

# MULTICULTURALISM AND CUISINE DIVERSITY

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## PROJECT OBJECTIVE

- ▶ To investigate the following hypothesis:
- ▶ "A more multicultural society leads to a greater diversity of restaurant cuisine choices"

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# DATA SOURCES

- ▶ FourSquare API
- ▶ <https://developer.foursquare.com/developer/>
- ▶ Eurostat
- ▶ [https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=migr\\_pop1ctz&lang=en](https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=migr_pop1ctz&lang=en)

# FOURSQUARE DATA PROCESSING

- ▶ Using Foursquare API, search for restaurants in 22 European cities and extract restaurant type
- ▶ Construct data frame containing counts of each restaurant cuisine

	abruzzo	afghan	african	american	asian	australian	austrian	bangladeshi	bavarian	...	vietnamese	xinjiang
Dublin	0	1	5	11	72	4	0	0	0	...	2	0
Milan	2	0	13	10	64	0	0	0	0	...	3	0
Warsaw	0	17	16	44	203	2	1	0	0	...	76	0

# EUROSTAT DEMOGRAPHIC DATA

- ▶ Extracted CSV files from Eurostat website and collected population data on 22 countries broken down by citizenship

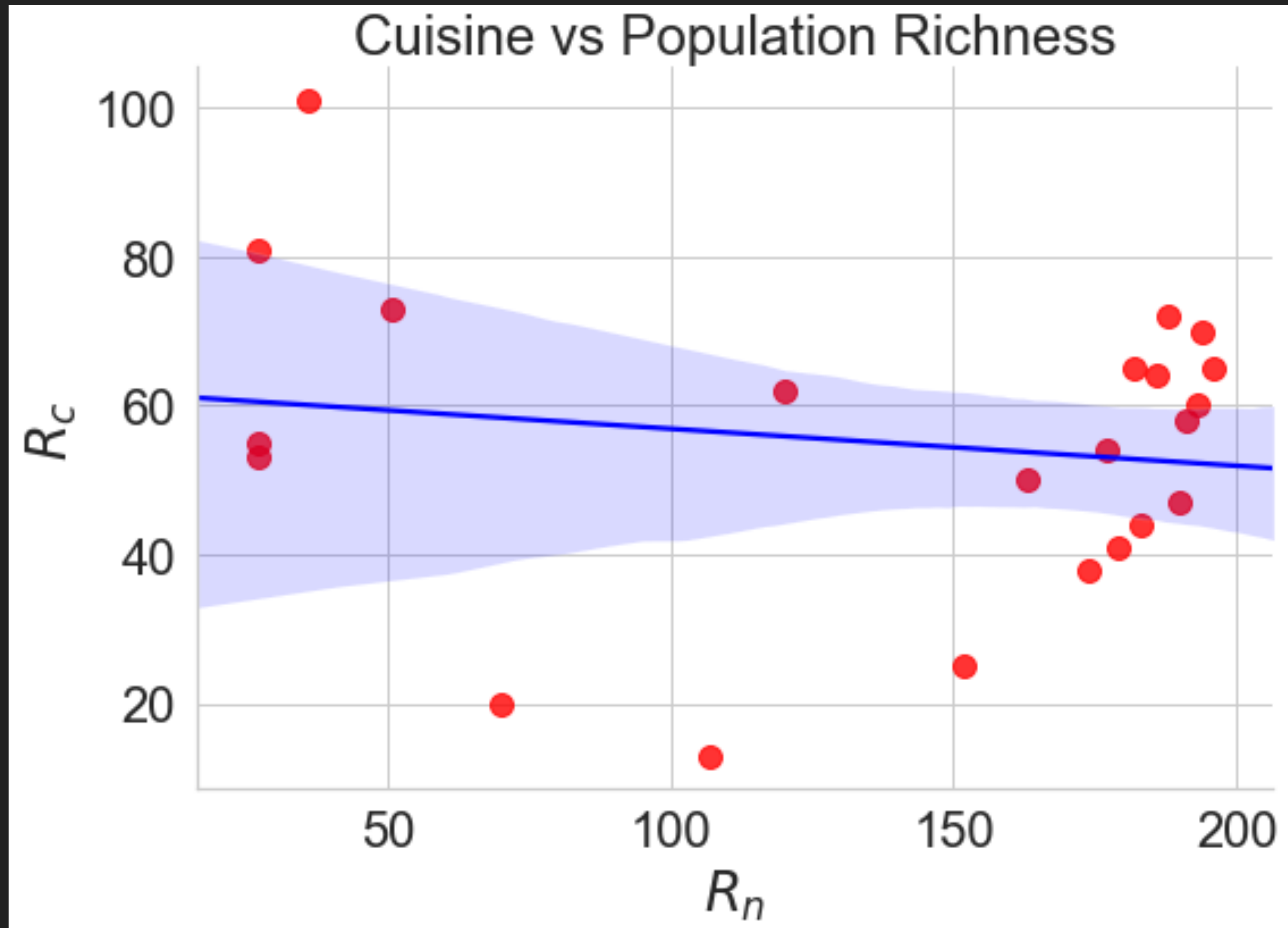
	uk	romania	netherlands	bulgaria	liechtenstein	norway	luxembourg	germany	france	iceland	...	spain	portugal	greece	montenegro
citizenship															
Belgium	23135	985	34447	209	25	1284	19953	25904	102066	104	...	36980	4147	1279	1
Bulgaria	102345	2814	31208	6896086	11	7349	1726	319271	23188	414	...	123335	6931	81174	32
Czechia	46573	543	4144	416	22	1898	1130	56259	4628	692	...	0	463	913	23

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## MEASURES OF DIVERSITY

- ▶ Richness = Number of distinct non-zero categories
- ▶ Shannon Entropy =  $-\sum_i^R p_i \log p_i$

# REGRESSION ANALYSIS

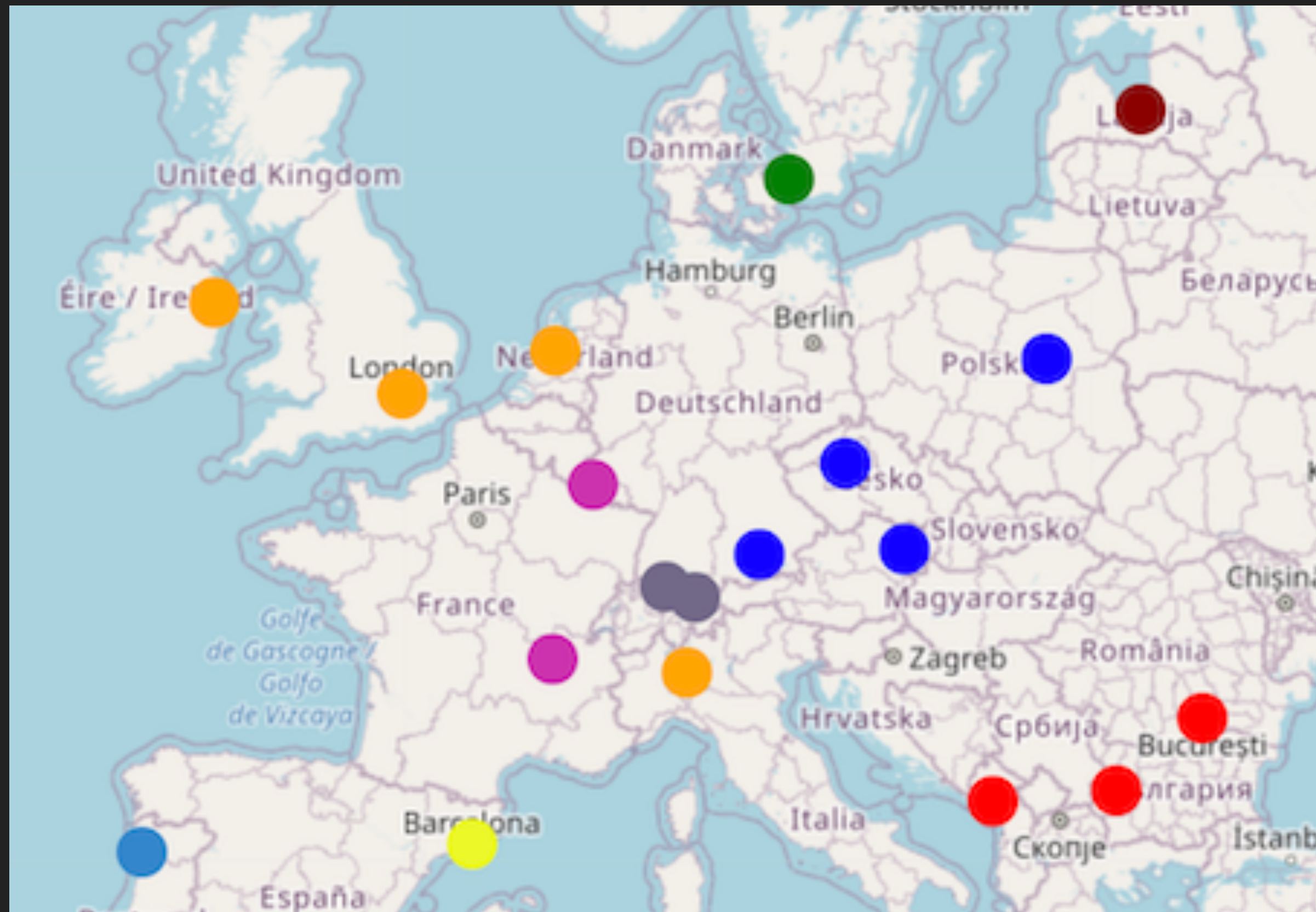


- ▶  $y = b_0 + b_1x$
- ▶ P-value of coefficient  $b_1 = 0.474$
- ▶ P-value exceed significance level of 0.05
- ▶ Conclusion: No relationship exists between population and restaurant cuisine diversity



# CLUSTERING

- Hierarchical clustering was performed on the 22 cities using their cuisine feature vectors



# 10 CLUSTERS



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## CLUSTERING OBSERVATIONS

- ▶ Clusters show strong geographic correlations
- ▶ Athens and Porto are outliers. That is, their restaurant cuisines are quite unlike those in other cities

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## CONCLUSIONS

- ▶ No evidence was found that greater levels of multiculturalism contribute to a more diverse range of restaurant cuisines
- ▶ The primary factor determining the available cuisines in a city is geographical and not the level of multiculturalism in the country