Introduction and Objectives

Political psychology delves deep into studying politicians' thought processes and behaviour, concurrently shedding light on parliamentary social relations (Huddy et al., 2013). Existing research (Staerklé, 2015) typically focuses on political behaviour at the individual level (i.e., questions) and the party level (i.e., voting). Localising this topic to Singapore, this paper argues that parliamentary questions (PQs) serve as the most reliable measure of political behaviour (Martin, 2011), as the party whip does not restrain the freedom of speech of Members of Parliament (MPs), unlike that of party voting. Additionally, given that PQs are recorded behaviour, they provide unique and exact insight into parliamentarians' concerns, and measure their activeness and contributions in Parliament.

Thus, through a network modelling of PQs, this project aimed to analyse political partisanship, accountability and influence in Singapore's Parliament. Considering how no prior studies have attempted to utilise social network analysis (SNA) to model the flow of information in a parliamentary setting, this novel project adds a new dimension to the existing political psychology research literature. Analysing PQs in this manner also elucidates nuances about political group dynamics, which has both empirical and practical benefits.

Data

All required information was manually scraped from *parliament.gov.sg* to conduct the network construction and analysis. This paper collected details of 72 MPs (demographic details and political affiliation) and 1,608 PQs (between January 2022 to August 2022). The data focused primarily on PQs from the 14th Parliament of Singapore. For ease of analysis, the data was stored in two separate excel spreadsheets, one for the nodes (MP details) and another for the edges (PQs) of the network. This dataset consisted of both written and oral PQs. A caveat of this dataset is that 22 MPs had to be excluded as their parliamentary role did not allow them to pose any questions or answer any questions. This would inadvertently affect the network construction and analysis—for instance, positions such as the Speaker of Parliament, Minister of States, and Parliamentary Secretaries were removed.

Methods

SNA was the primary technique utilised to construct this PQ network. This project used two overarching steps to build the network. Firstly, represent a specific MP who poses a PQ with node A. Secondly, for any two MPs, A and B, a directed edge connects MP A to MP B if the question posed by MP A belongs to MP B's ministry.

Firstly, this project utilised degree centrality to examine the political accountability of MPs. The degree of a node is the number of ties it has with other nodes (i.e., edge count). In this project's context, for an MP, the higher the degree of a node, the more questions the MP has raised in Parliament. On the other hand, for Ministers, the higher the degree of their node, the more questions they have received from other MPs.

Secondly, this project also utilised betweenness centrality and key player analysis to examine the level of influence these MPs have. Betweenness centrality measures the extent that a node sits between pairs of other nodes in the network. A node (i.e., MP) with high betweenness is prominent because that node is in a position to observe or control the flow of information in the network. Key player analysis would provide corroborating evidence of who holds the most influence in the network.

Lastly, this project also utilised Louvain community detection and Monte Carlo simulations (control condition) to analyse the question of political partisanship. The theoretical basis would be that only three subgroups should exist if all parties had such beliefs (Buddy & Hankert, 2007) as each party has different political stances. Political networks often consist of relatively densely connected subgroups, and defining and identifying such subgroups will help to corroborate information regarding political partisanship.

Results

Firstly, for the network visualisation, Figure 1 (see Annex A) displays the directed PQ network with nodes coloured according to the political party to which each MP belonged. The directed network had a total of 72 vertices and 1608 edges (before collapsing of rows).

Degree Centrality Analysis (DCA). DCA found that, on average, opposition MPs asked significantly more PQs than MPs from the ruling party. To illustrate, on average, WP had 41.1 PQs, PSP had 30 PQs, and PAP only had 19.8 PQs. Moreover, only PAP MPs were below the mean (28.7) for all PQs asked in parliament. When contrasted with the reality that PAP holds a supermajority presence in parliament (88.3%), these findings are surprising. Delving deeper into the analysis, nine of the bottom ten MPs who asked the least PQs belonged to the PAP, and four were first-term MPs. These MPs only accounted for 3.05% of the total PQs asked in parliament.

Betweenness Centrality Analysis (BCA). BCA found that political position (i.e., Prime Minister) does not automatically translate into having the biggest influence in the network. For instance, Minister Ong Ye Kung had the highest betweenness centrality at 453.04, compared to that of Prime Minister Lee Hsien Loong at 61.09. Additionally, when comparing influence at a party level, the results seem to parallel that of each party's parliamentary seats, with PAP having the highest betweenness centrality, followed by WP, then PSP.

Key Player Analysis. Four key players were identified, with these MPs belonging solely to the ruling party (PAP). Three of these MPs were ministers, while one was a backbencher MP. This finding highlights how PAP still holds the most influence in information flow, despite asking significantly fewer PQs.

Louvain Community Detection (LCD). LCD identified five subgroups (see Annex A) with a modularity value of .21, indicating that the clustering is not that dense. The closer to 1, the more the network exhibits clustering to the given node grouping. Additionally, to assess the significance of these results, I ran $n = 1000$ trials of Monte Carlo simulated graphs (see Annex A). These random graphs had two main principles: (i) graphs of the same number of vertices and edges as the PQ network and (ii) graphs of the same degree distribution as the PQ network. A possibility of five to six communities was identified from the perspective of random graphs of both fixed size and fixed degree sequence, which is not too far off what LCD found.

Discussion

Utilising SNA, this project has demonstrated that it is possible to model information flow within a parliamentary setting, enabling us to delve deeper into the nuances of political group dynamics. From a political psychology standpoint, this project highlights how collaborative political work seems to form the bedrock of Singapore's Parliament, despite differences in party membership – highlighting how collaboration and political membership are not always in conflict.

Accountability-wise, the results found from the SNA have suggested that MPs from the ruling party tend to pose significantly lesser PQs to Ministers than opposition MPs (i.e., lower degree centrality). One possible explanation could be that, after all, PAP MPs and Ministers belong to the same political party, indicating the possibility that they might be unwilling to question their colleagues out of fear of rocking the boat. Moreover, when we look for corroborative evidence regarding MPs' thought processes and behaviours, we notice that the last time a PAP MP voted against his own party's position was back in 1992.

Political-partisanship-wise, community clustering results seem to point towards non-existence, as there were numerous subgroups where MPs from the opposition and ruling parties belonged to the same subgroup. One possible explanation is that interaction between MPs of different political parties is inevitable, as seen in different parliaments globally.

One limitation of these findings is that this paper only looked at the activeness of MPs within a parliamentary setting. An MP who does not speak up in Parliament could be involved in more grassroots work serving residents, albeit such information is not publicly accessible or quantifiable. Future research could build on these results by employing sentiment analysis to determine parliamentarians' cognitive and affective states when PQs are raised.

References

Campbell, A., Converse, P. E., Miller, W. E., & Stokes, D. E. (1980). *The american voter.* University of Chicago Press.

Huddy, L., Sears, D. O., & Levy, J. S. (Eds.). (2013). *The Oxford handbook of political psychology.* Oxford University Press.

Martin, S. (2014). Parliamentary questions, the behaviour of legislators, and the function of legislatures: An introduction. *In The Roles and Function of Parliamentary Questions* (pp. 1-12). Routledge.

Staerklé, C. (2015). Political psychology. *International Encyclopedia of Social and Behavioral Sciences, 18,* 427-433.

Annex A

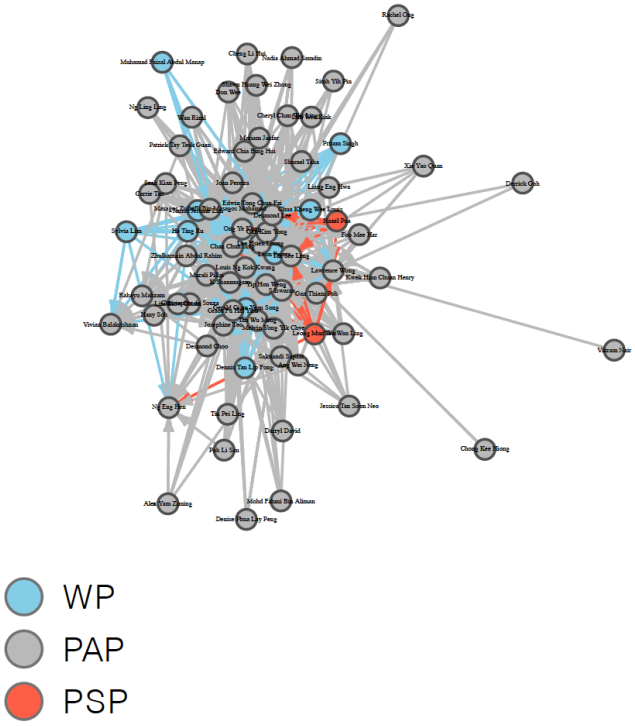

Figure 1. *Visualisation of Network*

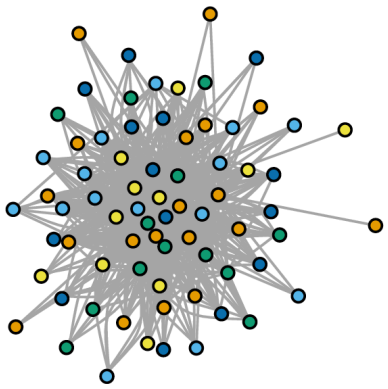

Figure 2. *Visualisation of Community Detection*

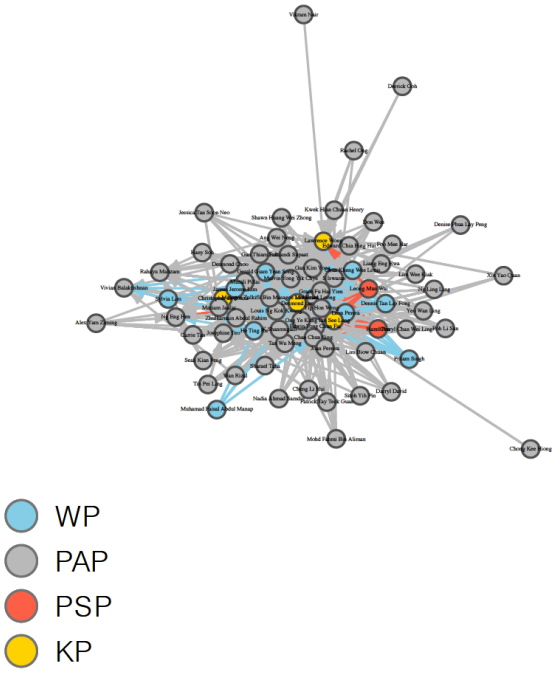

Figure 3. *Visualisation of Key Players*

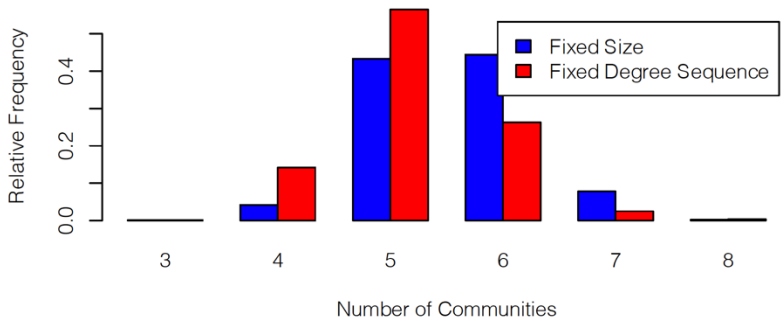

Figure 4. *Monte Carlo Simulations*