Exploring TrumpWorld

In 2017 BuzzFeed News posted an article requesting help in analysing a network they have named TrumpWorld, a file containing now President Donald Trumps connections compiled as a list of the people and organisations in his network and how they relate to each other. The aim of their venture was to shed light on the then new Presidents relations to better understand how these might affect public policy. The data is built from public records, news reports, and other sources on the Trump family, his Cabinet picks, and top advisers[1]. None of the relations from TumpWorld have been verified by me as part of this analysis, and may contain errors, it should also be noted that this dataset was last updated and some findings may therefore not be relevant today.

To be able to analyse the data from the CSV file, I have converted it into a graph using Python, Pandas and NetworkX[2]. In this analysis I have looked at measures such as the number of edges to a node (*degree*), the degree to which the nodes tend to cluster (*clustering* coefficient) and the most central nodes in the network (*Closeness Centrality, Betweenness Centrality, Degree Centrality, PageRank, Eigenvector Centrality*). Which resulted in a dataframe with the following table-structure.

Index	Name	Degree	Clustering_coefficient	Closeness_centrality	Betweenness_centrality	Degree_centrality	PageRank	Eigenvector_centrality
0	DONALD J. TRUMP	757	0.000640	0.005343	0.008032	0.283733	0.000652	0.055205
1	WILBUR ROSS	157	0.000000	0.003790	0.000659	0.058846	0.000251	0.021347
2	STEVEN MNUCHIN	118	0.000145	0.007834	0.002379	0.044228	0.000821	0.024826
3	MAR-A-LAGO CLUB, INC	110	0.000584	0.034705	0.000038	0.041229	0.021555	0.077171
4	THRIVE CAPITAL	87	0.002406	0.008022	0.001456	0.032609	0.001357	0.011694

When looking at central nodes in the network with based on different centrality measures, we see that different Trump owned companies (Donald J. Trump for President Inc., Mar-A-Lago Club Inc. and LLC, etc.) are centrally located, this could be seen as a

[1] https://www.buzzfeednews.com/article/johntemplon/help-us-map-trumpworld#.ekLzoZ316, accessed 21.09.20

limitation of the data-collection, where most of the data is collected based on public record which is expected to contain mostly business-related connection or simply be a result of Trump having worked throughout his life to develop a network based on his businesses. In a deeper analysis of this network it would be interesting to look at the most central nodes in this network not dependent on organisational ties.

Sorting the dataframe by the betweenness centrality gives the base for an analysis of the relation between Donald J. Trump and George Soros.
In public Trump and Soros has been quite negative towards each other, but looking at the graph we see that they are closely connected by Jared Kushner, senior advisor to Trump. They are also connected in another direction through Trumps Secretary of Treasury Steven Mnuchin, whom has previously worked for Soros' fund.

Triadic closure is defined as two nodes with a common neighbour will often find themselves developing an edge between themselves[3]. Following this principle and seeing as Donald Trump and George Soros both have an edge connecting them to Jared Kushner and Steven Mnuchin one could expect an edge to form between Trump and Soros. With the likelihood of this edge being dependent on the strength of their ties to Kushner and Mnuchin. From the data in the TrumpWorld dataset the connection from Soros to Kushner and Mnuchin looks rather weak. The unverified claim of Soros Fund Management financing RealCadre does in it self not indicate a strong connection and neither does the fact that Mnuchin has worked for Soros Fund Management.

One of the connections being:
DONALD J. TRUMP - Senior adviser - JARED KUSHNER
JARED KUSHNER - Investor - REALCADRE LLC
REALCADRE LLC - Soros Fund Management has quietly been financing the Kushner-backed real estate finance startup Cadre with a substantial credit line, according to The Real Deal - SOROS FUND MANAGEMENT, LLC
SOROS FUND MANAGEMENT, LLC - Chairman - GEORGE SOROS

Looking at the content of The Real Deals article, the source of the claim that Soros Fund Management quietly ha been funding RealCadre (a Kushner company) is not named and is stated to be “a source familiar with the financing arrangement”, a vague claim when not presented accompanied by any material proof or data, and should not be trusted without any supporting data.

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[3] David Easley & Jon Kleinberg, 2010

Checking for correlation between the different centrality measures we see a correlation of 1 between degree and degree centrality, which is expected, as the both measure the amount of neighbours a node have. We also see a fairly high correlation (0.74) between degree- and betweenness centrality, a crude or simplistic way of looking at this is that the more neighbours a node has, the more likely it is to lie on the shortest paths of other nodes. This view is also supported by the findings of Thomas W. Valente et. al. in their paper "How Correlated Are Network Centrality Measures?"[4]. Closeness and Eigenvector centrality also has a fairly high correlation (0.63). Intuitively (but perhaps incorrectly) this can be explained by the fact that closeness centrality indicates the closeness of a node to every other node in the network. A node being close to all other nodes in the network is likely to be close to the important nodes as well.

The code and dataset used to conduct this analysis can be found at : https://github.com/SiAsp/Analysing-TrumpWorld

References

Easley, D. and Kleinberg, J., (2010), Networks, Crowds and Markets: Reasoning about a Highly Connected World, pp.44-45

Templon, J., Cormier, A., Campbell, A. and Singer-Vine, J., (2017), Help us map TrumpWorld, available at: https://www.buzzfeednews.com/article/johntemplon/help-us-map-trumpworld#.ekLzoZ316, accessed: 21.09.20

Valente, T. W., Coronges, K., Lakon, C. and Costenbader, E. (2008), How Correlated Are Network Centrality Measures?

[4] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2875682/, accessed 22.09.20