

Vietnamese food landscape in California

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Introduction

"Oh, I'm a big fan of Vietnamese food. Do you know of some good Vietnamese restaurants here?" is that question I often get asked as I introduce myself as recently moving to San Francisco from my home country to attend a master's program. Well, for now, I know more about data science than about Vietnamese food in California. But wait, though I don't have much personal experience to draw from, I can still be of some help by using my data skills!

Not only do I wish to introduce it to people around me, I am curious to explore how it is received, and hopefully loved, by people from all around the world. Vietnamese food is what I am very proud of about my motherland. Additionally, understanding the food landscape in California, on another hand, would give me some insights into the life of the Vietnamese community here in the state with the biggest presence of Vietnamese population in the entire country. This is a topic that I personally care about.

That's why I used Yelp APIs and put together a dataset about Vietnamese restaurants in California. The data are search results returned by Yelp when querying "Vietnamese Restaurant in {city}, CA" with `city` being every city in California using the list of cities provided by [\(ESRI\)](#).

Besides, to enrich and contextualize my analysis, I used data of [population of Californian cities from the US Census Bureau \(2018\)](#), and data of Vietnamese population by counties from the 2010 Demographic Profile Data dataset provided by the US Census Bureau. I also found a lot of useful information about the Vietnamese community here through the report ["The Vietnamese Population in the United States: 2010"](#) published at VA Summit (2011).

A few questions I would like to ask this dataset include (1) where Vietnamese restaurants are, whether they are concentrated in areas with high representation of Vietnamese population or well spread across the state, (2) who are Vietnamese food consumers, is Vietnamese food loved by non-Vietnamese foodies too, and (3) what food is served and popular, and what is the quality of Vietnamese restaurants here.

Summary of Data

Where Vietnamese food is

The very first thing I seek to understand is "Where Vietnamese food can be found". So I generated a choropleth map at the county level, which lays out an overview of the availability of Vietnamese food.

The first interesting finding is that out of 58 Californian counties, there are only 36 counties that have Vietnamese restaurants. Most counties where Vietnamese cuisine is not a dining option are in the east and the north of the state. This finding is quite surprising to me. Why is that the case? Is it because the majority of Vietnamese people here came from the South of Vietnam where the weather is warm all year round and hence do not enjoy the coldness of North California? I was inclined to this hypothesis until I found out that Washington ranks third among the top 10 states with largest Vietnamese population (VA Summit, 2011). This very first finding now motivates me to learn more about the history of Vietnamese Americans here.

Where to find Vietnamese food in California

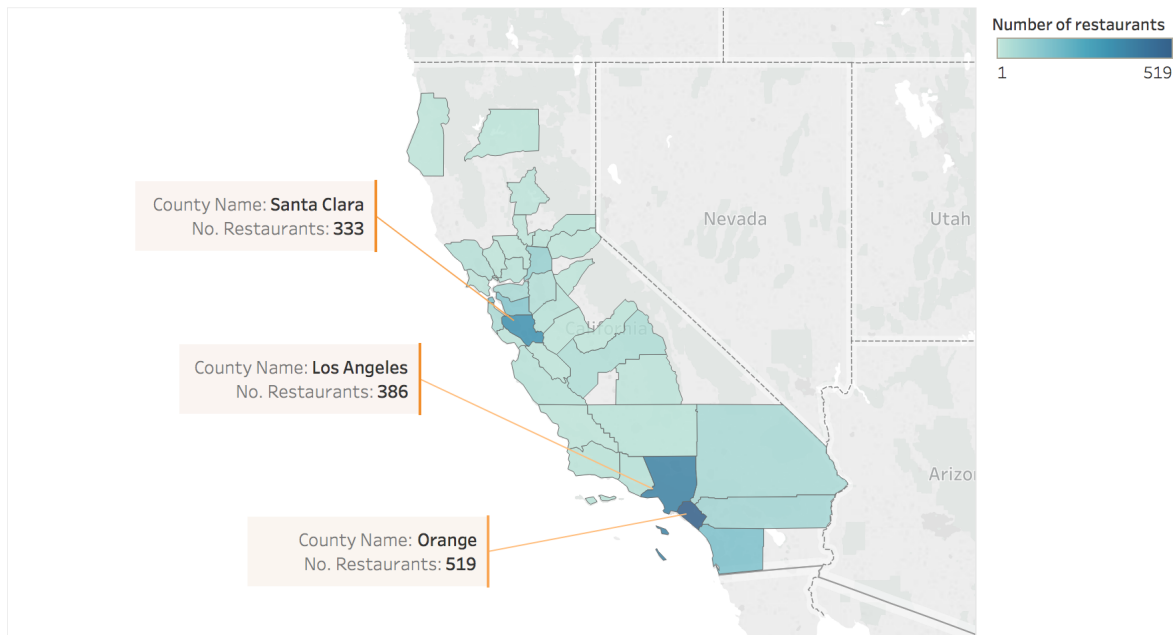
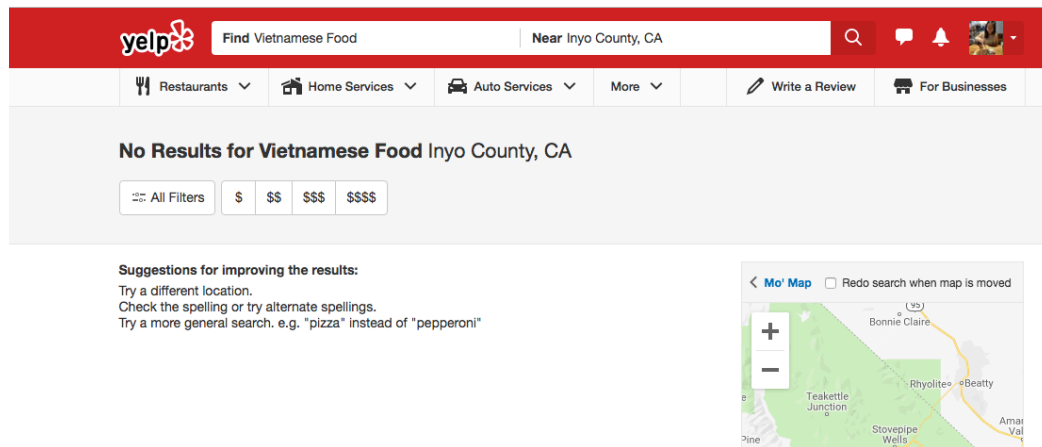


Figure 1 Availability of Vietnamese food in Californian counties

Just to be sure of the correctness of my dataset, I went on to Yelp website and searched for Vietnamese Restaurants in Inyo County and indeed found no results. As I looked into population facts about Inyo County, it turned out there are only 13 Vietnamese people in the entire county according to the US Census Bureau (2010)!



The second interesting fact that came out of the map is that Orange County is the absolute winner by a far margin. While this may not be so surprising given that the Vietnamese community is highly concentrated in this county, having a bird-eye view of its geographical area in comparison with other counties gives me another perspective. Orange County turns out to be among the smallest counties in terms of land mass but the biggest in terms of Vietnamese food supply. Now I'd love to travel there to see for myself if Vietnamese food is right around the corner as my data shows.

While the choropleth map clearly highlights the dense concentration of Vietnamese eateries are in Orange County, it does not picture San Francisco - the city I have called home for the past 11 months - in commensurate light because of San Francisco's tiny size. In fact, despite not having so much land, we have abundant Vietnamese food, with 154 restaurants available in total. Comparing with Monterey, a nearby neighbor, shows how greatly available pho and banh mi are here. Yay!

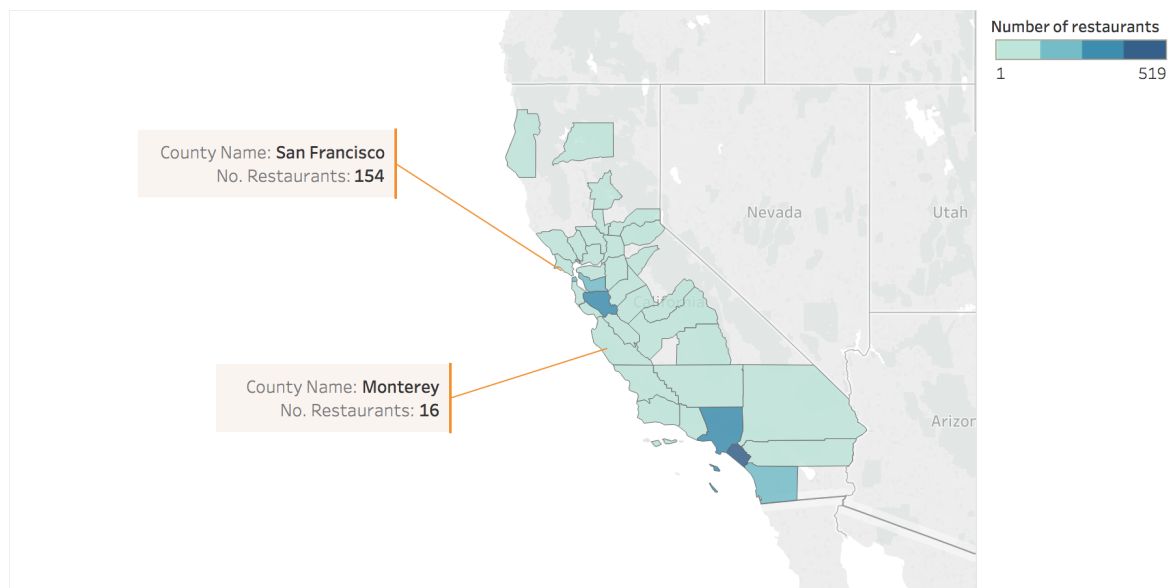


Figure 2 Availability of Vietnamese food in Californian counties with San Francisco being in the spotlight

What about in city level? Will a city-level map tell us another story? Is it possible that there are some cities that have good availability of Vietnamese food but are located in counties where all neighboring cities do not enjoy Vietnamese food and hence that county do not show up in the top list?

This chart shows the top 10 cities with the largest number of Vietnamese restaurants. It is first worth noting that these 10 cities host 1,099 out of the total of 2,322 restaurants or 50% the total number of Vietnamese restaurants in the entire California!

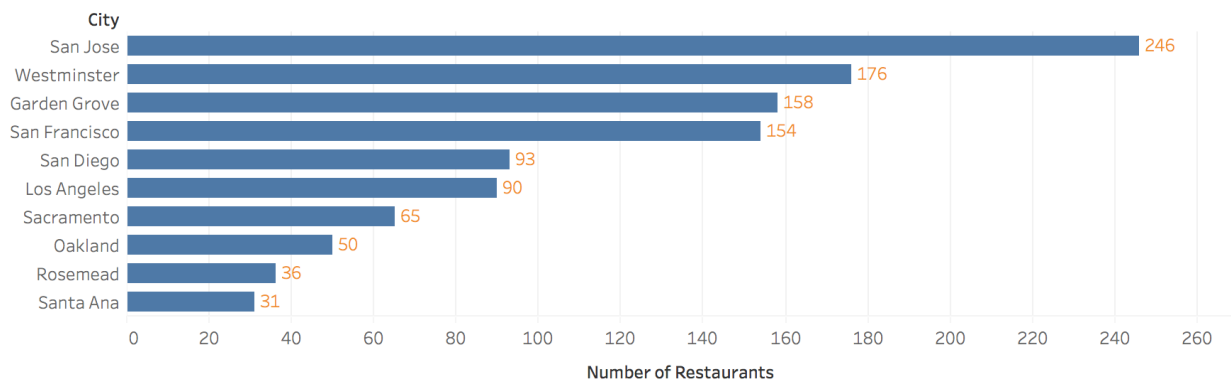


Figure 3 Top 10 Californian cities with the largest number of Vietnamese restaurants

All these 10 cities belong to the top counties. It turns out that Orange County is home to 4 of the top 10 cities! No wonder why the absolute victory.

Now I have to admit that there being many restaurants not necessarily means good accessibility. It is possible that a city may have so big a population that although it has many restaurants, it is still not enough to cater to the need of everyone. This leads me to looking at the number of restaurants per thousand people, which again reveals another interesting fact.

The size in tree map below represents the relative contribution of each city to the total number of restaurants in the state, the intensity of the blue shading color represents number of restaurants per thousand people. Spring Valley and Mountain View, despite having a humble number of Vietnamese restaurants, offer their citizens with good accessibility to yummy healthy Vietnamese food. There are nearly 3 Vietnamese restaurants for every 1000 people in Mountain View, which is more than 10 times in San Jose, the city with the largest number of restaurants!

Vietnamese food lovers in Westminster, a city in Orange County, have another reason to be proud of their food scene. Not only being in top 3 cities with the largest number of restaurants, it also makes it in top 3 in terms of making Vietnamese cuisine a very reachable to its people.

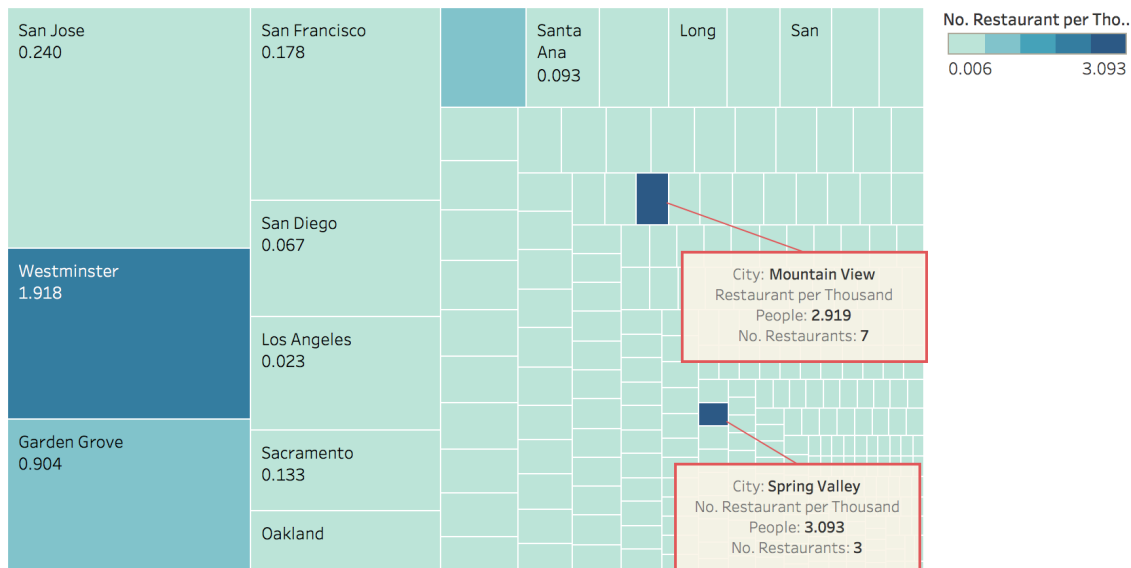


Figure 4 Californian cities - number of Vietnamese restaurants and number of restaurants per thousand people

Who are Vietnamese food lovers

The case of Mountain View triggers my curiosity: “Is there a big Vietnamese community there or Vietnamese food is loved by non-Vietnamese foodies?”

To answer this question, and to understand in general, whether Vietnamese cuisine gains some popularity in the international food scene, I color the tree map with the percentage of Vietnamese in the total population of each city.

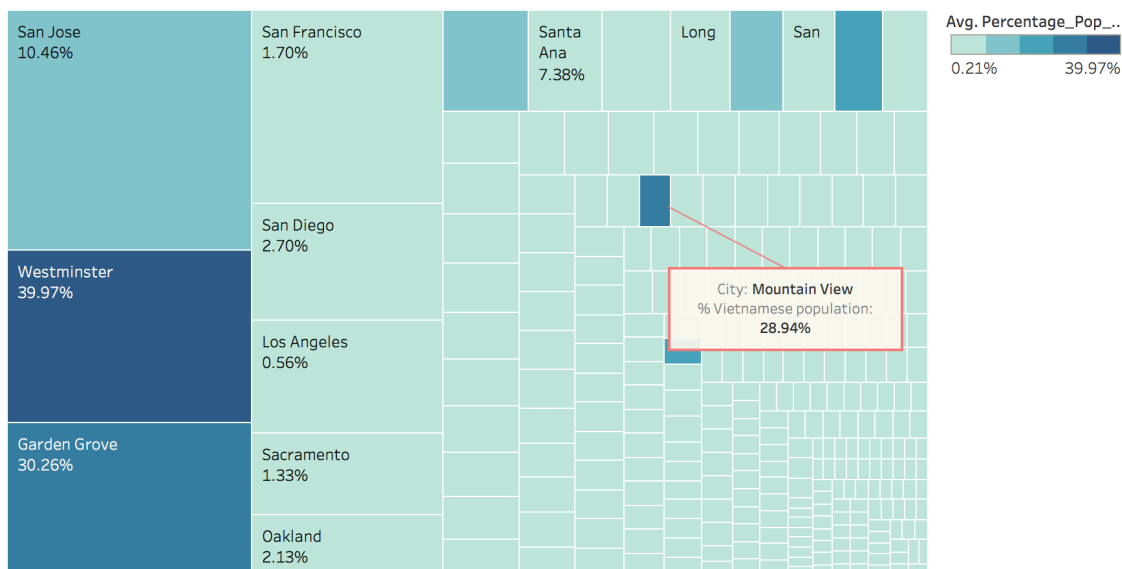


Figure 5 Californian cities - number of Vietnamese restaurants and representation of Vietnamese in the total population

The new color coding scheme gives me the answer to why Mountain View has an impressively high coverage of Vietnamese food: Vietnamese makes up more than one fourth of the total

population of city, meaning that there is a Vietnamese person for every four people in Mountain View!

But does that hold for all cities that the more Vietnamese people, the more Vietnamese food there is? I would love to see that even in cities where there are not so many Vietnamese people, there are still a fair number of restaurants, signaling that the food has crossed the culinary boundary to make it into the international food landscape.

The figure below shows the relationship between the number of restaurants and the total population, Vietnamese population, and representation of Vietnamese community in the city, respectively.

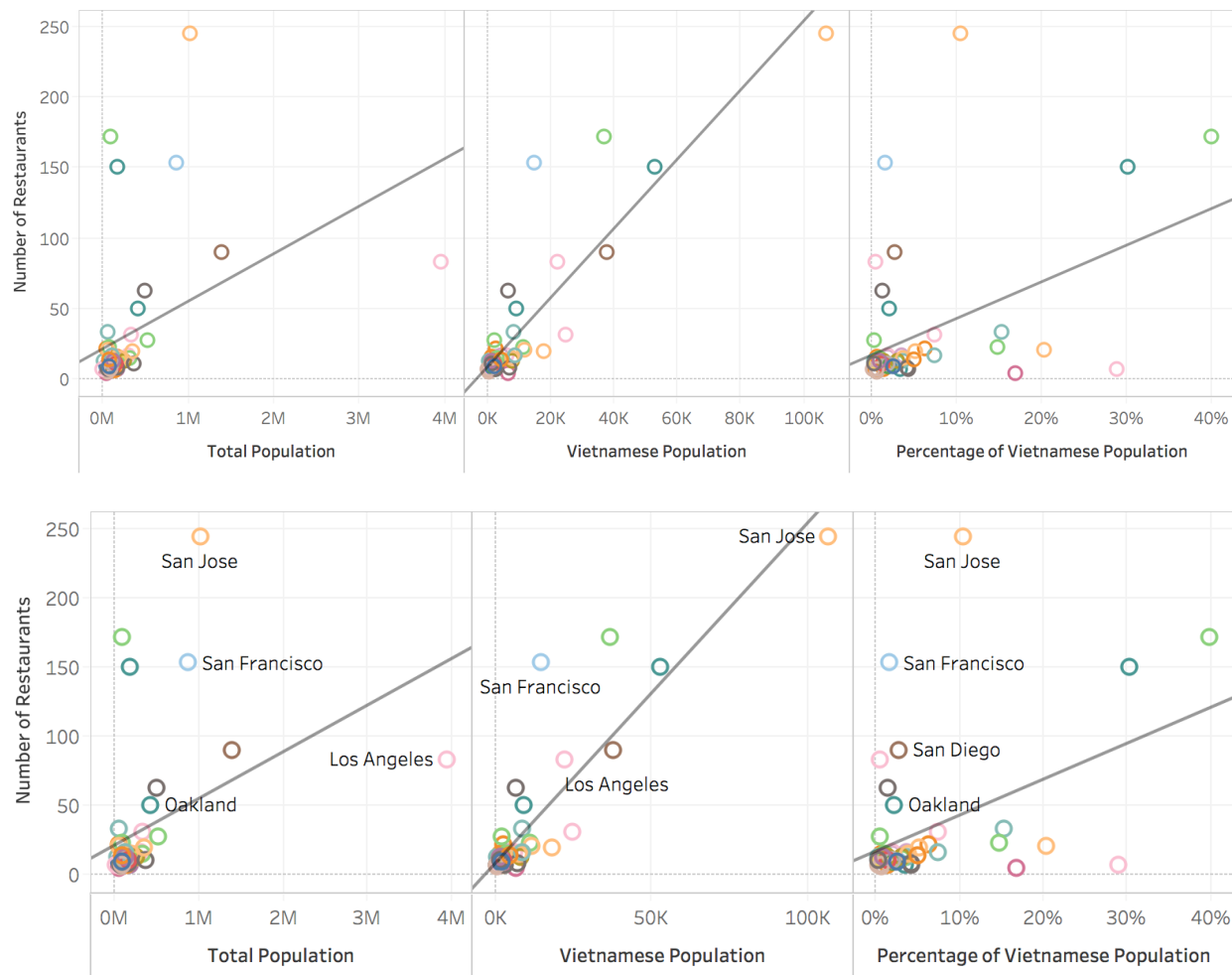


Figure 6 Popularity of Vietnamese food among Vietnamese and non-Vietnamese food lovers

The steep and well-fitted line in the plot in the middle shows a strong relationship that the larger the Vietnamese population, the higher the number of Vietnamese restaurants. But what is exciting to me is to see that there are quite a few cities where there is indication that Vietnamese food is well loved among non-Vietnamese foodies too! In Oakland, Sacramento,

Los Angeles, San Diego, San Francisco, and San Jose, there are a lot of Vietnamese restaurants despite the low representation of Vietnamese population.

Pho? Banh mi? What's on the menu

Pho is proven to be the most popular Vietnamese food with a large number of restaurants specializing in pho. Yet surely, there is so much more to Vietnamese cuisine than our delicious noodles. So it's motivating to see how the majority of the restaurants in California are a one-stop-shop that serves Vietnamese shaking beef, crispy Vietnamese pancakes, rice noodles salad, so on and so forth.

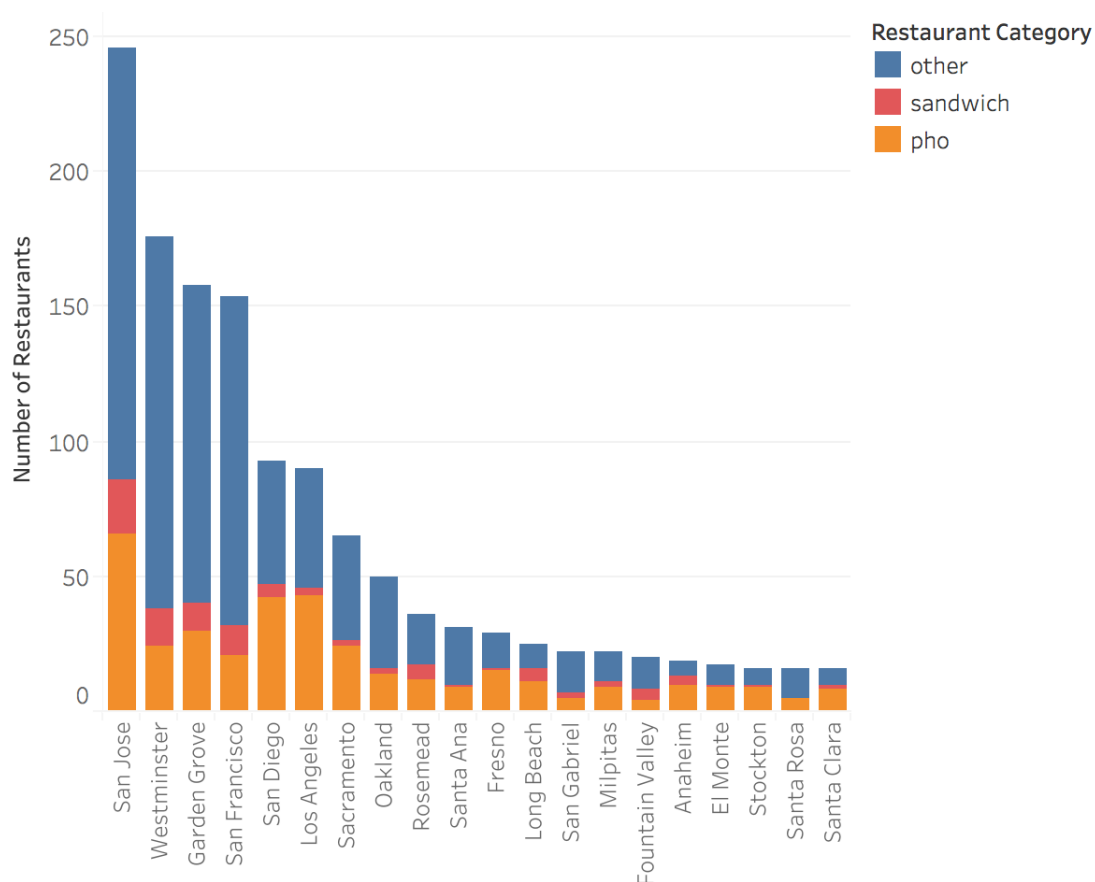


Figure 7 Vietnamese food that restaurants specialize in

How good is the food?

Now, let's take a look at how good Vietnamese food is, according to Yelp users. I hope to see more restaurants receiving 5-star rating - currently only more than 2% of restaurants completely win their customer hearts (in Vietnamese, we have a saying that is the quickest way to the heart is through the stomach 😊). In overall, I would say that Vietnamese restaurants in general are satisfactory though not exceptional.

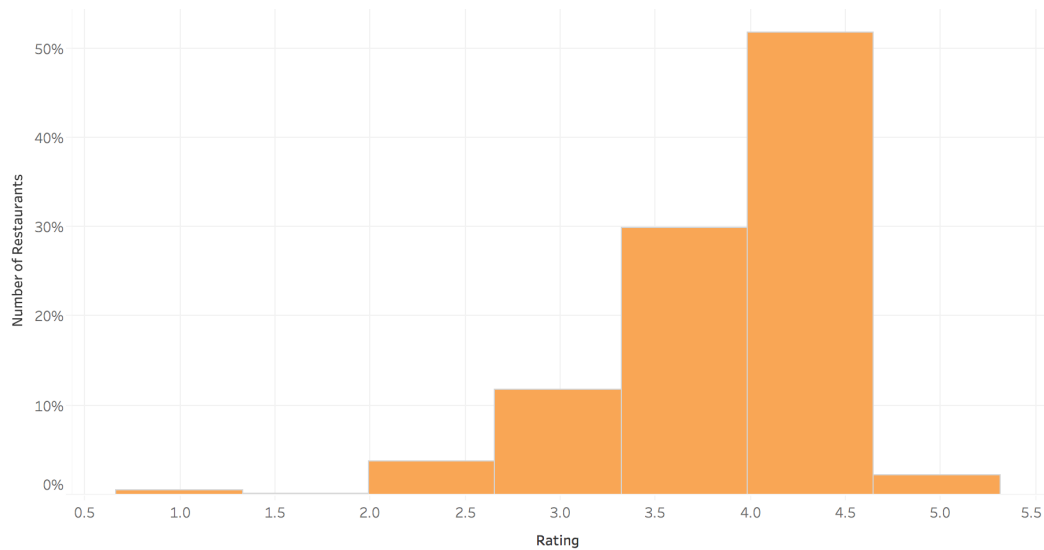


Figure 8 Rating of Vietnamese restaurants on Yelp

There is a fair amount of inconsistency in the quality of restaurants, more so in some cities than in others. Below is the box plot showing the rating of restaurants in the top 10 cities with the largest number of Vietnamese restaurants.

Big fans of Vietnamese food should definitely check out San Jose, Santa Ana, Sacramento, Los Angeles, or Garden grove. As the data shows, finding amazing Vietnamese restaurants here is not that hard. At the same time, make sure to check Yelp carefully before you go because in these cities, the quality of food varies to a large extent too.

Speaking of San Francisco, I'm happy to see that the overall quality of Vietnamese food is among the highest. However, the chance to find a really outstanding restaurant is slim.

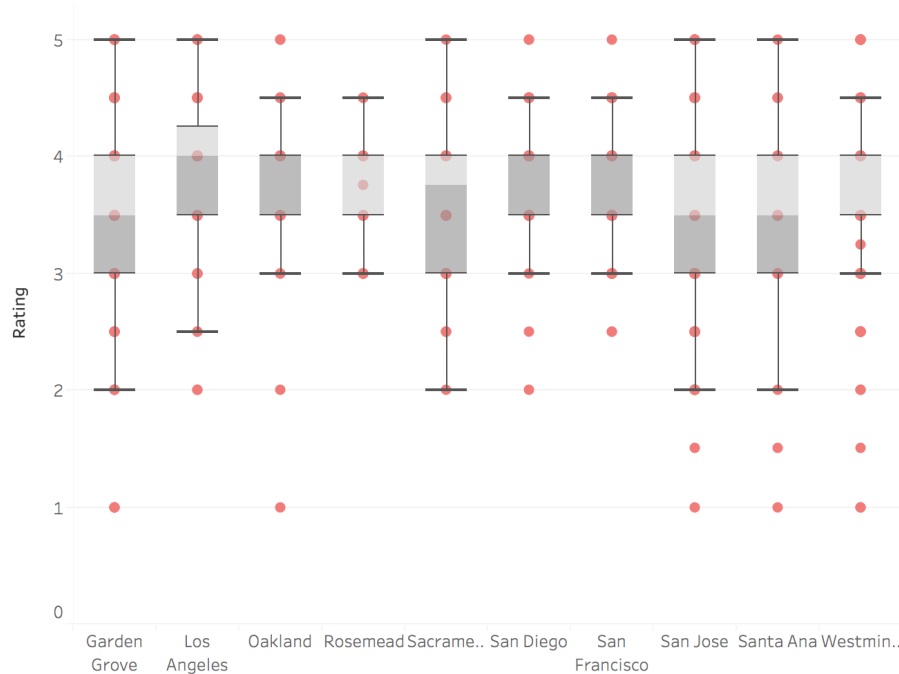


Figure 9 Rating of Vietnamese restaurant in top 10 Californian cities

Finally, I want to know how much feedback the restaurants receive to improve their quality, and hopefully, to move up towards the 4.5 and 5-star rating camps.

Unluckily, a large number of restaurants do not receive much feedback. Up to 20% of restaurants hear back from fewer than 50 customers and more than 50% restaurants have fewer than 200 reviews. They should definitely ask to hear more opinions from their customers.

There is an exceptional case of a restaurant that receives more than 5000 reviews! Maybe that could be a good role model for those 50% restaurants to learn from.

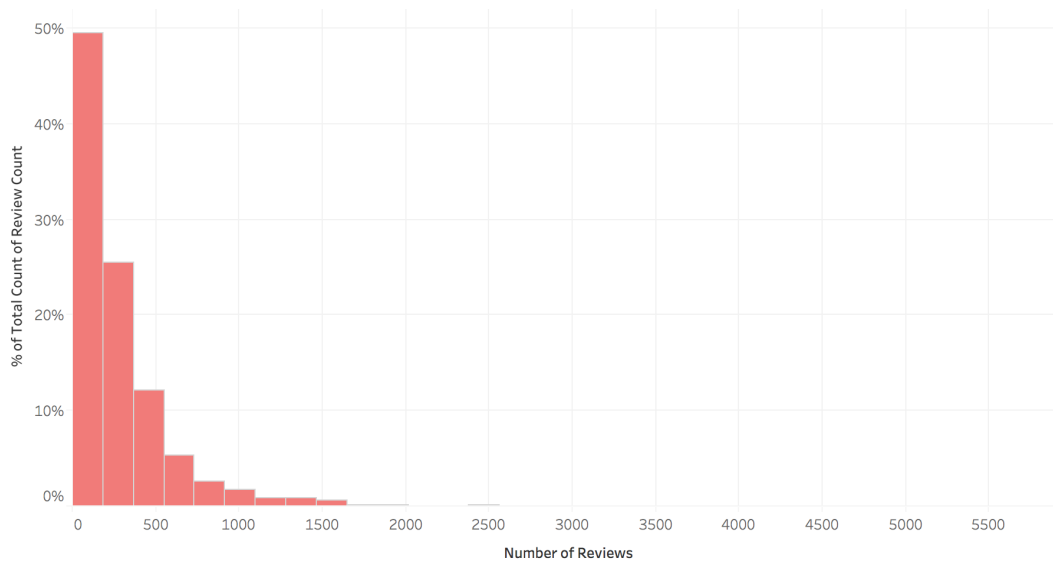


Figure 10 Yelp users' reviews of Vietnamese restaurants

It turns out to be a restaurant in San Francisco! (See Appendix).

Conclusion

Vietnamese food is common yet lacks presence in a large part of California. Restaurants are highly concentrated in where the Vietnamese population is the biggest. Yet interesting, regarding the number of restaurants per capita, Spring Valley and Mountain View - despite being home of only a handful of restaurants, actually are where citizens have the most access to Vietnamese food on average.

Unluckily, the quality of Vietnamese food is not yet exceptional and many of the restaurants do not receive much feedback from their customers to improve themselves. Foodies in San Francisco and San Diego tend to be highly vocal of their experience, which possibly helps restaurants here meet their needs better, hence the overall high quality across restaurants in these two cities.

Bibliography

United States Census Bureau. (2011, June 1). *The Vietnamese Population in the United States: 2010*. Retrieved from <http://www.vasummit2011.org/>:
http://www.vasummit2011.org/docs/research/The%20Vietnamese%20Population%202010_July%202.2011.pdf

Appendix

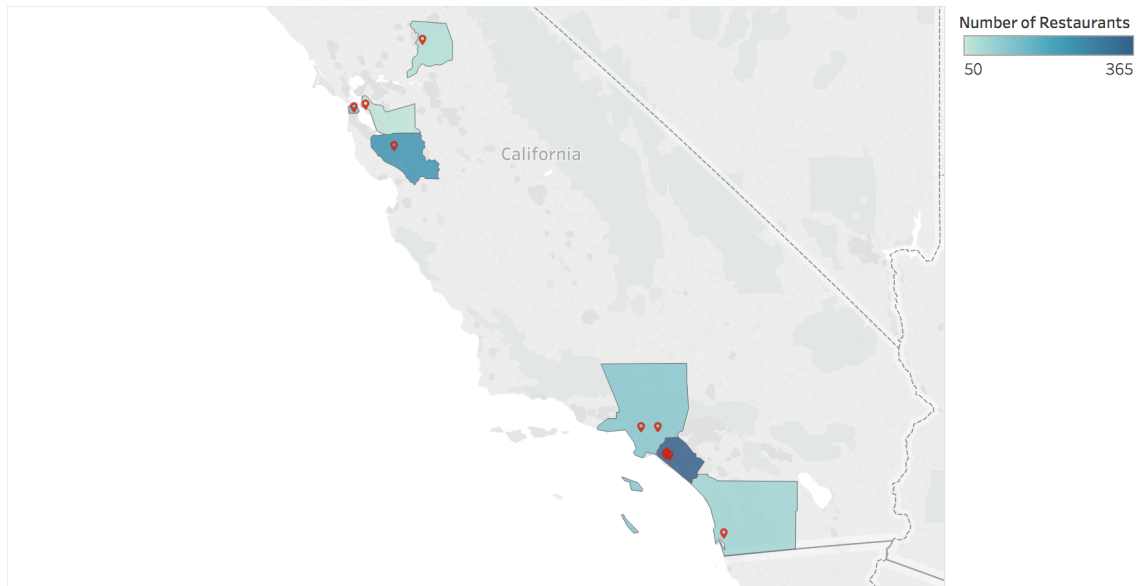


Figure 11 Top 10 Californian cities with the largest number of Vietnamese restaurants in corresponding counties

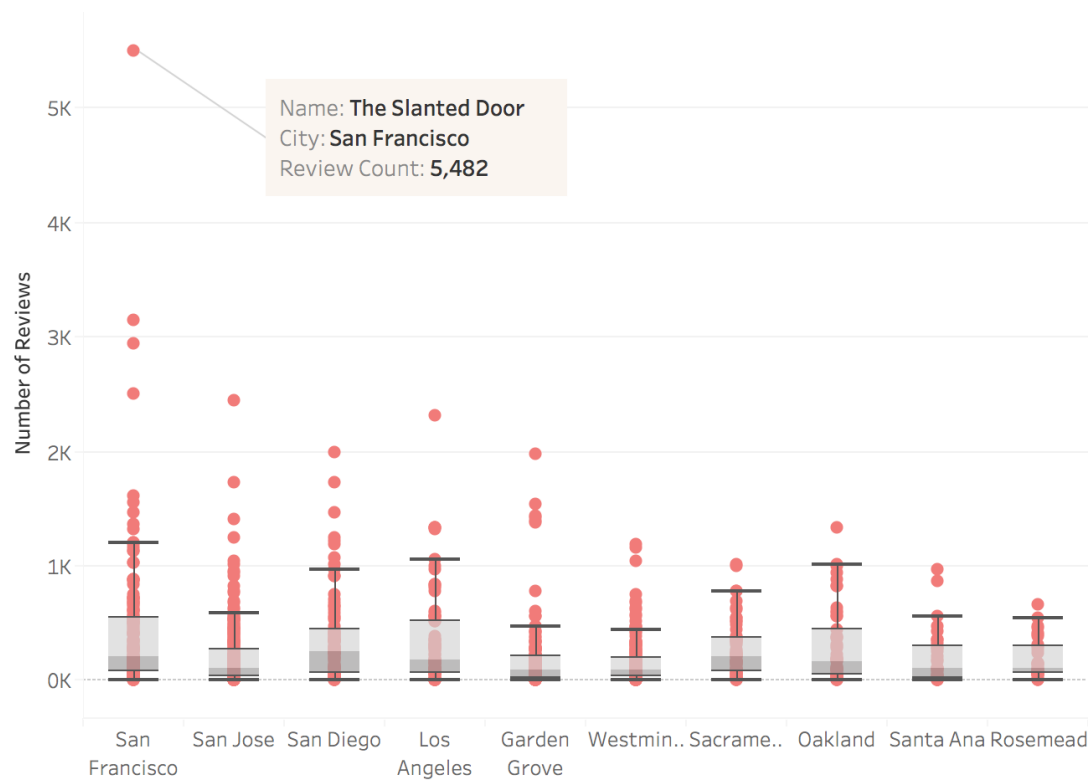


Figure 12 Yelp reviews of Vietnamese restaurants in 10 Californian cities with the largest number of Vietnamese restaurants

