



# NYC Airport Market Share

Rui Wang



# Data Source

[NYC taxi database](#) on Google Cloud

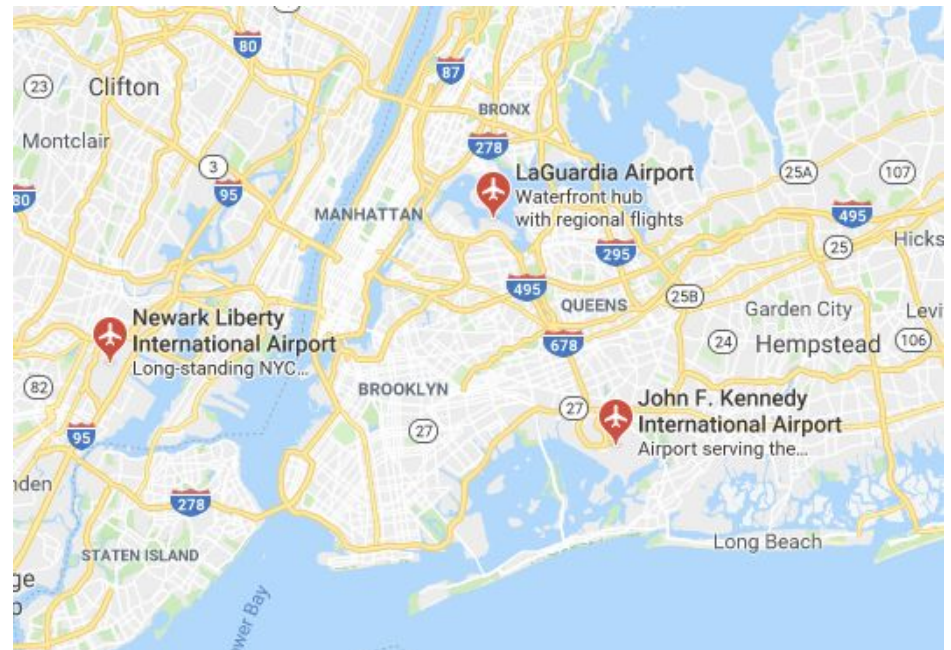
Size: 90 GB

| Platform    | Time (Year) |
|-------------|-------------|
| Yellow Taxi | 2009 - 2016 |
| Green Taxi  | 2013 - 2016 |
| Uber/Lyft   | 2015 - 2016 |

## Airport Info<sup>[1]</sup>

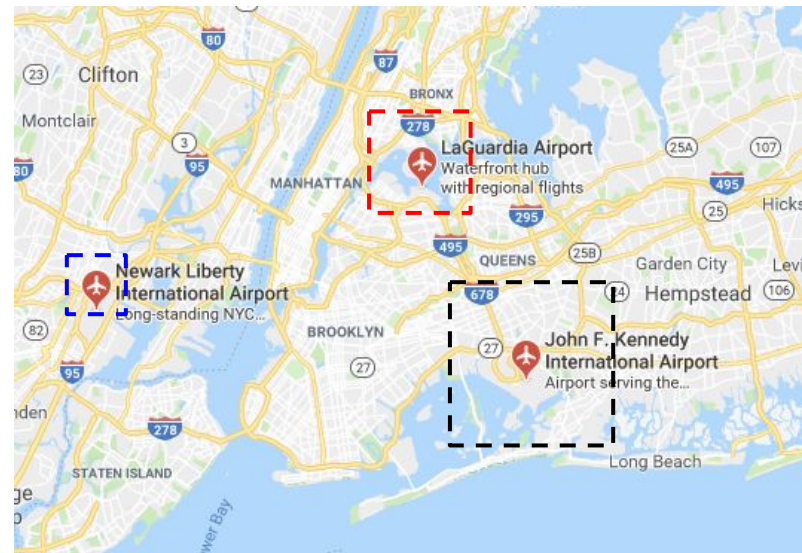
| Airport    | Latitude  | Longitude  |
|------------|-----------|------------|
| JFK        | 40.639722 | -73.778889 |
| Newark     | 40.6925   | -74.168611 |
| La Guardia | 40.77725  | -73.872611 |

| Airport    | Area     |
|------------|----------|
| JFK        | 19.951   |
| Newark     | 0.275186 |
| La Guardia | 2.75186  |



# Unit Conversion<sup>[2]</sup>

| Conversion        | Unit (km/degree) |
|-------------------|------------------|
| unit of latitude  | 111.047          |
| unit of longitude | 31.194           |



| Airport    | Latitude (-)  | Latitude (+)  | Longitude (-)  | Longitude (+)  |
|------------|---------------|---------------|----------------|----------------|
| JFK        | 40.5994989032 | 40.6799450968 | -73.922078531  | -73.635699469  |
| Newark     | 40.6877760386 | 40.6972239614 | -74.1854277512 | -74.1517942488 |
| La Guardia | 40.7623115225 | 40.7921884775 | -73.9257902368 | -73.8194317632 |



## Data ETL

| year | month | trip_time | trip_distance | passenger_count | airport           | source    |
|------|-------|-----------|---------------|-----------------|-------------------|-----------|
| 2012 | 12    | 5.8       | 2.3           | 2               | JFK Airport       | yellow    |
| 2015 | 8     | null      | null          | 1 (assumed)     | Newark Airport    | uber/lyft |
| 2009 | 2     | 3.4       | 15.3          | 4               | LaGuardia Airport | green     |

Several comment:

1. Uber/Lyft platform (2015-2016) provides pickup time and location information.
2. Green taxi platform (2016): location and # of passenger. Use historical data and set the average number of passengers per green taxi is 1.45.

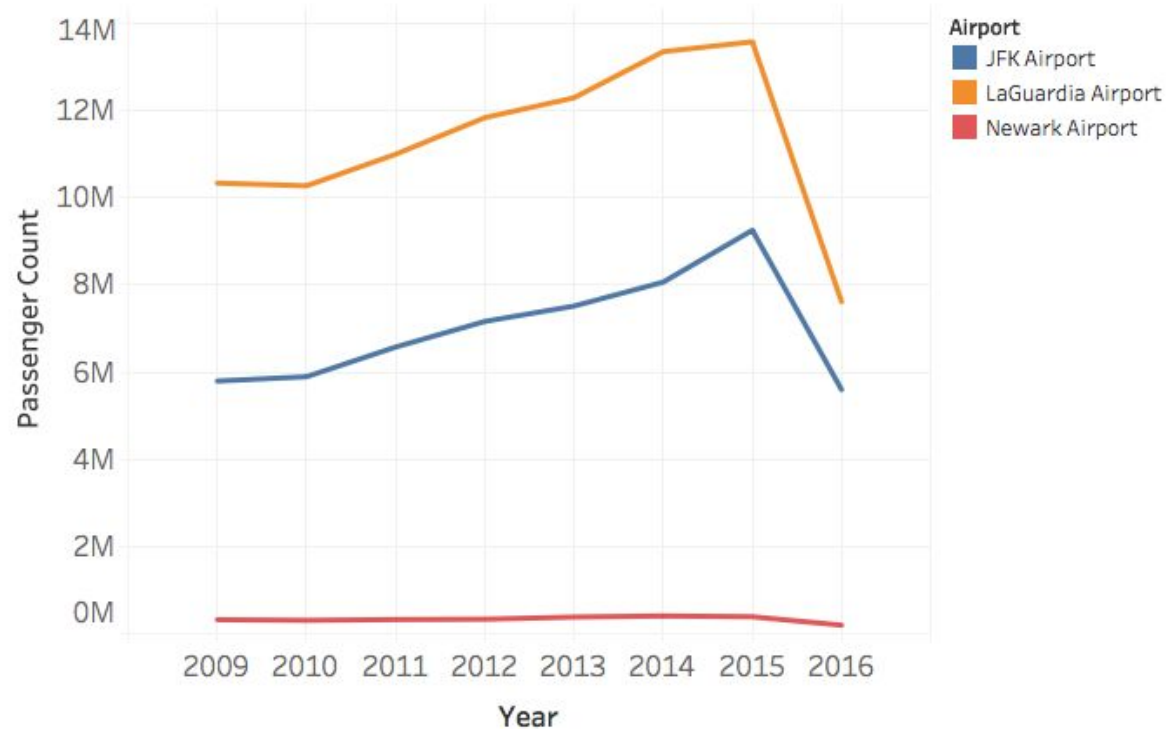
# Market Share of Platforms

Taxi Platform



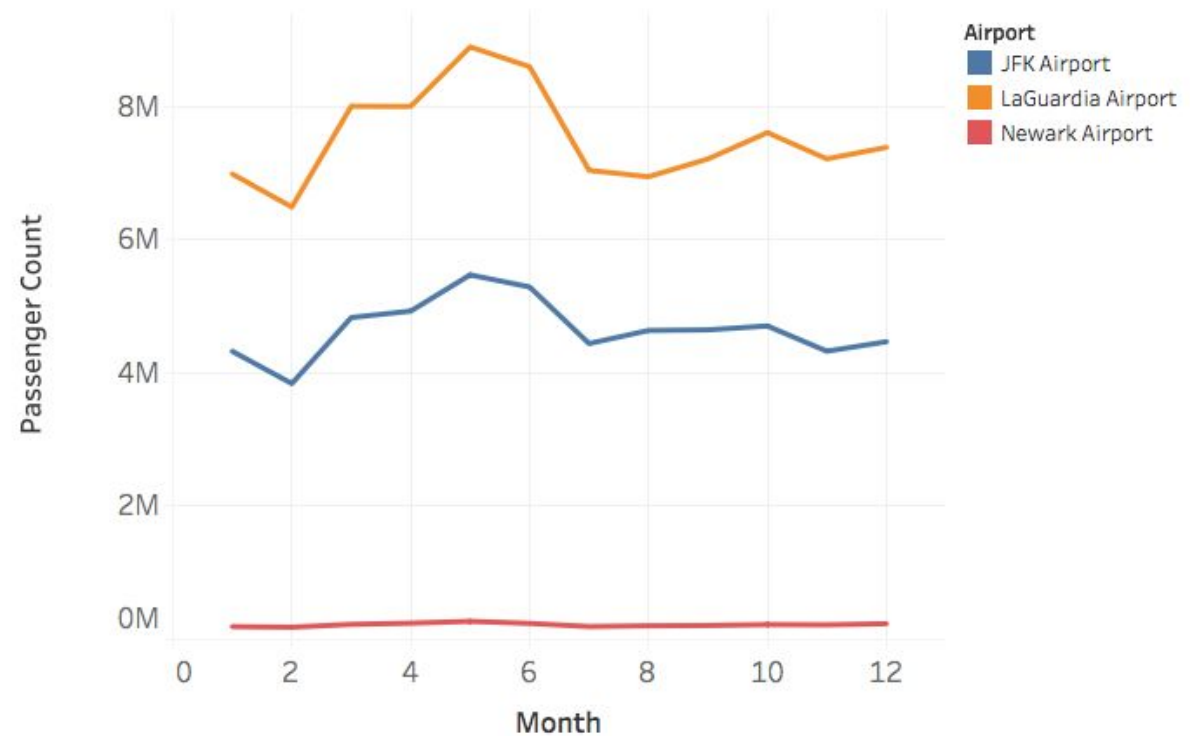
# Passenger Traffic

Taxi Business by Year



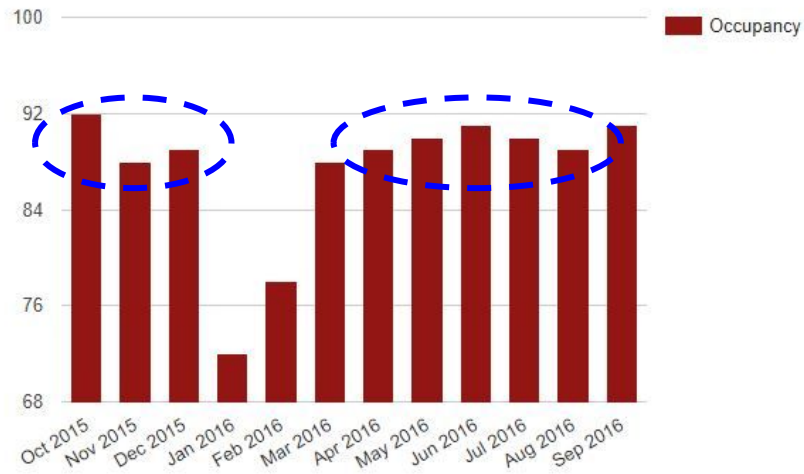
# Passenger Traffic

Taxi Business by Month

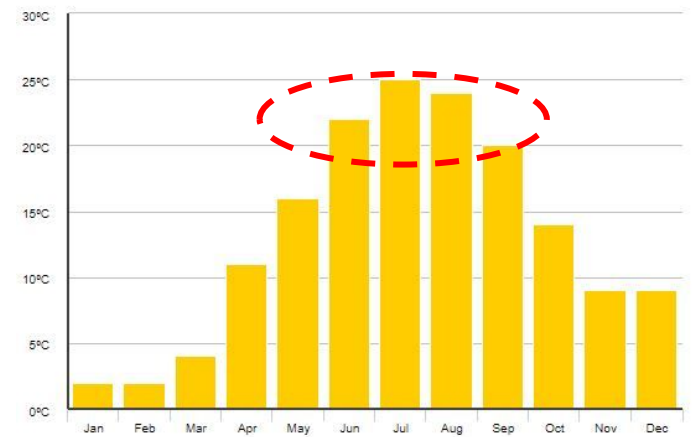




# NYC tourism



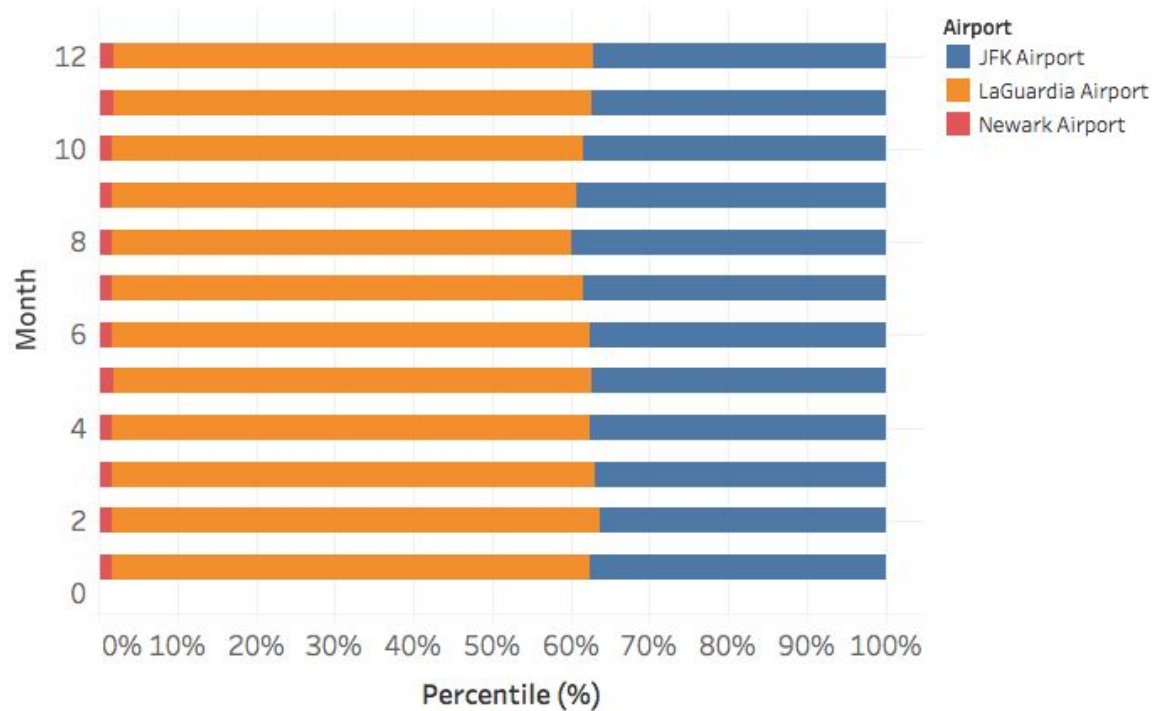
Manhattan Hotel Occupancy vs Time (2015-2016)<sup>[3]</sup>



NYC monthly weather<sup>[4]</sup>

# Traffic Percentiles

Taxi buisness at Airport



# JFK Market Share<sup>[5]</sup>

## JFK

| YEAR | DOMESTIC   | PUERTO RICO | CANADA  | BERMUDA & CARIBBEAN | MEXICO    | LATIN AMERICA | TRANS ATLANTIC | TRANS PACIFIC | TOTAL      |
|------|------------|-------------|---------|---------------------|-----------|---------------|----------------|---------------|------------|
| 2003 | 15,145,675 | 1,291,183   | 115,142 | 2,775,938           | 438,529   | 1,142,993     | 9,293,648      | 1,533,383     | 31,736,491 |
| 2004 | 18,536,717 | 1,551,016   | 156,538 | 3,044,598           | 480,985   | 1,352,007     | 10,622,734     | 1,829,896     | 37,574,491 |
| 2005 | 20,367,497 | 1,724,057   | 212,745 | 3,126,787           | 490,462   | 1,474,630     | 11,509,756     | 1,985,977     | 40,891,911 |
| 2006 | 21,354,376 | 1,649,123   | 321,403 | 3,160,943           | 581,651   | 1,567,191     | 12,016,416     | 1,977,779     | 42,628,882 |
| 2007 | 24,666,381 | 1,507,310   | 295,293 | 3,472,314           | 795,675   | 1,719,556     | 13,167,346     | 2,093,941     | 47,717,816 |
| 2008 | 23,823,575 | 1,380,493   | 453,484 | 3,650,590           | 890,555   | 1,696,021     | 13,761,056     | 2,147,342     | 47,803,116 |
| 2009 | 22,793,400 | 1,227,833   | 363,393 | 3,828,019           | 757,431   | 1,758,428     | 13,046,234     | 2,103,204     | 45,877,942 |
| 2010 | 22,105,914 | 1,298,363   | 354,898 | 4,105,998           | 775,510   | 2,000,877     | 13,534,550     | 2,344,776     | 46,520,886 |
| 2011 | 22,482,934 | 1,275,579   | 401,042 | 4,058,921           | 684,617   | 2,166,435     | 14,077,822     | 2,497,247     | 47,644,597 |
| 2012 | 22,707,686 | 1,509,397   | 394,421 | 4,310,955           | 804,676   | 2,461,422     | 14,401,172     | 2,684,447     | 49,274,176 |
| 2013 | 22,419,305 | 1,489,870   | 426,438 | 4,457,983           | 1,067,928 | 2,651,113     | 15,100,873     | 2,838,312     | 50,451,822 |
| 2014 | 23,505,944 | 1,515,488   | 528,222 | 4,900,453           | 1,105,328 | 2,869,978     | 15,879,605     | 2,915,408     | 53,220,426 |
| 2015 | 25,350,129 | 1,456,725   | 632,788 | 5,170,497           | 1,355,773 | 2,806,993     | 16,852,103     | 3,261,744     | 56,886,752 |
| 2016 | 26,018,517 | 1,305,621   | 553,688 | 5,522,308           | 1,505,885 | 2,847,189     | 17,709,784     | 3,642,521     | 59,105,513 |

# EWR Market Share<sup>[5]</sup>

## EWR

| YEAR | DOMESTIC   | PUERTO RICO | CANADA    | BERMUDA & CARIBBEAN | MEXICO  | LATIN AMERICA¹ | TRANS ATLANTIC | TRANS PACIFIC | TOTAL      |
|------|------------|-------------|-----------|---------------------|---------|----------------|----------------|---------------|------------|
| 2003 | 21,043,554 | 738,176     | 827,594   | 845,629             | 398,655 | 480,792        | 4,830,348      | 284,822       | 29,449,570 |
| 2004 | 22,224,829 | 810,394     | 988,004   | 995,157             | 430,669 | 504,577        | 5,548,387      | 391,132       | 31,893,149 |
| 2005 | 22,944,821 | 768,647     | 885,954   | 997,189             | 451,567 | 527,249        | 5,968,564      | 535,040       | 33,079,031 |
| 2006 | 24,682,659 | 922,642     | 919,852   | 1,080,410           | 434,827 | 575,201        | 6,360,770      | 658,187       | 35,634,548 |
| 2007 | 24,870,701 | 743,409     | 925,443   | 1,106,580           | 476,115 | 572,452        | 7,009,009      | 663,501       | 36,367,210 |
| 2008 | 23,625,236 | 596,956     | 1,064,244 | 1,111,975           | 511,461 | 577,747        | 7,236,619      | 636,498       | 35,360,736 |
| 2009 | 22,041,074 | 501,601     | 1,225,403 | 1,098,468           | 479,071 | 622,518        | 6,681,810      | 710,178       | 33,360,123 |
| 2010 | 21,295,398 | 421,488     | 1,419,746 | 1,163,250           | 523,058 | 620,403        | 6,911,125      | 839,722       | 33,194,190 |
| 2011 | 21,894,691 | 294,978     | 1,496,798 | 1,126,381           | 460,342 | 626,350        | 7,023,745      | 774,207       | 33,697,492 |
| 2012 | 22,544,108 | 292,575     | 1,515,475 | 1,144,024           | 439,734 | 722,940        | 6,605,445      | 719,726       | 33,984,027 |
| 2013 | 23,428,485 | 288,352     | 1,599,087 | 1,070,751           | 459,567 | 761,154        | 6,705,443      | 703,397       | 35,016,236 |
| 2014 | 23,372,240 | 390,387     | 1,595,196 | 1,350,043           | 504,289 | 774,516        | 6,806,946      | 817,070       | 35,610,687 |
| 2015 | 25,230,772 | 462,356     | 1,490,092 | 1,434,643           | 589,877 | 773,725        | 6,699,816      | 817,164       | 37,498,445 |
| 2016 | 27,691,976 | 526,440     | 1,492,269 | 1,709,619           | 637,520 | 805,665        | 6,607,891      | 1,091,905     | 40,563,285 |



## LGA Market Share<sup>[5]</sup>

### LGA

| YEAR | DOMESTIC   | PUERTO RICO | CANADA    | BERMUDA & CARIBBEAN | MEXICO | LATIN AMERICA | TRANS ATLANTIC | TRANS PACIFIC | TOTAL      |
|------|------------|-------------|-----------|---------------------|--------|---------------|----------------|---------------|------------|
| 2003 | 21,435,178 | 68          | 845,935   | 201,589             | –      | –             | –              | –             | 22,482,770 |
| 2004 | 23,191,610 | –           | 1,059,906 | 201,687             | –      | –             | –              | –             | 24,453,203 |
| 2005 | 24,418,231 | –           | 1,269,264 | 201,865             | –      | –             | –              | –             | 25,889,360 |
| 2006 | 24,496,982 | –           | 1,186,312 | 127,309             | –      | –             | –              | –             | 25,810,603 |
| 2007 | 23,799,365 | –           | 1,115,548 | 111,354             | –      | –             | –              | –             | 25,026,267 |
| 2008 | 21,941,392 | –           | 1,058,076 | 73,588              | –      | –             | –              | –             | 23,073,056 |
| 2009 | 21,143,013 | –           | 977,324   | 32,899              | –      | –             | –              | –             | 22,153,236 |
| 2010 | 22,950,115 | –           | 1,000,291 | 32,676              | –      | –             | –              | –             | 23,983,082 |
| 2011 | 23,086,756 | –           | 1,029,634 | 6,088               | –      | –             | –              | –             | 24,122,478 |
| 2012 | 24,274,029 | –           | 1,366,902 | 66,853              | –      | –             | –              | –             | 25,707,784 |
| 2013 | 24,953,572 | –           | 1,597,240 | 130,288             | –      | –             | –              | –             | 26,681,100 |
| 2014 | 25,157,202 | –           | 1,761,717 | 53,176              | –      | –             | –              | –             | 26,972,095 |
| 2015 | 26,684,923 | –           | 1,739,472 | 13,273              | –      | –             | –              | –             | 28,437,668 |
| 2016 | 27,996,763 | –           | 1,786,499 | 3,507               | –      | –             | –              | –             | 29,786,769 |



## Market Share

- ❑ Three airports have roughly passenger traffic in the domestic airlines, which indicating that the traffic at the airport can reflect some parts of the business.
- ❑ People in New Jersey might come to Newark first.
- ❑ LaGuardia Airport does not have a lot of international services.
- ❑ Not including train or family-pickup.



## Further Exploration

- ❑ Public transportation data.
- ❑ Airline flight data: AA, UA, Southwest and Delta.
- ❑ Gas and stock price data.



*Thank you!*



