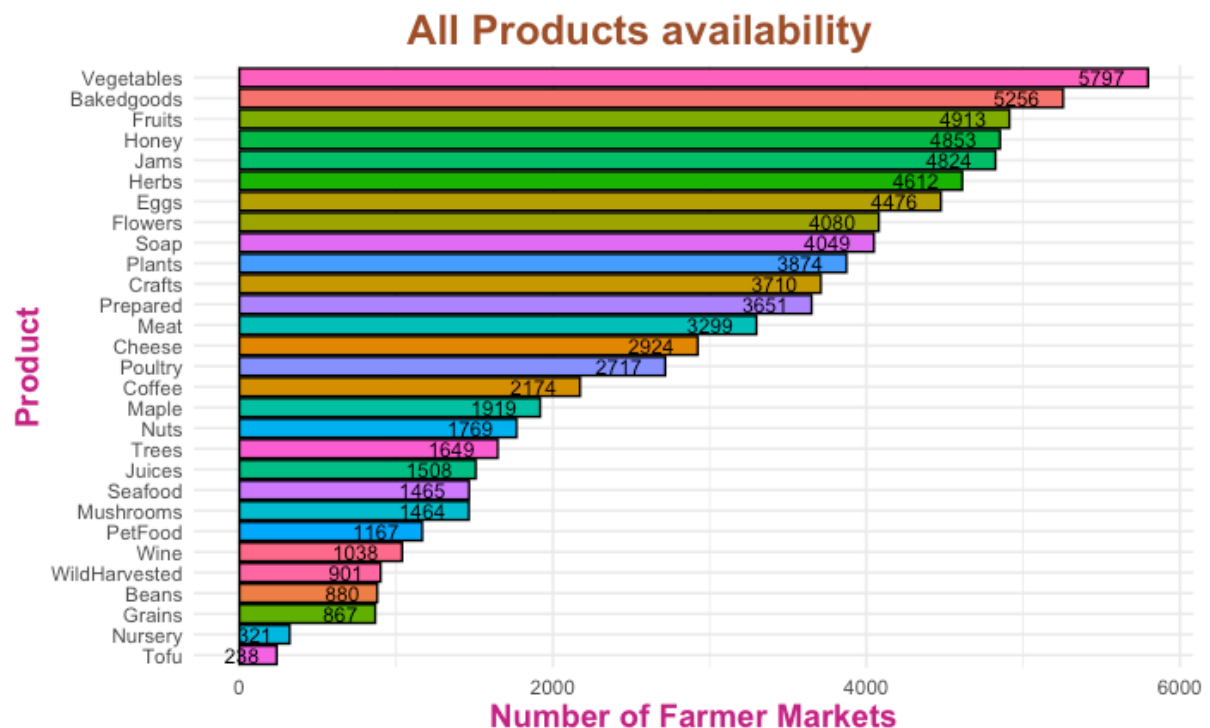
As we can see, vegetables are sold the maximum in the US. It is because, the FMNP program promotes the use of more vegetables and nutrients that are helpful for seniors, children's, women's etc.

6. Classification of Products

I classified the products based on a category they are eaten together or have classified products that are of same category. For eg: All poultry, meat, seafood are classified together. Also all syrups, juices are classified as one. A bar chart with this classification is shown below

Product Avalability(Groups)

| Product	Number of Market
Plant_Based	2844
Ready_to_eat	8907
Non_Edible	7759
Meat_Based	7481
Drinks	4720
Eggs	4476
Cheese	2924
Mushrooms	1464
PetFood	1167
WildHarvested	901
Nursery	321
Tofu	238

This classification is being done just to group these products together and have a clear picture on which products farmers sell the most. As we can see, Plant based products are sold the most by farmers.

Also, over a period of time, there have been people who are shifting to purely plant based diet and avoiding meat and dairy.

Thus, in a few years, we may see the sale of plant based products even more and products like dairy and meat going further down.

The next is just a classification for which states produce the highest amount of Coffee in the United States

Top 10 Coffee producing States
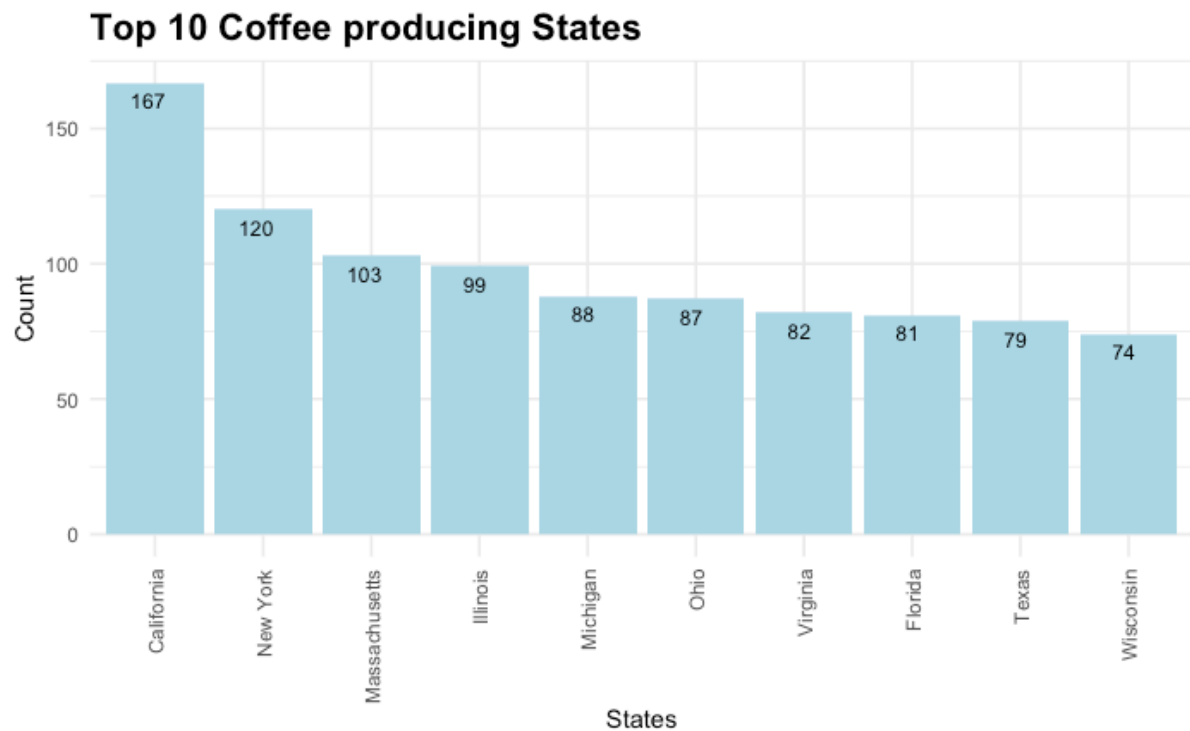
Here, as we can see, California has the highest number of coffee produced and sold. Despite the local drought, the farmers have developed a specialized irrigation system to help the beans grow to peak perfection

7. Different Payment methods across the US

There are five payment methods that are used in the farmers market in the US. They include:
- Credit
- WIC
- WICcash
- SFMNP
- SNAP

Below is a graph that I have created which shows the count of different payment methods across the US
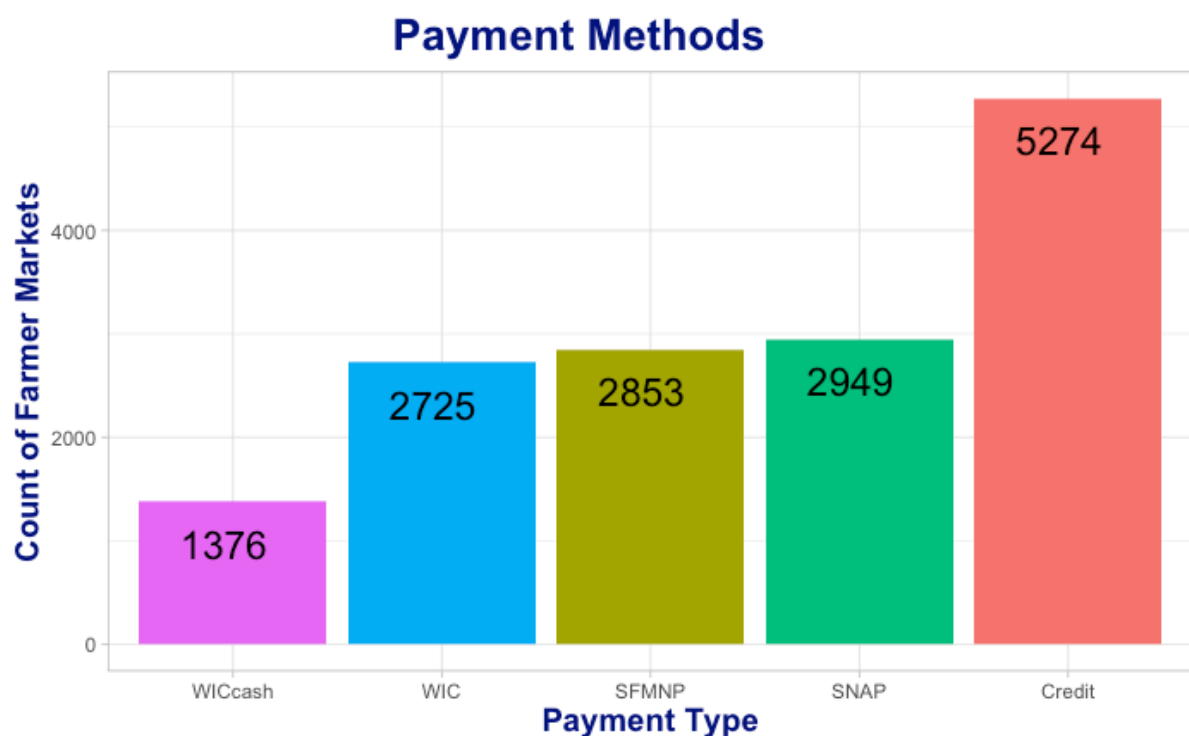
Payment Methods

As we can see Credit is the most used payment method across the US and WICcash is the least used. With various promotion methods, it can be observed that the use of SFMNP and SNAP has been increasing over the years and there are some states where their use has increased significantly.
This can be seen in the below graphs

8. **Effect of different payment methods**

The Farmers Market Promotion program offers various grants with the objective to expand locally produced agricultural products and develop new market opportunities for farms participating in direct to consumer marketing.

8.1 Seniors Farmers' Market Nutrition Program (SFMNP)

- The SFMNP program has been designed to provide low income seniors with coupons that can be exchanged for eligible goods at farmers market, roadside stands and community supported agriculture programs.
- The purpose of this program is to provide fresh, nutritious, unprepared, locally grown produce to low income seniors and increase the consumption of agricultural commodities by expanding, developing, or aiding in the development and expansion of domestic farmers market and roadside stands.
- Low income seniors who have income not more than 185% of the federal poverty guidelines are targeted recipients for this. Till now around 811,809 people received SFMNP benefits

Top 10 SFMNP providing States
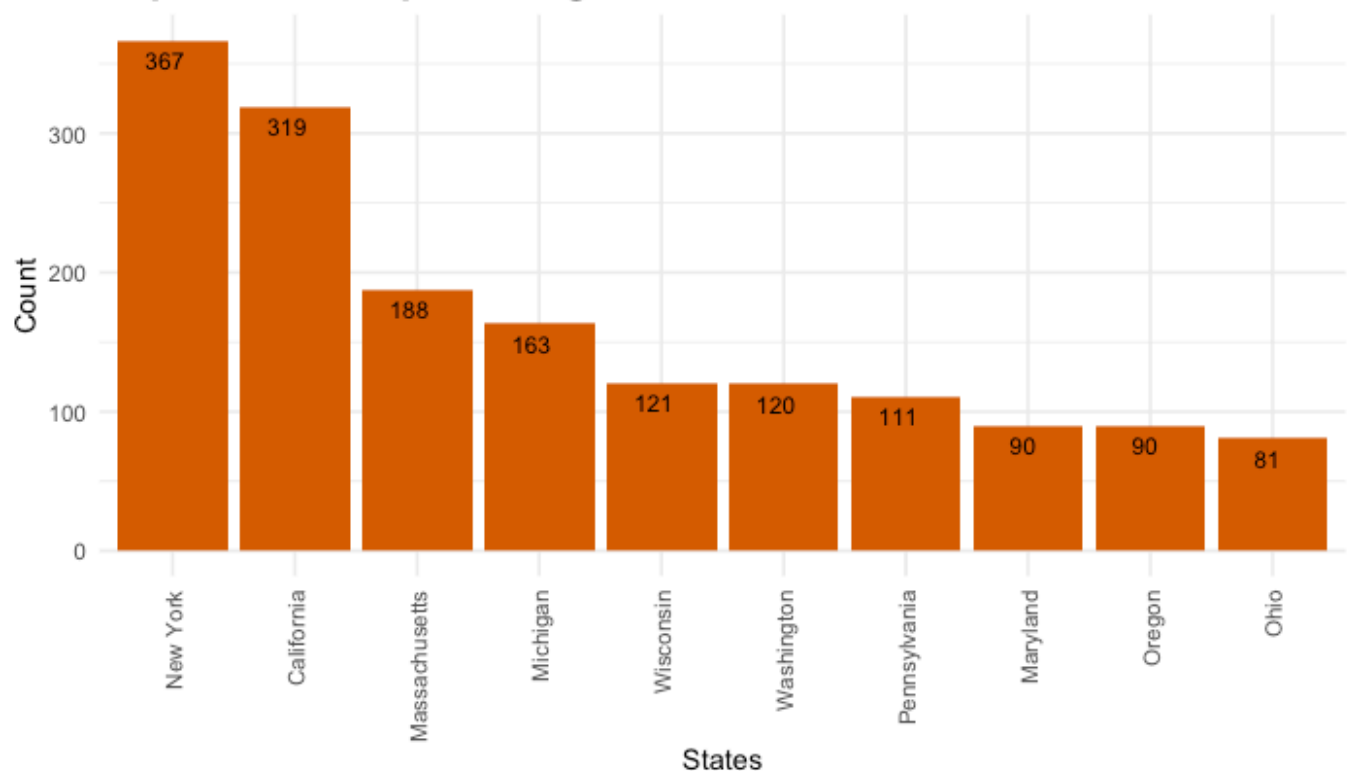
Here New York ranks number 1 providing SFMNP as a payment method with 367 markets whereas California does not have much difference organizing 319 markets.

### 8.2 Supplemental Nutrition Assistance Program (SNAP)

- SNAP is designed to provide nutrition assistance to eligible, low-income individuals and households via a monthly benefit on an Electronics Benefits Transfer (EBT) card which can be used at authorized retailer stores to purchase food. SNAP supports children, seniors and adults with disabilities. Till now, SNAP is the largest federal nutrition assistance program.
- SNAP works to reduce poverty and food insecurity in the United States.
- SNAP also supports large number of women and their families with benefits.
- SNAP lifted atleast 4.7 million people out of poverty in 2014 including 2.1 million children. SNAP also lifted 1.3 million children out of deep poverty, or above half of the poverty line

Food items that can be bought with SNAP are:
- Dairy products, Fruits and vegetables, Meat, poultry etc.

Food items that cannot be brought with SNAP are:
- Live animals, Beer, Wine, Cigarette, liquor or tobacco

Top 10 SNAP providing States
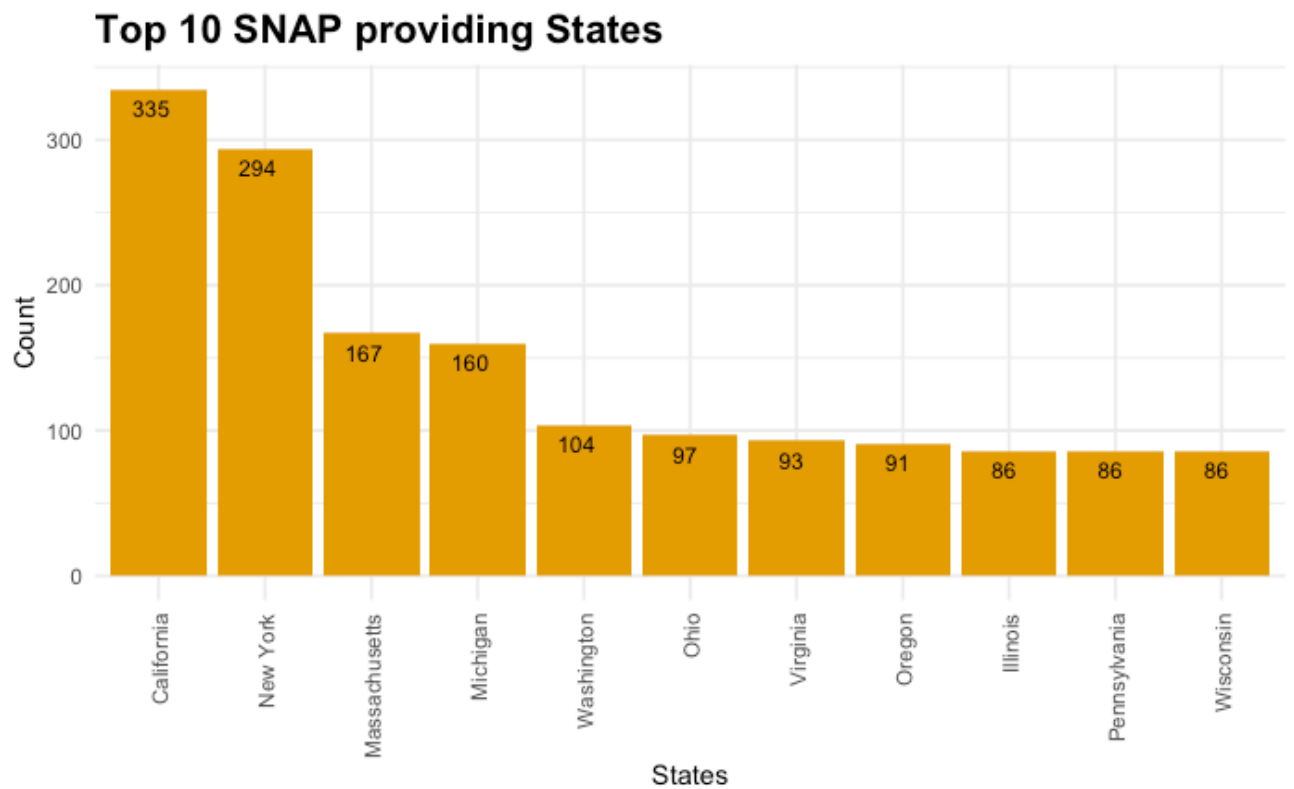
8.3 Women's, Infants and Children's farmers market (WIC and WICcash)

- WIC program provides supplemental foods, health care referrals and nutrition education including breastfeeding promotion and support at no cost to low income pregnant, breastfeeding and non-breastfeeding postpartum women, and to infants and children upto 5 years of age, who are found to be at nutritional risk
- Women, infants over 4 months old and children are entitled for WIC benefits.

Top 10 WIC providing States
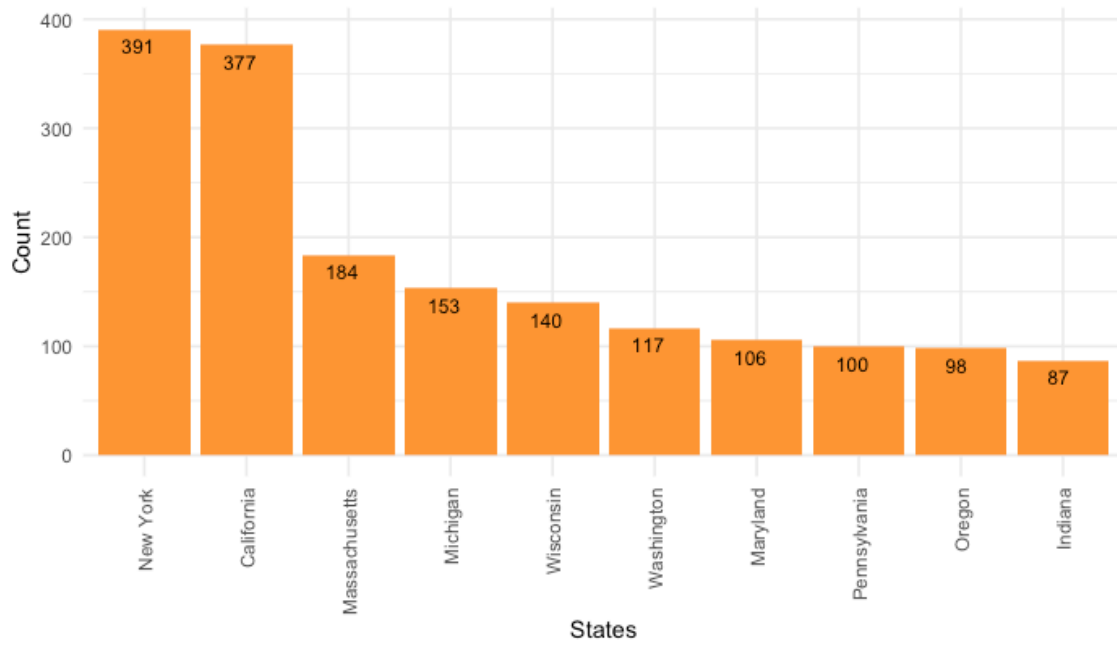
Top 10 WICcash providing States