

FOOD SERVICE QUALITY IN THE DUTCH SUBURBS AND BUSINESS OPPORTUNITIES THERE

Influence of a bad data quality and low data
quantity on an analysis

6-12-2019

What does it mean to move to a Dutch (Utrecht to Nieuwegein) suburb for a foodie?

We would like to analyze the difference in supply quality and quantity of restaurants in Nieuwegein and Utrecht. With the intension of investigating if the real-estate prices can offset the food related service available in Utrecht?

We would like to see if there is any urgently needed food service that is missing in Nieuwegein?

BUSINESS PROBLEM

At problem drafting this list of sources to be used:

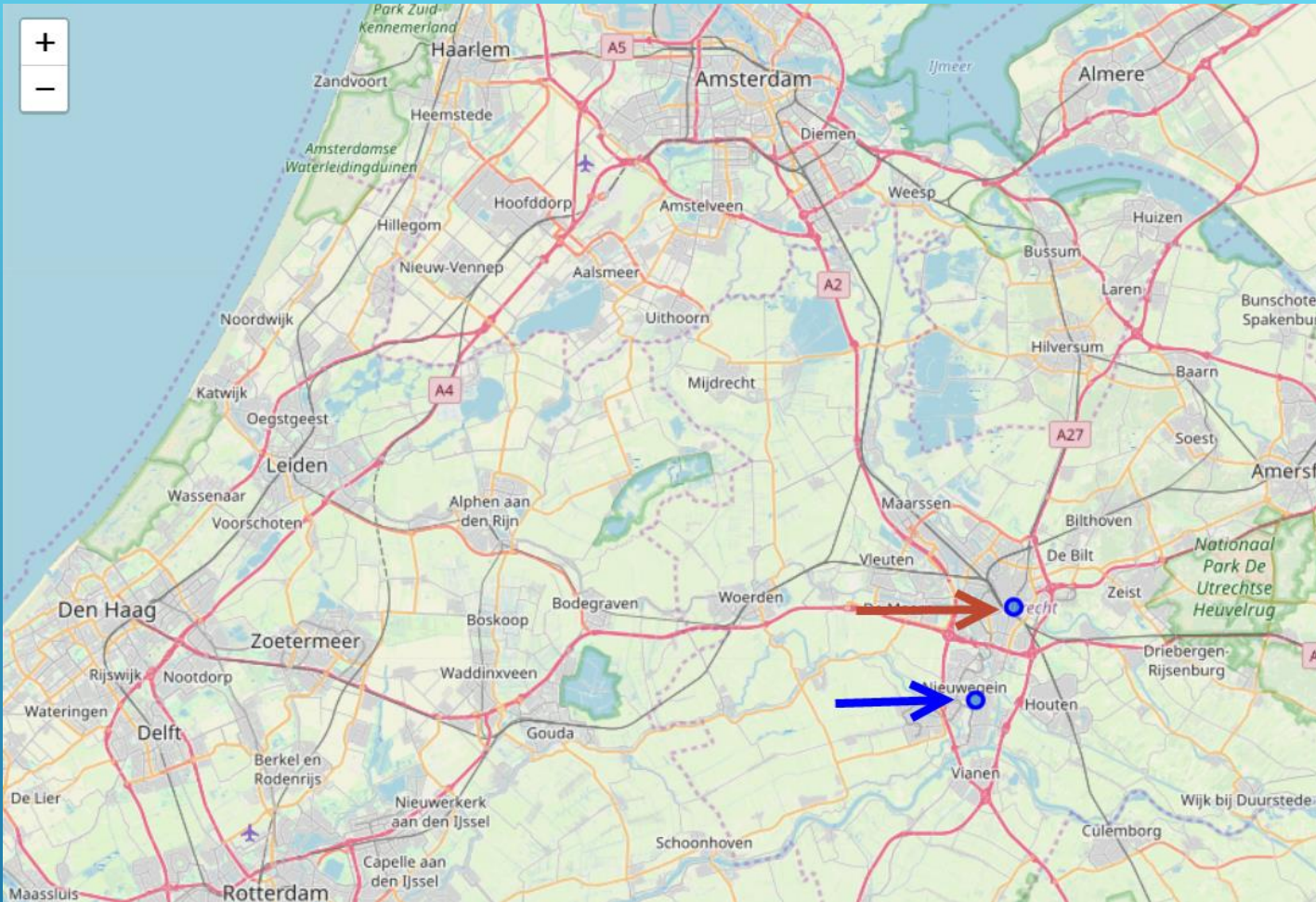
- Foursquare API to get restaurant information of Utrecht and Nieuwegein:
- A Secon-level Administrative Divisions of the Netherlands from Spatial Data Repository of NYU
- Google Map, 'Search Nearby' option to get the center coordinates of each City
- NVM Market Information for The Dutch property market comparison

DATA

Several white lines of varying lengths and slopes are positioned in the bottom right corner of the slide, creating a modern, abstract graphic element.

- ▶ Geographical coordinates for both places were collected
- ▶ For both location the venues were collected from Foursquare
- ▶ For both collection the real-estate prices were explored, as a result of aggregated data available further non originally identified sets were searched, and only generic real-estate (no additional features) data was found. E.g.: Average asking price per Square meter

METHODOLOGY



Utrecht
Nieuwegein



	City	Latitude	Longitude
0	Nieuwegein	52.029870	5.092933
1	Utrecht	52.080986	5.127684

GEOGRAPHICAL POSITIONING

	city	name	categories	lat	lng		city	name	categories	lat	lng
0	Utrecht	Louis Hartlooper Complex	Indie Movie Theater	52.081752	5.124147	16	Utrecht	Kazerij Stalenhoef	Cheese Shop	52.082366	5.123589
1	Utrecht	Meneer Smakers	Burger Joint	52.081804	5.123941	17	Utrecht	Vlaamsch Broodhuys	Bakery	52.082683	5.123564
2	Utrecht	Ledig Erf	Bar	52.081708	5.123739	18	Utrecht	Restaurant De Heeren van Leeuw	French Restaurant	52.082800	5.122677
3	Utrecht	Orloff aan de kade	Café	52.079644	5.123253	19	Utrecht	Stichtse Taveerne	Bar	52.082829	5.123388
4	Utrecht	Centraal Museum	Art Museum	52.083784	5.125964	20	Utrecht	Hortus Utrecht	Garden	52.084971	5.125778
5	Utrecht	Koffie Leute Brauhaus	Coffee Shop	52.079445	5.122588	21	Utrecht	Universiteitsmuseum	Science Museum	52.084877	5.125708
6	Utrecht	nijntje museum (Nijntje Museum)	Art Museum	52.083961	5.126053	22	Utrecht	Rubens Proeflokaal	Café	52.084762	5.127707
7	Utrecht	Broei	Vegetarian / Vegan Restaurant	52.079285	5.123069	23	Utrecht	Café Lijn 4	Bar	52.083641	5.123253
8	Utrecht	Kounosuke	Japanese Restaurant	52.079521	5.122904	24	Utrecht	Yum Saap	Thai Restaurant	52.082508	5.123590
9	Utrecht	Fishes	Fish Market	52.083127	5.123518	25	Utrecht	EkoPlaza	Grocery Store	52.082363	5.123616
10	Utrecht	Eetcafé De Poort	Bar	52.081760	5.123549	26	Utrecht	Persepolis	Gourmet Shop	52.082424	5.123515
11	Utrecht	IJs&zopie	Ice Cream Shop	52.082123	5.123768	27	Utrecht	Station Utrecht Vaartsche Rijn	Train Station	52.078886	5.121673
12	Utrecht	Speck bar & grill	BBQ Joint	52.080965	5.124385	28	Utrecht	Cafetaria Kemer	Falafel Restaurant	52.079410	5.125583
13	Utrecht	De Bierverteller	Beer Store	52.082720	5.123293	29	Utrecht	Jumbo	Supermarket	52.082126	5.134643
14	Utrecht	KEEK	Café	52.083130	5.123428	30	Utrecht	Cafetaria Grutto	Snack Place	52.079516	5.127085
15	Utrecht	Bistro Le Canard	French Restaurant	52.080487	5.125336	31	Utrecht	Coop	Supermarket	52.078950	5.122190

VENUES UTRECHT

```
In [28]: print('{} venues were returned by Foursquare in Utrecht.'.format(nearby_venuesU.shape[0]))
print('{} venues were returned by Foursquare in Nieuwegein.'.format(nearby_venuesN.shape[0]))
```

```
32 venues were returned by Foursquare in Utrecht.
5 venues were returned by Foursquare in Nieuwegein.
```

```
In [29]: print('There are {} uniques categories in Utrecht.'.format(len(nearby_venuesU['categories'].unique())))
print('There are {} uniques categories in Nieuwegein.'.format(len(nearby_venuesN['categories'].unique())))
```

```
There are 24 uniques categories in Utrecht.
There are 5 uniques categories in Nieuwegein.
```

	city	name	categories	lat	lng
0	Nieuwegein	Nettorama	Supermarket	52.031978	5.089349
1	Nieuwegein	DeMIX Fitness	Gym / Fitness Center	52.026297	5.093290
2	Nieuwegein	Sportcafe Merwestein	Sports Bar	52.026496	5.092953
3	Nieuwegein	Sunbob Nieuwegein	Cosmetics Shop	52.032699	5.089596
4	Nieuwegein	Bushalte Merwesteintunnel	Bus Stop	52.026360	5.095364

```
In [28]: print('{} venues were returned by Foursquare in Utrecht.'.format(nearby_venuesU.shape[0]))
         print('{} venues were returned by Foursquare in Nieuwegein.'.format(nearby_venuesN.shape[0]))
```

```
32 venues were returned by Foursquare in Utrecht.
5 venues were returned by Foursquare in Nieuwegein.
```

```
In [29]: print('There are {} uniques categories in Utrecht.'.format(len(nearby_venuesU['categories'].unique())))
         print('There are {} uniques categories in Nieuwegein.'.format(len(nearby_venuesN['categories'].unique())))
```

```
There are 24 uniques categories in Utrecht.
There are 5 uniques categories in Nieuwegein.
```

VENUES NIEUWEGEIN

```
In [43]: num_top_venues = 5

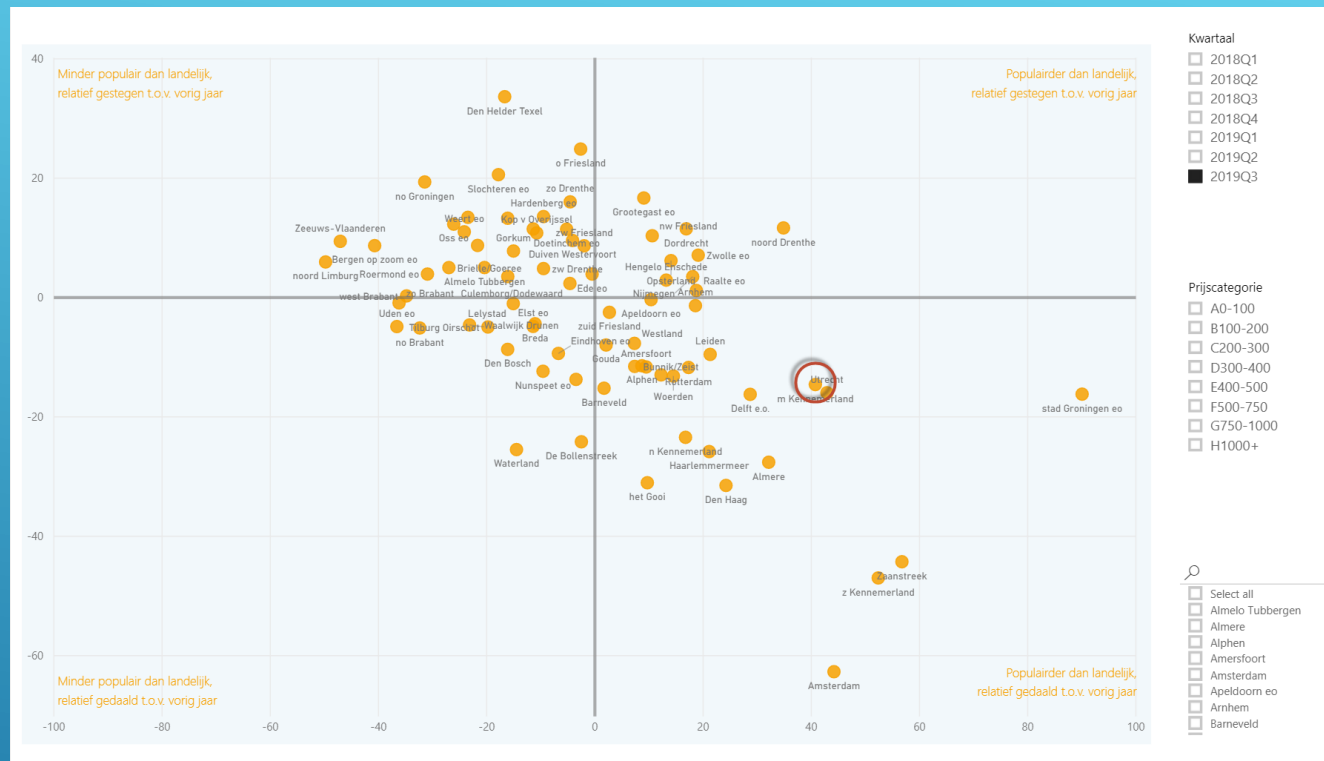
for hood in venue_grouped['city']:
    print("-----"+hood+"-----")
    temp = venue_grouped[venue_grouped['city'] == hood].T.reset_index()
    temp.columns = ['venue', 'freq']
    temp = temp.iloc[1:]
    temp['freq'] = temp['freq'].astype(float)
    temp = temp.round({'freq': 2})
    print(temp.sort_values('freq', ascending=False).reset_index(drop=True).head(num_top_venues))
    print('\n')
```

```
----Nieuwegein----
   venue  freq
0  Supermarket  0.2
1   Sports Bar  0.2
2    Bus Stop  0.2
3  Cosmetics Shop  0.2
4  Gym / Fitness Center  0.2
```

```
----Utrecht----
   venue  freq
0      Bar  0.12
1    Café  0.09
2  Art Museum  0.06
3  Supermarket  0.06
4 French Restaurant  0.06
```

As there is only 5 venues available on Foursquare for Nieuwegein, the frequency of different venues is evenly distributed.

REALIZATION - VENUES



NVM Regio-indeling.pdf

File Edit View

Home Too

File Edit View

Home Too

File Edit View

Home Too

File Edit View

Home Too

File Edit View

Home Too

File Edit View

Home Too

File Edit View

Home Too

File Edit View

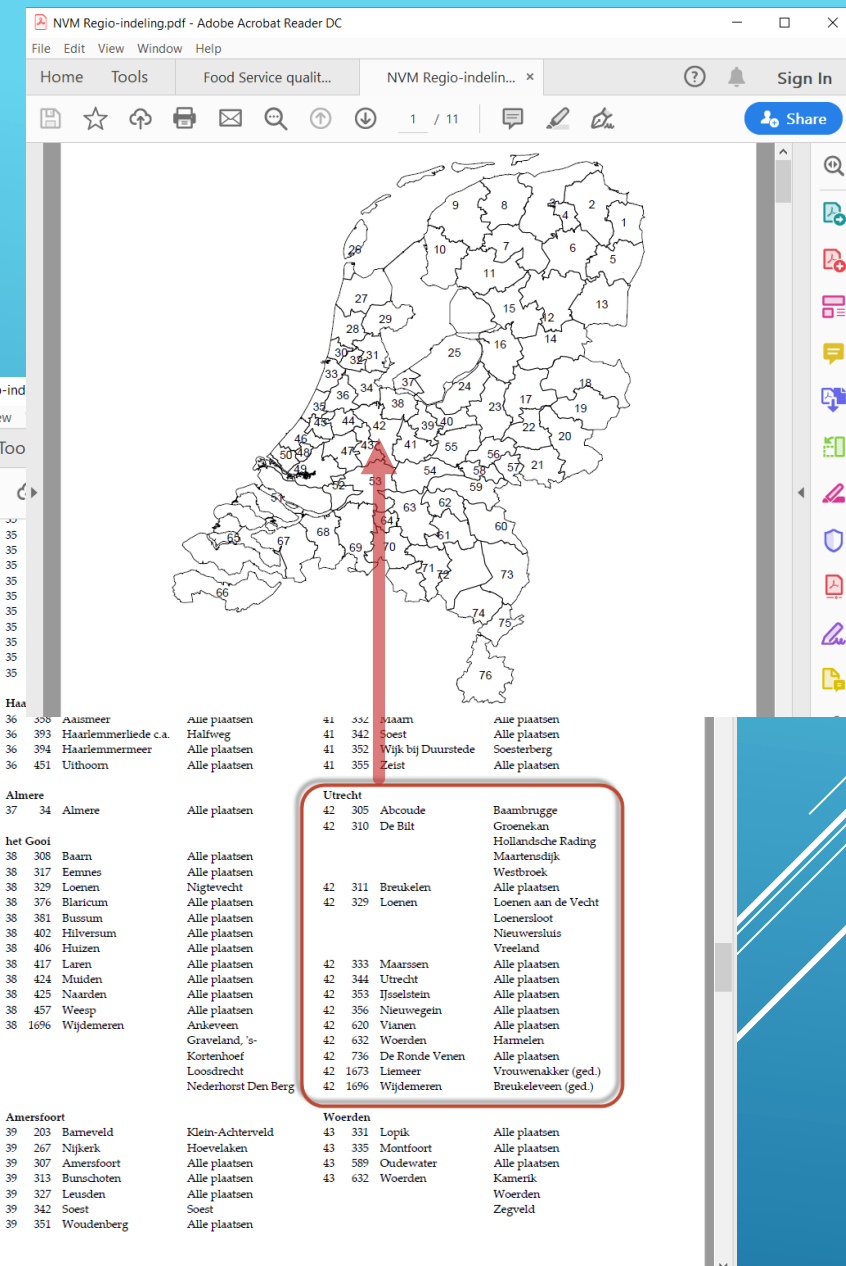
Home Too

File Edit View

Home Too

File Edit View

Home Too



REALIZATION – REAL ESTATE

- ▶ The easily available data aggregates the results of Utrecht and Nieuwegein
- ▶ Even further sets don't have enough features to be able to analyze trends in depth, here is a sample of Asking price per Square meter, which seems to be one of the few metrics available to the public:

	YTD 2019
Nieuwegein	2792,18
Utrecht	3650,73
Difference	858,55
% Difference	30,80

REALIZATION – REAL ESTATE

- There is a need to redefine the original data sets to be able to carry out this analysis
- At this moment only results are related to lessons learned on how not to start a project, as much more time should be allocated to dataset discovery, normalization and pre-processing

RESULTS