

An analysis of Michelin Starred Restaurants worldwide 2019

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1. Executive Summary

Main findings:

There are 3,299 restaurants across 31 countries listed in the 2020 Michelin Guide.

2. Introduction

Amongst the culinary world, there are few greater accolades than a restaurant being awarded a Michelin star (or three!). Foodies and fine dine lovers, see the experience of dining at one of these award winning restaurants, as just that, an experience, and thus take to looking at guides such as The Michelin Guide and The World's 50 Best Restaurants and to help determine which restaurant is next worth their time and money.

The Good Food guide too??? - This is UK only

2.1 THE MICHELIN GUIDE 2020

The very first Michelin Guide was compiled in 1900 by the Michelin brothers, however the star awarding system started in 1926 in France, with the first stars awarded in the UK in 1974. New York was added to the guide in 2006 and it crossed over to Asia in 2007.

The guide states the following definitions for each of the Michelin star awards:

One star: "a very good restaurant"

Two stars: "excellent cooking that is worth a detour"

Three stars: "exceptional cuisine that is worth a special journey"

The process of how a Michelin star is awarded to a restaurant has been a very closely guarded secret, however some details have come to light through various means. There are approximately 120 Michelin inspectors worldwide, who spend 3 weeks out of 4 on the road in a particular region, travelling to a different restaurant every day if possible for both lunch and dinner.

The guide has never divulged the secret of how they award points, so the process isn't very clear. What is known is that inspectors will visit a restaurant multiple times in a year, when it is being considered for an additional star (or its first star), or if a star might be taken away.

Each country's guide is announced at differing times of the year, which can become confusing. In the UK, the list is announced in October of the year before. ie. the 2020 list which is explored later, was announced in October 2019.

Criticism

The guide has been criticised for giving unfair bias towards French restaurants - both French cuisine worldwide, and restaurants in France itself.

There have been similar criticisms about the guide being too lenient with restaurants in Japan, given the large number of awards given in the country. However this allegation was counteracted by the fact that there are far greater restaurants in the larger Japanese cities comparatively to other large cities across the world. Eg Paris has approx 40,000 restaurants, whereas Tokyo has around 160,000 restaurants.

2.2 THE WORLD'S 50 BEST RESTAURANTS 2019

Taken from The World's 50 Best Restaurants website:

"Since 2002, The World's 50 Best Restaurants has reflected the diversity of the world's culinary landscape. Thanks to its panel of more than 1,000 culinary experts, as well as its structured and audited voting procedure, the annual list of the world's finest restaurants provides a snapshot of

some of the best destinations for unique culinary experiences, in addition to being a barometer for global gastronomic trends.”

How is the list compiled.....

“The World's 50 Best Restaurants list is compiled from the votes of the "World's 50 Best Restaurants Academy", a group of 26 panels established to make the ranking.^{[1][7]} The world is divided into regions, with a chairperson in each region appointed for their knowledge of their part of the restaurant world. These chairs each selected a voting panel of 40 members, who every year cast thousands of votes.

There is no list of nominees; each member of the international voting panel votes for their own personal choice of ten restaurants. Up to six votes can be cast for restaurants in the voter's own region, while at least four must go to restaurants outside of the home region.^[1] No voting member is allowed to vote for their own restaurant, or one in which they have an economic interest, and voters must have eaten in the restaurants they nominate within the past 18 months. The integrity of the voting process and the resulting list is adjudicated by global consultancy firm Deloitte.” - wikipedia.

This list is often cited in publications around the world, including The Telegraph and as such, has now become one of the leading guides on gastronomy around the world. You would therefore think that the results of this list should run somewhat parallel to the Michelin Guide.

When announced?.....

Criticism.../

Subheading

But how exactly does the spread of Michelin stars and the top 50 restaurants look like not only across the UK, but also the world? And what more can we understand about the types of restaurants that have received these awards?

By exploring The World's 50 best restaurants, can we determine if there is in actual fact a correlation with restaurants included in the guide and those given Michelin stars?

3. Data

Having undertaken extensive web scraping and data analysis, I have explored just these questions and more. I delved into the current edition of the online Michelin Guide for every country currently partaking in the awards - each country's guide has an individual website which had to be scraped for the data. I have also scraped The World's 50 best restaurant website, 2019 list.

The full script for this web-scraping is here and the full data analysis script can be found here.

Tools and libraries used for this analysis, all in Python: Jupyter notebook, BeautifulSoup, Pandas, NumPy, Seaborn, Plotly.

The main findings of the analysis are below.

4. The Michelin Guide 2020

4.1 OVERVIEW

There are 3,299 restaurants included in the Michelin guide worldwide, compiled of individual guides from 31 countries. The following countries are included in the guide at the time of writing (Feb 2020):

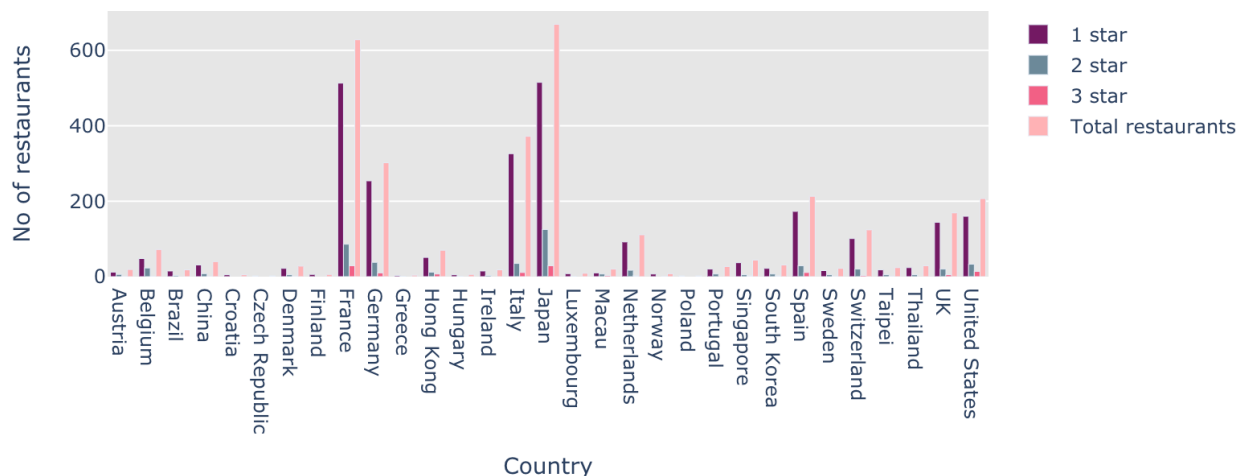
Austria, Belgium, Brazil, China, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hong Kong, Hungary, Ireland, Italy, Japan, Luxembourg, Macau, Netherlands, Norway, Poland, Portugal, Singapore, Spain, South Korea, Sweden, Switzerland, Taipei, Thailand, UK, United States.

Of these 31 countries, the ten with the most starred restaurants (note that at this point, we are looking at the number of restaurants, not the total number of stars) are:

| Country | no_of_stars |
|---------------|-------------|
| Japan | 669 |
| France | 628 |
| Italy | 372 |
| Germany | 302 |
| Spain | 213 |
| United States | 207 |
| UK | 169 |
| Switzerland | 124 |
| Netherlands | 111 |
| Belgium | 72 |

Japan leads with the most stars worldwide, with UK coming in 6th place. We can further analyse this breakdown of stars per country, looking at how many 1 star, 2 star and 3 star restaurants there currently are in each country.

Michelin starred restaurants per country 2020



Add html link here for all charts too

Japan has the most 3 star restaurants, followed by France, Italy and Germany, which follows the pattern of countries with the most starred restaurants.

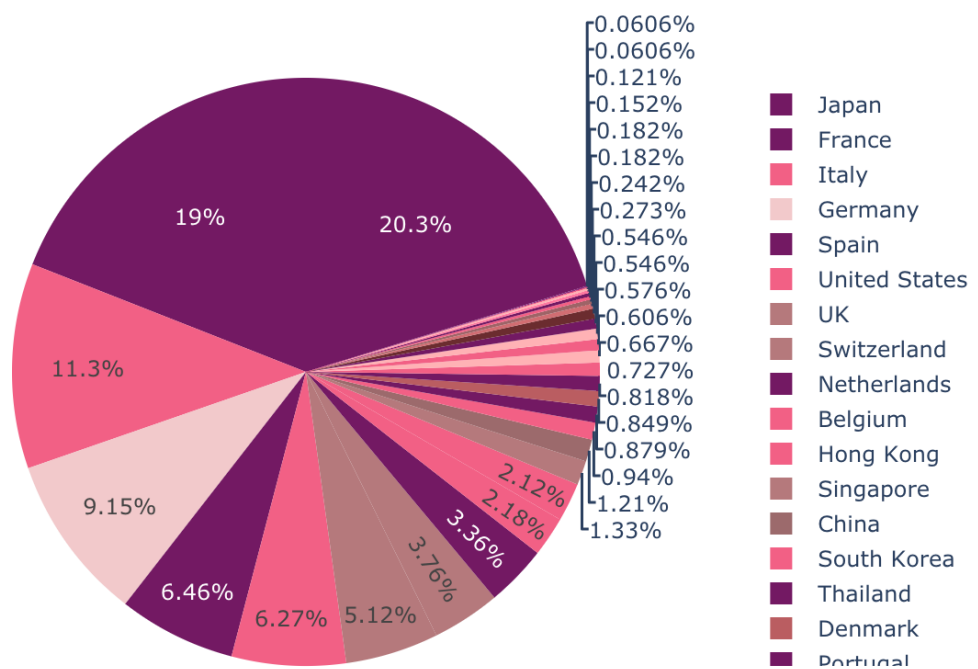
We can visualise this information on a world heat map. Find the interactive version of this here.

Michelin starred restaurants by country 2020



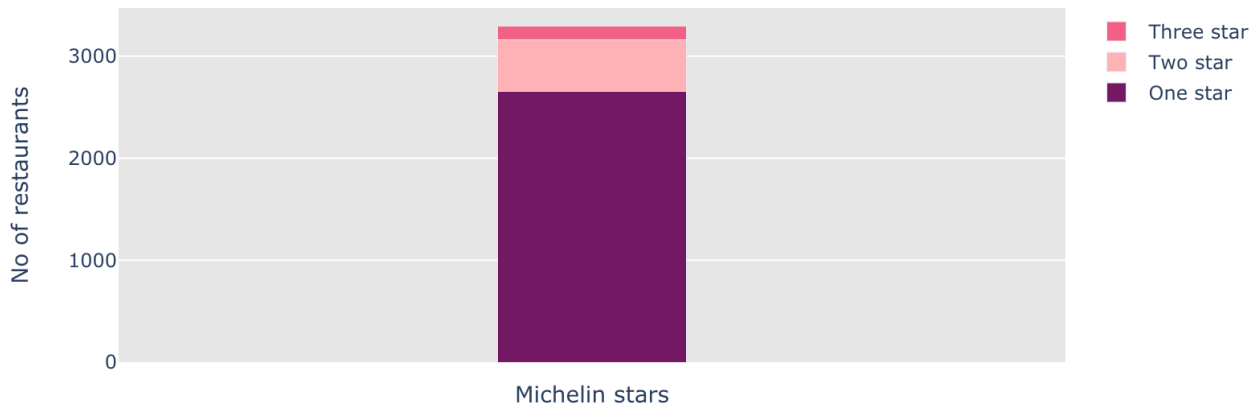
Looking at the proportional breakdown of restaurants across the world, we can see that Japan, France and Italy make up 50% of the entire list.

Percentage of michelin starred restaurants by country



There are 2657 (81%) one star restaurants, 507 (15%) two star and 135 (4%) three star included in the guides worldwide. It indeed does seem that gaining three stars is a very rare achievement amongst restaurants.

Breakdown of one, two and three michelin star restaurants worldwide 2020



4.2 CUISINES

There are 103 different cuisines included in the data. It is worth noting that there are some overlaps in a handful of cuisine names, for instance we have 'French' and 'Classic French', 'Creative British' and 'Modern British'. However further investigation into this showed that this does not skew the analysis in a way which requires any manipulation of this data.

We can explore these cuisines in two different ways:

- 1) The number of restaurants of a certain cuisine, which have one star or more
- 2) The total number of stars for each cuisine. ie. if a restaurant has 3 stars, all three will be added to the total of stars in this cuisine

The top 10 cuisines with the most starred restaurants are:

| cuisine | no_of_stars |
|-----------------|-------------|
| Modern cuisine | 708 |
| unknown | 685 |
| Creative | 450 |
| Japanese | 368 |
| French | 147 |
| Sushi | 110 |
| Contemporary | 86 |
| Classic cuisine | 68 |
| Italian | 56 |
| Modern British | 42 |

The cuisine with the most restaurants included in the guide is Modern Cuisine.

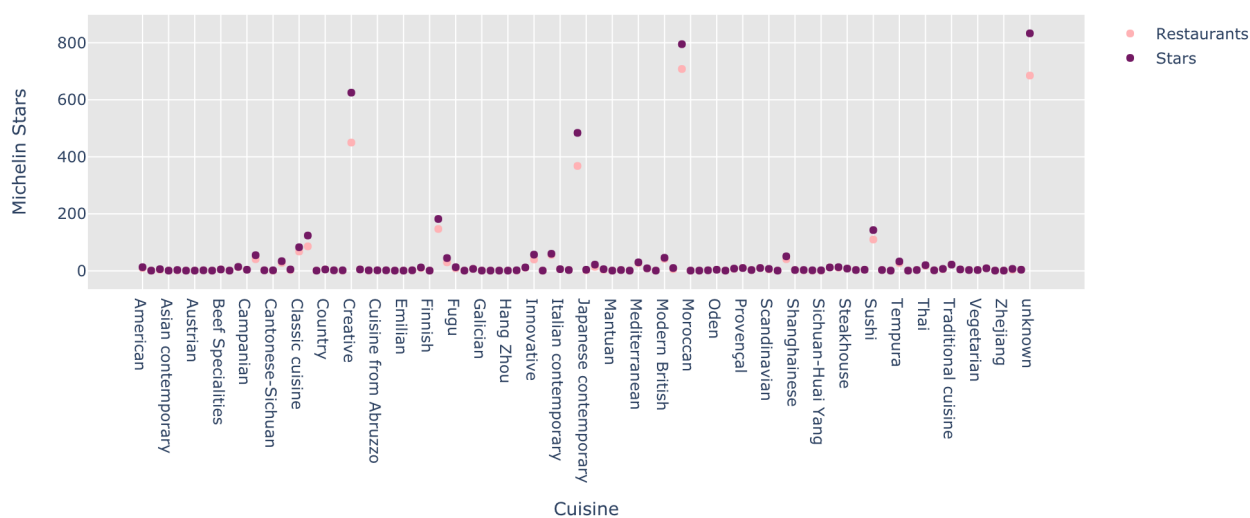
The top 10 cuisines with the most stars overall are:

| cuisine | no_of_stars |
|-----------------|-------------|
| unknown | 833 |
| Modern cuisine | 795 |
| Creative | 625 |
| Japanese | 484 |
| French | 182 |
| Sushi | 143 |
| Contemporary | 124 |
| Classic cuisine | 83 |
| Italian | 60 |
| Innovative | 57 |

The cuisine with the most stars is also modern cuisine, and the majority of this top 10 list is the same as the top cuisines with the most restaurants.

We can visualise both of these breakdowns of cuisine in a scatter plot. Click onto the link to view the interactive zoomable version.

Michelin stars 2020 by cuisine



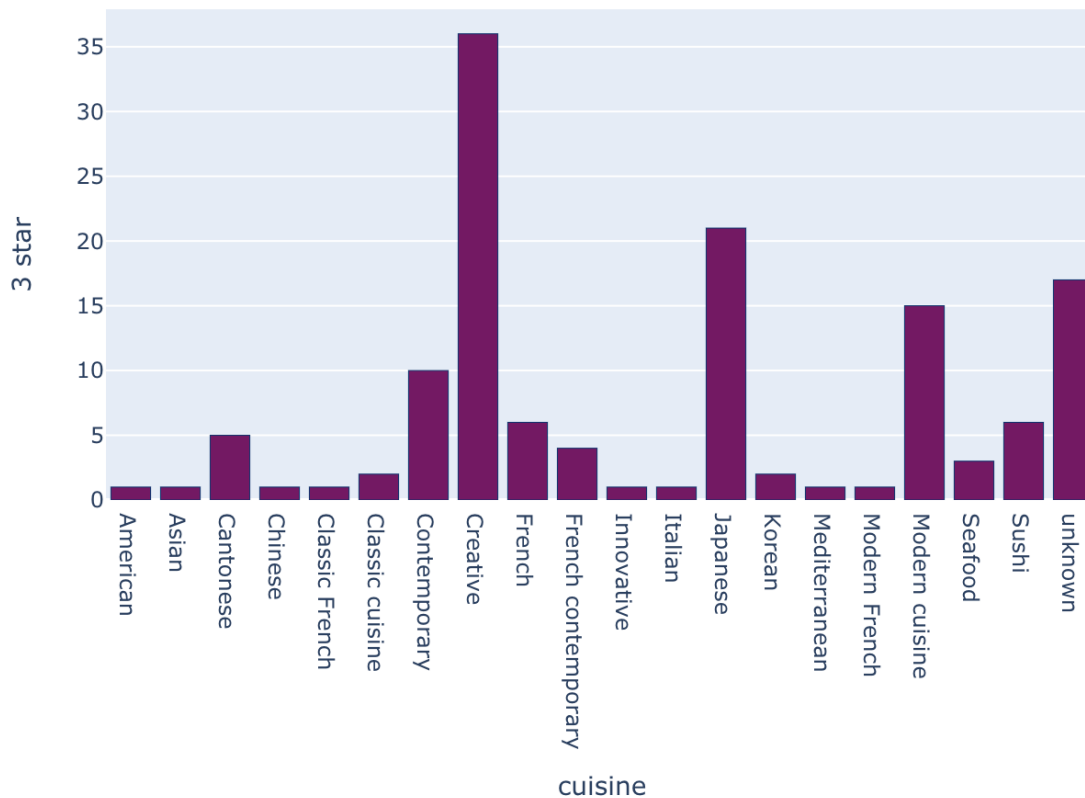
We can see there is a difference between the two sets of data in particular for Creative, Japanese contemporary and Modern cuisine, which shows us that these cuisines most likely have more restaurants with the higher number of stars.

| cuisine | 3 star |
|---------------------|--------|
| American | 1 |
| Asian | 1 |
| Cantonese | 5 |
| Chinese | 1 |
| Classic French | 1 |
| Classic cuisine | 2 |
| Contemporary | 10 |
| Creative | 36 |
| French | 6 |
| French contemporary | 4 |
| Innovative | 1 |
| Italian | 1 |
| Japanese | 21 |
| Korean | 2 |
| Mediterranean | 1 |
| Modern French | 1 |
| Modern cuisine | 15 |
| Seafood | 3 |
| Sushi | 6 |
| unknown | 17 |

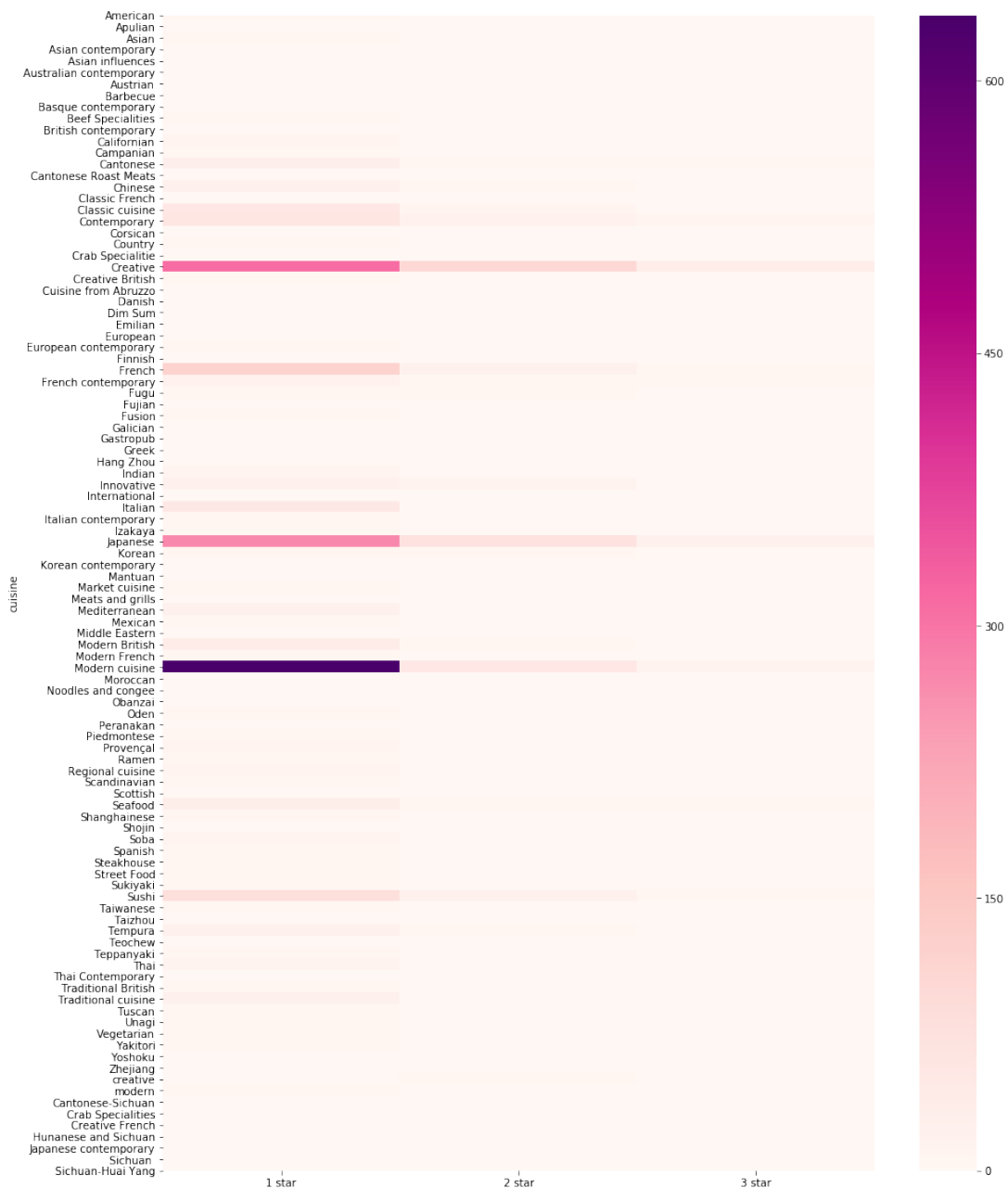
Upon further investigation, 20 cuisines out of the 103 have three star restaurants (19%). From the table below, we can see that the Creative, Japanese and Modern cuisines do indeed have the highest number of restaurants with the highest 3 star accolade.

The chart below visualises this information.

Three star restaurants by cuisine



The heat map shows further the correlation between cuisines and number of stars.

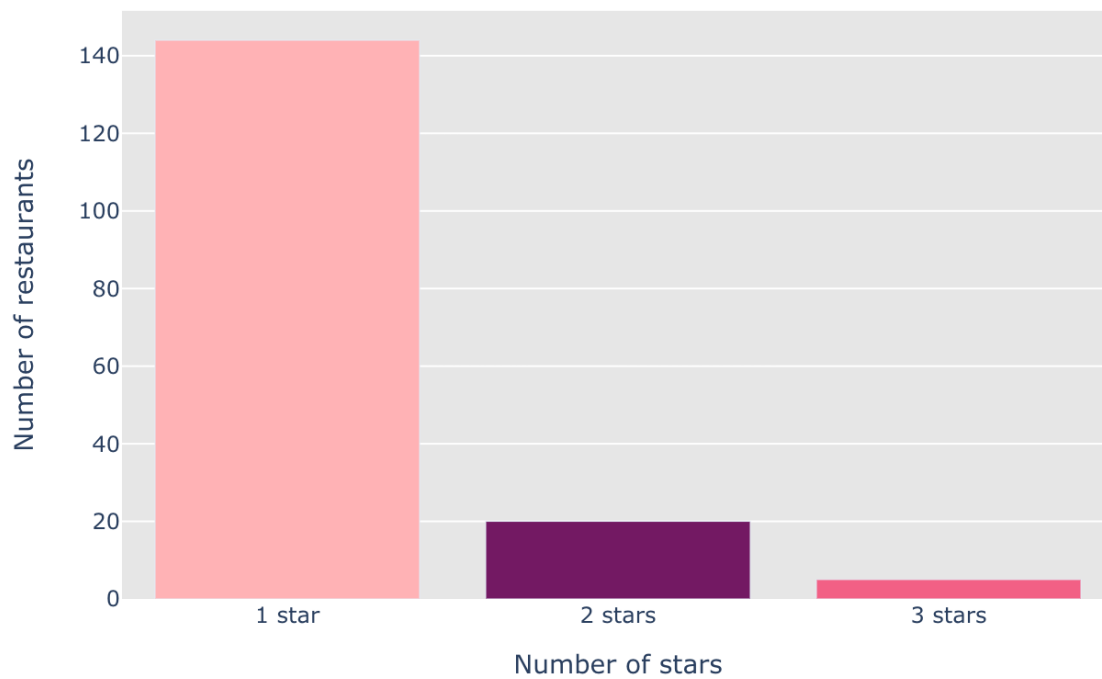


4.3 UNITED KINGDOM

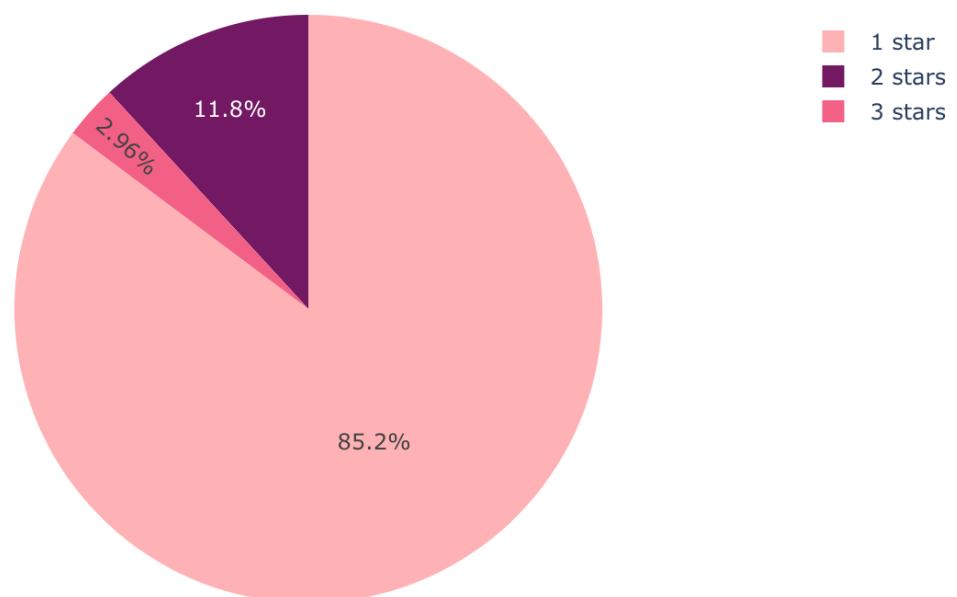
In the United Kingdom, there are 144 one star restaurants, 20 two star restaurants and 5 three star restaurants. The majority of Michelin rated restaurants in the UK have 1 star, with a small

percentage having 2 or 3 stars.

Number of restaurants with michelin stars in the United Kingdom



Proportion of 1,2 and 3 michelin stars across UK restaurants

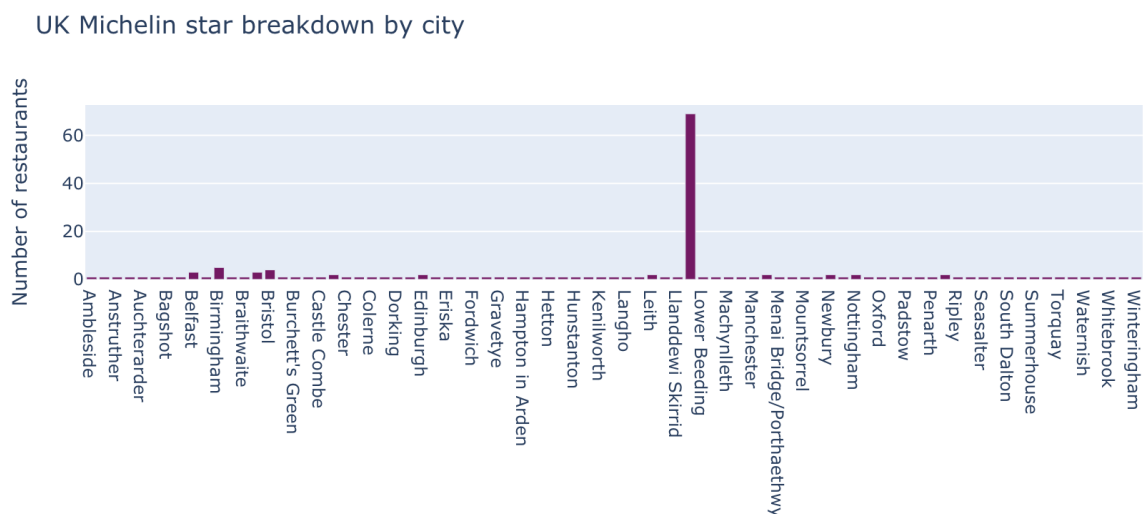


Michelin starred restaurants in the UK are spread across 83 different cities:

| city | no_of_stars |
|------------|-------------|
| London | 69 |
| Birmingham | 5 |
| Bristol | 4 |
| Belfast | 3 |
| Bray | 3 |
| Catrmel | 2 |
| Edinburgh | 2 |
| Leith | 2 |
| Marlow | 2 |
| Newbury | 2 |

London by far has the most starred restaurants, with Birmingham second, which is expected, What is interesting is that the bigger the city does not mean the more starred restaurants. As we would expect Manchester, Leeds and Sheffield to be the next in this list if we going by this rule. However Sheffield is not included in the list at all. Many of these restaurants outside of London are in actual fact in more rural villages or towns, rather than cities.

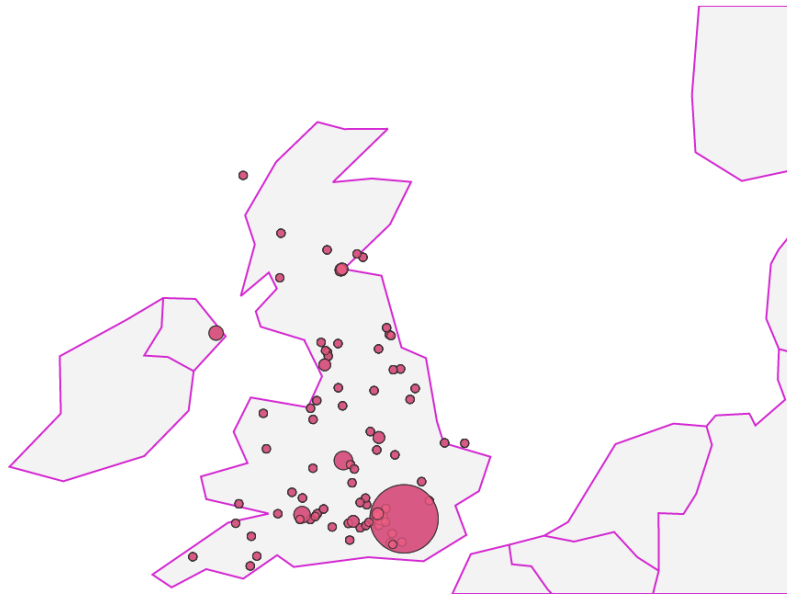
See the interactive chart here.



By visualising this spread on a bubble map of the UK, the restaurants are indeed spread across the entirety of the UK, but there are significantly more in the South than in the North.

View the interactive map here.

UK michelin starred restaurants
(Hover for city names)



5. World's best 50 restaurants 2019

Now we will have a look at the data scraped from the world's 50 best restaurants list.

N.B. This list usually comes out in June each year for the current year. Whereas the Michelin list comes out in October of the previous year - ie. the 2020 list was announced in October 2019. For this reason, at the time of writing this report (Feb 2020), the 2020 Michelin guide's equivalent world's best 50 restaurant list is from 2019.

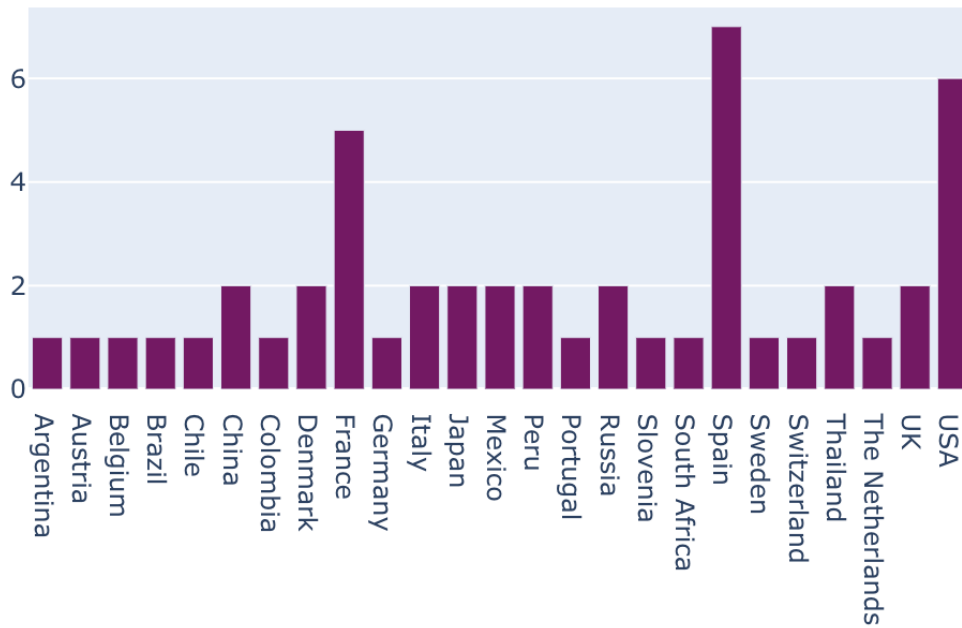
5.1 OVERVIEW

The restaurants in the 2019 top 50 list are spread across 25 countries. The 5 countries with the most restaurants listed in the guide are:

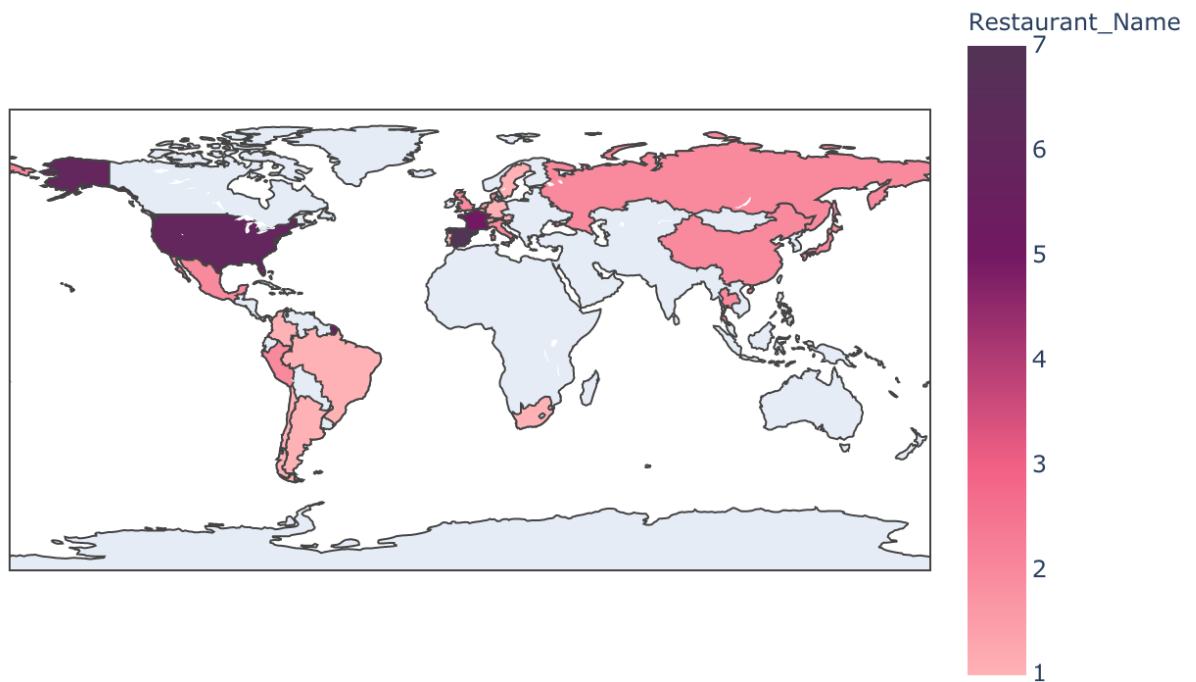
| Country | Restaurant_Name |
|---------------|-----------------|
| Spain | 7 |
| United States | 6 |
| France | 5 |
| China | 2 |
| Denmark | 2 |

All 25 countries in the list are visualised in the chart below.

World's best restaurants 2019 - No. in list per country



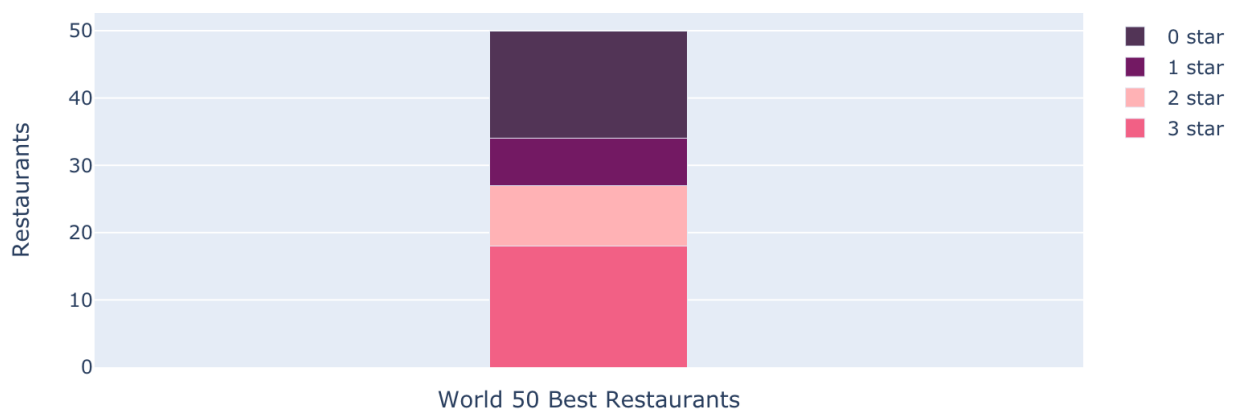
World top 50 restaurants 2019



There are 18 three star restaurants, 9 two star, and 7 one star restaurants on the list. (add percentages)

United Kingdom

No. of michelin starred restuarants in World 50 best



There are 2 UK based restaurants in the list, making up 4% of the best restaurants in the world according to this guide. - *of what star?*
Where does UK come in the list?

6. Comparison of both guides

We will now look at how the two guides either complement or contradict each other and what we can deduce from looking at them together.

We would assume, that if a country had more restaurants with stars, that the country is more likely to be on The World's 50 Best Restaurant list. However, delving into this further, we can see that is not necessarily the case.

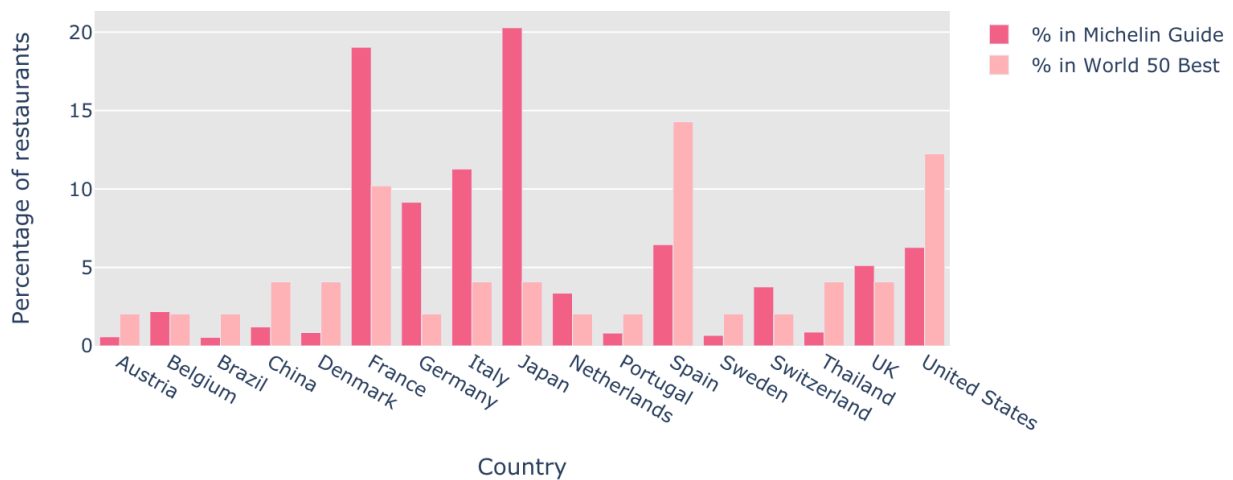
Spain, which has the most restaurants in the top 50 (7 restaurants), accounts for 14% of all the restaurants on the World 50 best list. Going back to The Michelin Guide, Spain's share of restaurants with stars was 6.46%.

On the other hand, we know there are 2 UK based restaurants on the world 50 best list, equating to 4%, comparative to 5.12% in the Michelin Guide. This is more of a comparative proportion.

There are 16 countries which feature both in The Michelin Guide and The World's 50 best, and we can see from the chart below that for some of them, their presence in both guides differs greatly. For instance, Japan has the most restaurants featured in the Michelin Guide, however in the world 50 best, Japan comes joint 4th with 5 other countries, with the percentages extremely different

(20.3% vs 4.1%).

Percentage of restaurants per country included in each guide

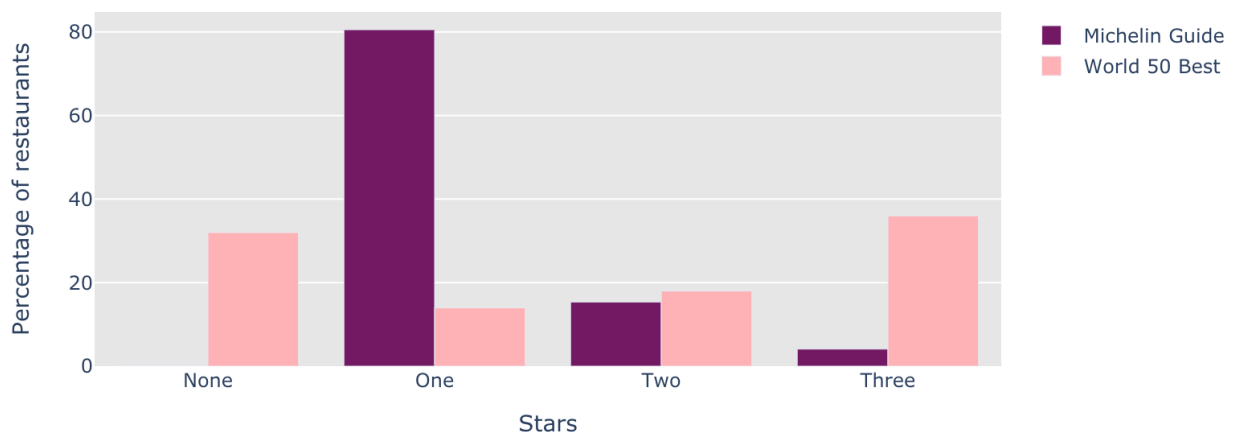


Why might that be? One of the main reasons may well be that The Michelin Guide does not yet cover the entire world, whereas the world's best, does indeed cover the world - or more of it, so there may be less scope for instance Japanese restaurants to take a bigger chunk of the top 50. Another reason, could be that The World 50 best may have a more Eurocentric approach - as it has been criticised to have so in the past.

MICHELIN STARRED RESTAURANTS

34 of the world's best 50 restaurants have one or more Michelin star, which leaves 16 restaurants classed as being the best in the world which do not have the award of one star or more.

Proportion of starred restaurants in each list



There are 18 three star restaurants, 9 two star, and 7 one star restaurants on the top 50 list. Three stars are defined by the Michelin Guide as the best of the best - of being worthy of a special trip, so we could assume that all the restaurants (that reside in countries where the Michelin guide exists), would be three star restaurants, which we can see is not the case. It does follow our instinct however that proportionally, to how many three star restaurants there are worldwide, the

proportion on this top 50 list is higher than in The Michelin Guide itself (36% three star, 18% two star, 14% one star, 32% no star)- hence reinforcing the Three Michelin Star accolade as a mark of a great restaurant.

Statistical test to determine if there is a correlation.

Do histograms, skews etc as learnt from the data science projects

Conclusions in each section about main learnings - eg cuisines, what are best? What are best cuisines in England? Does South have different cuisines than north?

Are Dif cuisines in Dif countries? - does this impact who gets michelin stars?

7. Final thoughts

It will be interesting to see how this comparison changes, as the Michelin Guide evolves into new territories and opens up its doors to more of the world.

For now, foodies and those looking for gastronomic experiences, will probably continue to look at both these guides side by side to plan which restaurant will be next on their bucket list.

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