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A SOCIAL NETWORK ANALYSIS OF THE CHINESE COMMUNIST PARTY'S POLITBURO

by

Leo S. Gregory

December 2013

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A SOCIAL NETWORK ANALYSIS OF THE CHINESE COMMUNIST PARTY'S POLITBURO

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Submitted in partial fulfillment of the
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LIST OF ACRONYMS AND ABBREVIATIONS

CCP	Chinese Communist Party
KMT	Kuomingtang
MR-QAP	multiple regression quadratic assignment procedure
PBSC	Politburo Standing Committee
Politburo	political bureau
PRC	People's Republic of China
SNA	social network analysis

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I. INTRODUCTION

A. MAJOR RESEARCH QUESTION

My research question is how do the internal dynamics of the Chinese Communist Party's (CCP) Political Bureau (Politburo) affect China's national strategic guidance and specific policies? A myriad of factors and dynamics are at work within the Politburo; examples of these dynamics include the role of mishu[1] representation of their principles, relations between central and provincial authority, and the role of retired party elders. In this thesis, I focused on how the informal structure of the current Politburo interacts with its formal structure and how this dynamic affects the eventual outputs. Specifically, I developed models of the group dynamics based on academic theories using social network analysis (SNA) methodologies. These academic theories are founded on analysis of the role of group dynamics within the Politburo—political factionalism, individual ideology, and institutionalism—and they assess how these dynamics are useful in explaining Politburo behavior. After developing models of the theories, I created an SNA observation of the current Politburo and then compared that network with these models using two types of regression analysis in order to test which theory provides the best explanation or closest fit. Through this approach, I found that a combination of the models based on institutionalism and ideology provides the closest fit to my observations. My interpretation of this analysis is that the political elites of the Politburo have normalized the rules of political succession and power transfer within that group, and one aspect of this dynamic is the presence of a preeminent leader.

B. IMPORTANCE

Understanding the processes that Chinese political elite is critical to better predicting the trajectory of the People's Republic of China. In regard to the Politburo, the formal structure is known, but the informal structure can only be understood through careful analysis, for example, of the role of leading small groups and the effect of policy disagreements between Politburo. For this research, I relied on David Knoke's

[1] Mishu serve as personal secretaries or executive assistants.

interpretation of organizational theory where a "formal organization is a goal-directed, boundary-maintaining activity system." [2] This definition can be operationalized or visually represented by the organizational chart that depicts the various flows or authority or responsibility between group members. In the Politburo's case, this formal structure is the ranked order of the Politburo, the Politburo Standing Committee, and the organizational roles of the individual members. In contrast, the informal structure is the "emergent systems of activity [that] crosscut formal lines of authority and communication, creating new structural relationships that account for decisions, outputs, failures, and transformations that cannot be explained solely by reference to formal design." [3] China's leadership is notoriously secretive about both the formal and informal structures of the group.

This obfuscation of decision-making processes and the presentation of a unified consensus by the Politburo to the outside world confound professional China watchers. This situation led one academic, the late Professor Tang Tsou, to lament that the subject of elite politics suffers from "a paucity of serious endeavors to provide a system of clearly defined concepts, a theoretical framework, explicitly stated assumptions, and carefully designed research programs aimed at developing a model or a theory." My research attempts to address parts of Professor Tang's concerns. First, I augment the current descriptive theories of the CCP Politburo with models developed from social network analysis methodologies. These models provide a means to compare, visually and through metrics, networks that provide alternative insight than purely textual descriptions. Second, it offers specific definitions for some phenomena, like factions, based on the rich language of sociology and social network asocial network analysis. Finally, this approach provides a useful template for further research by individuals with a deeper and more nuanced understanding of the history and workings of formal and informal elite Chinese politics and how these relations affect the policies produced by the Politburo.

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[2] David Knoke, *Political Networks: The Structural Perspective* (New York: Cambridge University Press, 1990), 86.

[3] Knoke, Political Networks, 93.

Developing a better understanding of the informal Politburo politics is important for any attempt to explain the behavior of that body and the processes through which the group makes decisions. Currently, the formal hierarchy of the Chinese Communist Party (CCP) is relatively well understood, but understanding how the informal political relations affect formal structures will assist successful engagement with the Chinese leadership. For example, U.S. and Chinese discussions over exchange rates or territorial administrative zones can be planned differently depending on how the Politburo, as the ultimate arbiter of policy, comes to consensus as a group. If a single central leader is most important, then U.S. policy makers should focus engagement efforts on that leader; however, if factionalism is the driving factor behind group behavior then U.S. efforts should focus on the specific groups rather than a primary leader. This thesis attempts to develop greater insight into what subgroups form among the individual members of the Politburo, how informal relationships operate within the Politburo's formal structure, and how these substructures coalesce and interact with the formal structure thereby informing policy making. This research seeks to add to the overall academic discussion on informal and formal approaches to analyzing Chinese elite politics and propose a hybrid methodology—as opposed to pure historical or political science case study approach—as another lens for this analysis.

C. LITERATURE REVIEW

There are two main categories of literature important for this thesis. The first category includes academic and media sources regarding China's leadership elite and theories about how the Politburo operates. From these sources, I broadly traced the evolution of political power from Mao Zedong through the current 18th Central Committee Politburo. In addition to reviewing the political history of elite political power, the academic literature presents three broad theories regarding the workings of elite politics work in China: politics driven by individual ideology, factionalism, and institutionalism. These three approaches served as the basis for the models I developed of Politburo behavior and provide explanations for outcomes associated with those behaviors. The second category is the literature of social network analysis that offers tools, methodologies, and metrics useful for the examining these models. The social

network analysis literature also includes hypothesis about how these methodologies are useful for and integrate with the broader political science and international relations fields.

1. Roots of the Leadership Models

While the CCP was founded in Shanghai in 1921, it gained control of the state and founded the People's Republic of China (PRC) in 1949. The founding of the state serves as a starting point for political analysis of the party because, prior to that date, the party was a revolutionary organization focused on the military overthrow of various rivals, including the Japanese and the Kuomintang (KMT). The situation changed after the Allied defeat of Japan in World War II and the CCP defeat of the KMT in the civil war. With victory over the KMT and retreat to Taiwan of Chiang Kai-shek and his cohort, Mao Zedong and the rest of the CCP faced the reality of running a state rather than overthrowing one.

This early era provides observations of the behaviors for two models of Chinese elite leadership: Mao in command and a party split by factionalism. During the PRC's first couple of decades, the requirements of running a state combined with numerous internal and external threats to CCP rule brought ideological differences and schisms to the forefront. These stresses eroded party unity. During this period Mao was the most powerful leader, but there is debate within the literature on whether Mao reigned supreme—sometimes referred to as Mao in command—or was a master of a divide-and-conquer form of factional politics.[4] This debate stems from differing interpretations of important internal crises within the CCP leadership including the Lushan Conference in 1959, criticism of the Great Leap Forward, and ensuing purge of Peng Dehuai; the Lin Biao affair; and the Cultural Revolution and the Gang of Four.

[4] Kenneth Lieberthal, *Governing China: From Revolution through Reform*, Second Edition ed. (New York: W.W. Norton & Company, 2004), 62; Frederick C. Teiwes, "The Establishment and Consolidation of the New Regime, 1949–1957," in *The Politics of China: Sixty Years of the People's Republic of China*, ed. Roderick MacFarquhar, Third ed. (Cambridge: Cambridge University Press, 2011), 6; Frederick C. Teiwes, "The Paradoxical Post-Mao Transition: From Obeying the Leader to 'Normal Politics'," in *The Nature of Chinese Politics: From Mao to Jiang*, ed. Jonathan Unger (New York: M.E. Sharp, 2002), 59.

A second era serves to create models for continued factionalism, the role of informal politics and consensus-based rule, and increased institutionalism.[5] This period began with Deng Xiaoping's ascent to power after Hua Guofeng brought him back from his third purging. Deng began by creating both a formal and informal powerbase and continued as he undermined the leadership of Hua Guofeng to attain power. The Deng era was marked by economic liberalization, political withdrawal from significant portions of social life, institutionalization of the party and state, and the Tiananmen Square Massacre of 1989. The academic literature on this era still views factionalism as an important dynamic, but the stakes of competition were no longer as dire. For example, Chen Yun's challenge to Deng's price reforms led to a change in the pace of reform, but not to a battle over Deng's authority.[6] In analyzing the role of informal and formal politics of the CCP, the Deng era is important because Deng never officially took the most important positions in the Party or State. He never took the posts of Party general secretary, PRC premier, or PRC president. An important exception was that Deng did hold the chairmanship of the Central Military Commission through which he retained control and loyalty of the People's Liberation Army. Deng's authority rested on a combination of his formal role, hold over the military, and his informal influence with the party elite.

A third set of theories from this era about Politburo behavior focus on the role of increased institutional representation, political factionalism, and personal networks in the dynamics of the Politburo.[7] This period started with Deng Xiaoping's handing the reigns of leadership to Jiang Zemin and continued through Hu Jintao's leadership to the present CCP leadership headed by Xi Jinping. Academic literature depicts this era as one in which the Politburo continued its supremacy in driving the strategic trajectory of Chinese

[5] Lowell Dittmer, "Reflections on Elite Informal Politics," in *The Nature of Chinese Politics: From Mao to Jiang*, ed. Jonathan Unger (New York: M.E. Sharp, 2002), 180–3.

[6] Tang Tsou, "Chinese Politics at the Top," in *The Nature of Chinese Politics: From Mao to Jiang*, ed. Jonathan Unger (New York: M.E. Sharp, 2002), 107.

[7] Joseph Fewsmith, "The 18th Congress: Testing the Limits of Institutionalization," *The China Leadership Monitor*, Winter, no. 40 (2013): 8–9; Barry Naughton, "Signaling Change: New Leaders Begin the Search for Economic Reform," *The China Leadership Monitor*, Winter, no. 40 (2013): 9; Alice Miller, "The New Party Politburo Leadership," *The China Leadership Monitor*, Winter, no. 40 (2013): 12–13.

policy.[8] Across this period, the elite leadership of the Politburo presented a unified face to the world, while actual decision making and consensus building has proceeded within the "black box" of the Politburo's Standing Committee and wider meetings.

2. Three Theories for Characterizing the Chinese Politburo

The literature on CCP elite politics offers three primary theories for explaining the formal and informal Politburo structures, and these theories provide the foundation for the social network analysis models that I developed. Here, I will briefly introduce each of these theories, but I discuss them in greater detail in the following chapters dedicated to the models. In the first theory, the Politburo is characterized by leaders advancing personal ideologies or visions. I developed two variants of the leadership model from this theory. The first is a network of informal relationships that gravitate around dominant a leader. Other Politburo members form networks to build coalitions and support for their personal policy preferences in order to sway the core leader to their cause. In this model, the interpretation of either socialist ideology or methodology for ensuring continued CCP dominance of power in China is the primary motivation driving Politburo leadership.[9] Jiang Zemin's and Hu Jintao's forming transitory coalitions around specific programs is an example of this phenomena. In the second variant of this theory the core leader provides a bridge between different factions. Here the primary leader's ideology dominates Politburo's policy decisions, and the internal dynamics are characterized by the leader's ability to unify power politics of the factions and create consensus. This theory has been called the "Mao in Command" model and has been used to explain much of the resulting policies that came from the Mao era.[10] The interactions resulting from the interplay of differing personal interpretations therefore become the dominant characteristic of the Politburo.

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[8] Lieberthal, *Governing China*, 207.

[9] Lucian W. Pye, "Jiang Zemins Style of Rule: Go for Stability, Monopolize Power and Settle for Limited Effectiveness," in *The Nature of Chinese Politics: From Mao to Jiang*, ed. Jonathan Unger (New York: M.E. Sharp, 2002), 213; Miller, "Leadership Decisionmaking: Models and Processes."

[10] Teiwes, "The Paradoxical Post-Mao Transition," 58.

The second theory holds that political factionalism is the dominant characteristic of the CCP Politburo. This theory is based on analysis that the informal personal networks—particularly patron-client relationships—that Politburo leaders develop among themselves provide support and power. These groups tend to be antagonistic toward opposing groups, but the infighting is usually confirmed by those outside the Politburo only after the fact when one side has been purged or has lost power. Joseph Fewsmith cites several examples of this type of infighting; these examples include Hu Jintao's purging of Chen Liangyu and Jiang Zemin's purging of Chen Xitong.[11] In this model, these factional dynamics are the primary driving forces of Chinese elite politics. One problem with this model is the difficulty in the historical and political science literature of agreeing upon a definition of "faction," and it is an example of a problem that the NA literature can help with in its use of specific definitions for some of these relationships.[12]

The final theory is that of a Politburo characterized by increasing institutionalism. In this model, the dominant characteristic of the CCP Politburo is the regularization of power transition rules and the norms of political power. As a consequence of these dynamics, power politics play less of a role in determining member's behavior. Instead, the various leaders' focus on the advancement of organizational goals as the primary vehicle for continued personal promotion and power accumulation. Leaders therefore create subgroups to support or block policies that affect their organizations and the access to resources that come with those policies.[13] Kenneth Lieberthal observed that "While some of these policies may result from the initiative of top leaders, others are best seen as a temporary agreement arranged by the top leaders among contending and powerful bureaucracies with diverse purposes, experiences, and resources."[14] Adherents of this model assume that interactions within the Politburo are driven by the bargaining and compromises that occur between leaders who advance the needs of their respective

[11] Fewsmith, "The 18th Congress: Testing the Limits of Institutionalization," 2; Victor Shih, Wei Shan and Mingxing Liu, "Gauging the Elite Political Equilibrium in "The CCP: A Quantitative Approach using Biographical Data," *The China Quarterly*, Vol 201 (2010): 88.

[12] Tang, "Chinese Politics at the Top," 111.

[13] Shih, "Gauging the Elite Political Equilibrium in the CCP."

[14] Kenneth Lieberthal and Michel Oksenberg, *Policy Making in China: Leaders, Structures, and Processes* (Princeton: Princeton University Press, 1988), 4

bureaucracies.[15] In this model, the trend toward increased institutionalism of the processes and mechanisms of power begun by Deng Xiaoping has successfully integrated into the political norms of collective Poltiburo behavior.

Assessments vary among academics about which theory or theories provide the best explanation for the informal and formal dynamics of the Politburo. One answer to this problem is that the different theories may explain different periods of time better than others, i.e., no one theory provides a unified explanation of Politburo politics at all times. A second answer is that the causal and correlational processes are difficult to identify from one another because of the lack of transparency in Politburo operations. Modeling these theories provides a tool to empirically measure these networks in a variety of ways; they can be measured a number of ways including network topography, subgroup or clustering counts, and individual centrality. The measures of each of these models, or model signature, can then be compared with observations about the current Politburo for further analysis. This is important because each of the models explains different processes and outcomes resulting from the formal and informal group dynamics. Factionalism results in infighting, cleavages, and winners and losers. Organizational representation results in compromise or conflict between different Politburo members centered cost benefit calculations for their respective bureaucracies. Personal ideology results in a Politburo with subgroups formed around competing policies for China.

3. What Is Network Analysis and Why Treat the CCP as a Network?

Much of the current scholarship on elite politics and the CCP employ traditional approaches of historical and political science case-study methods. These methods have produced a literature strong in nuance and contextual analysis of political trends. However, one of the weaknesses is this literature's lack of commonly accepted measures and definitions. The descriptive models are challenging to distinguish from one another in practice. Social network analytics provides one potential answer to this problem. Social network analysis methodologies also provide a means to visualize and measure the

[15] Alice L. Miller, "Leadership Decisionmaking: Models and Processes," (Lecture, Naval Postgraduate School, Monterey, CA, 27 November).

formal and informal relations in various ways that can then be empirically tested and compared against one another.

SNA is a collection of theories and methods developed from a foundation in mathematical graph theory and traditional sociology. Researchers originating from varied fields, such as physics, economics, computer science, social science, epidemiology, and others, have helped develop this approach. SNA is best described as "a collection of theories and methods that assumes that the behavior of actors (whether individuals, groups, or organizations) is profoundly affected by their ties to others and the networks in which they are embedded. Rather than viewing individuals (and groups and organizations) as unaffected by those around them, SNA assumes that we are social beings whose interaction patterns affect what we do, say, and believe."[16] Another way of stating this is that SNA emphasizes the relationships between nodes as having better explanatory value for behavior than individual nodal attributes.[17] SNA further assumes that both the network structure and individual agency are equally important. Structures, sub-structures, and individuals all enable and constrain each part of the network, and they operate as a feedback loop informing and affecting each other.[18] This theoretical approach provides another lens to analyze elite informal and formal relationships within the CCP Politburo.

SNA literature provides methods and theories linking both the formal and informal, or organizational and personal, networks as a structural whole. This literature assumes that the informal networks operate alongside the formal networks and serve to augment, constrain, or subvert the formal mechanisms of group or institutional interaction.[19] Some of the assumptions forming these links are:

> grounded in three principles: nodes and their behaviors are mutually dependent, not autonomous; ties between nodes can be channels for transmission of both material (for example, weapons, money or disease)

[16] Sean Everton, *Disrupting Dark Networks*, Kindle ed. (Cambridge: Cambridge University Press, 2012), loc 768.

[17] Everton, Disrupting Dark Networks, loc 814–6.

[18] Charles Kadushin, *Understanding Social Networks: Theories, Concepts, and Findings*, Kindle ed. (Oxford: Oxford University Press, 2012), loc 317.

[19] Knoke, Political Networks: The Structural Perspective , 92–3.; Kadushin, Understanding Social Networks: Theories, Concepts, and Findings, loc 1672.

> and non-material products (for example, information, beliefs, and norms); and persistent patterns of association among nodes create structures that can define, enable, or restrict the behavior of nodes.[20]

In other words, social network analysts preference relationships over individual attributes as a better explanation of behavior. Furthermore, many of these theories have been operationalized into algorithms within software packages that can model, simulate, and measure these networks, both formal and informal. SNA therefore provides multidisciplinary theories that have been operationalized into tools that can model and provide a vehicle to test traditional political science theories.

At its core, SNA is concerned with the study of networks. Typically there are two ways of defining networks: relational and affiliation.[21] The relational networks, also referred to as one-mode networks, are concerned with ties between similar objects; for example, ties between people or states. The important distinction is that the units or nodes are the same. Affiliational networks, also called two-mode networks, are those where a node is tied to units that are not the same; for example, people tied to an event, organization, ethnicity, or belief. Affiliation networks can be transformed into one-mode networks to examine and measure the shared affiliations between the nodes being studied; for example, the numbers of events that people have attended together. Relations between these transformed networks are useful, but must be examined closely as these relationships are often more difficult to interpret than direct relationships between nodes of the same type. For example, just because two people attended the same event does not mean that those people interacted; in these cases the researcher should be explicit in why that event created a relationship between individuals. Figure 1 depicts a hypothetical network between four individuals where the ties depict friendships between them.

[20] Emilie Hafner-Burton, Miles Kahler and Alexander H. Montgomery, "Network Analysis for International Relations," *International Organization* 63, Summer (2009), 562.

[21] Zeev Maoz, Networks of Nations: The Evolution, Structure, and Impact of International Networks, 1816–2001, Kindle ed. (New York: Cambridge University Press, 2011), loc 294.

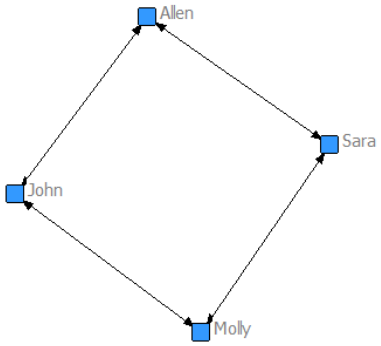

Figure 1. Hypothetical one-mode network

Figure 2 depicts a hypothetical two-mode network where the ties represent individual attendance to three separate events. Figure 3 depicts a hypothetical affiliation network between individuals where the ties represent the shared events that individuals attended in Figure 2. Visually the structure of the network remains similar, but the network formed by sharing event participation between the individuals can now be more easily examined.

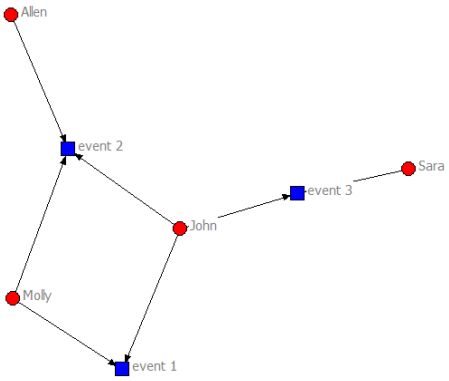

Figure 2. Hypothetical two-mode network

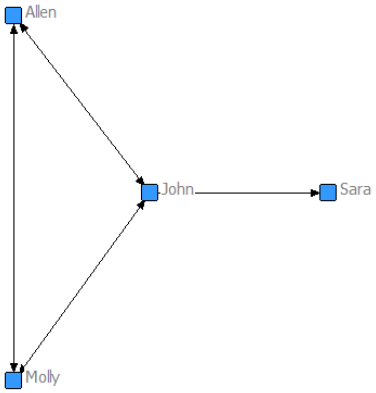

Figure 3. Hypothetical one-mode network derived from transforming the affiliation network as depicted in Figure 2.

In this research, I present both relational and affiliation networks in my theoretical models and analysis of current CCP Politburo relations.[22]

While visual representation is often useful, SNA also provides methodologies for analyzing and measuring networks to augment these visualizations. Networks, even simple networks, can quickly become complex webs, especially when nodes share multiple types of ties between them. SNA provides ways to simplify and segregate core sub-groups and potentially important nodes within a network for further analysis. Simplification is complimented by the operationalization of numerous metrics that can measure networks at the topographic, sub-group, and individual level. Examples of these measurements include methods to measure the density and interconnectedness of the network at the topographic level; numbers of factions and Newman-Girvan groups—a community or group within a network that has more ties within and fewer ties out than would be expected in a random graph of the same size with the same number of ties—at the simplified level; and the potential power and prestige of individuals at the unique nodal level.[23] These metrics assist in examining a network for important relationships, determining how the network operates, and offer meaningful ways to compare different networks to each other.

[22] Figures 1–3 were drawn with NetDraw: Borgatti, S.P. 2002. NetDraw: Graph Visualization Software. Harvard: AnalyticTechnologies.

[23] Hafner-Burton, "Network Analysis for International Relations," 563–4.

The growing body of literature on SNA has expanded beyond sociology and business organization over the past several decades to include examinations of state organization and add to the theoretical work on comparative politics. This has been especially true as the complexity of states bureaucracies have expanded exponentially. In discussing state organization and its impact on function, David Knoke observes that states

> are also bureaucratized apparatuses structured as social organizations that enjoy a privileged relationship with the rest of society...All these perspectives share a concern with rationalized formal organizations as the basic components of state structure. As these bureaucracies proliferate, understanding the structure of political bargaining relations among state organizations becomes critical to explaining state policymaking.[24]

More recently, SNA has been used successively to analyze terrorist and criminal networks, especially after 9/11. These networks are often referred to as dark networks because of their secretive nature and difficulty that researchers and analysts have in observing structures and relationships among ties. Light networks, like international trade among states, have also garnered more attention from SNA as scholars attempt to reconcile the increasing complexity of international relations with academic theory.[25] The CCP Politburo, as a known but secretive organization of many of the most politically powerful individuals in China, provides an example of a network that straddles the line between a light and dark network. Professor Lowell Dittmer stresses the importance of examining these relationships in Chinese politics when he stated that "unlike Western countries, where formal politics is clearly dominant…the Chinese informal sector has been historically dominant, with formal politics often providing no more than a façade for decisions made behind the scenes."[26] By treating the CCP Politburo as a network, it is possible to examine, and even measure, some of the dynamics of behavior that are hidden to textual description.

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[24] Knoke, Political Networks: The Structural Perspective, 150.

[25] See Everton, *Disrupting Dark Networks* and Maoz, *Networks of Nations* as two examples of this type of research.

[26] Dittmer, "Reflections on Elite Informal Politics," 19.

D. PROBLEMS AND HYPOTHESES

An improved understanding of Politburo politics would enable greater insight into the reasons why the Chinese leadership pursues certain policies and improved predictive power for the potential direction of Chinese policy. As a starting point, I began with three working hypotheses for analysis of the informal and formal structural dynamics of the CCP Politburo:

H1. Individual ideology provides the best explanatory model for describing the CCP Politburo

H2. Political factionalism provides the best explanatory model for describing the CCP Politburo.

H3. Institutionalism provides the best explanatory model for describing the CCP Politburo.

These hypotheses are based on major themes discussed in the literature review. In the methodology section of this chapter, I explain how I modeled and then tested these hypotheses with current observations. Going into this research I believed that H3, the theory based on increased institutionalism, would provide the best explanation for current dynamics in the Politburo. The two forms of regression analysis that I conducted indicate that both elements of H1 and H3 are important to explaining Politburo behavior. In Chapters VI and VII I offer some thoughts on the ramifications of this and on how these theories may be integrated with my findings.

E. RESEARCH DESIGN

In this thesis, I use an approach combining analytical methods from network analysis to examine, test, and analyze the group dynamics of the Chinese Communist Party's Politburo. First, I develop network models of the three primary theories identified in the literature review of the Chinese Politburo. I first create a formal model based on the NA literature and then build a second observational model based on the descriptions of the relevant Chinese theories. For example, much of the academic literature discusses the role of factions in Politburo relationships, but many authors have trouble agreeing on

a common definition of a faction. In NA definition of a faction is "a subnetwork where each actor is tied to all other actors within their own subnetwork but have no ties to actors in other subnetworks."[27] Figure 4 depicts a visualization of two triads forming separate factions with no interaction between them.

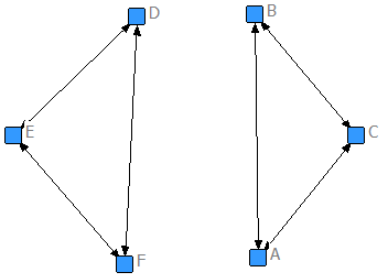

Figure 4. Hypothetical faction

This model of factionalism rarely exists in reality, but a hybrid can capture the political factionalism described in the CCP Politburo. Measurements of these model's structures, sub-groups, and individuals create unique signatures. I then tested measurements against the observations of the current Politburo for comparison and analysis. The intent was to test whether any of the theories appear to explain the current Politburo and therefore provide a prediction for decisions and strategic guidance coming out of it.

Next, I created relational matrices based on data obtained from authoritative sources; such as China Vitae and the Hoover Institution's *China Leadership Monitor* to develop the model of the current CCP Politburo.[28] I developed three sets of personal and professional relationships: professional relations of Politburo members reflected in their current roles and policy portfolios; relations of Politburo members from their previous roles; and relations created through alumni associations of schools they have attended.[29]

[27] Everton, *Disrupting Dark Networks*, loc 8442–3.

[28] China Vitae is a website devoted to providing a repository of biographical information of Chinese leaders in English. The organization uses official Chinese government sources. The website is available at: http://www.chinavitae.com/.

[29] A similar relationship model was proposed by Alice Miller in "Who Does Xi Jinping Know and How Does he Know Them."

I also explore the link between current Politburo members and their policy preferences through an analysis of individual policy statements, appearances, and meetings spanning the careers of both the primary party news organs, *People's Daily* Online and *Xinhua*. These three networks serve as observations of current and historic relationships. Finally, I compare these networks both individually and in aggregate against the formal models in order to test the hypothesis about which offers the best explanation for the observed network.

I use SNA toolsets from three programs to model and analyze the data: UCINET, Organizational Risk analyzer (ORA), and Pajek. These three programs contain algorithms, visualization tools, and relational databases that operationalize the NA methodologies.[30] SNA methodologies come with some important caveats. The models and observations that I present in the following chapters contain bias. I made numerous personal interpretations of the theoretic descriptions in coding the relational matrices, and, similarly, I made decisions on whether certain affiliations should count as a tie among the current Politburo. For example, if two Politburo members publicly speak about a certain policy theme I counted that as an observation of a tie between them for my Shared Policy Portfolio network. This tie is therefore based on both my personal judgment and is biased toward a bureaucratic model because statements in Chinese official sources have been reviewed for ideological correctness. Also, all models are a simplification of reality. These models sacrifice some amount of nuance and fidelity in order to present of both the individual and structural levels of analysis. Therefore, ties that I present should be thought of as ***potential*** ties rather than actual ties, and the models as approximations of reality rather than reality itself.

F. THESIS ROADMAP

This chapter introduced my basic research question and initial hypotheses. In it, I also presented an introduction to SNA and some of the definitions and terminology. The

[30] S. P. Borgatti, M.G. Evertt, and L.C. Freeman, *UCINET 6 for Windows: Software for Social Network Analysis* (Harvard: Analytic Technologies, 2002); Kathleen M Carley, *Organizational Risk Analyzer 2.3.6* (Carnegie Mellon University: CASOS, 2011); Andrej Mrvar and Vladimir Batagelj, *Pajek64 3.10*, 2013.

following three chapters are devoted to presenting the SNA models based on the theories of Politburo behavior. In Chapter II, I present the Ideology Model; in Chapter III the Factional Model, and in Chapter IV, the Institutional Model. In each of these chapters, I discuss the basis of the theory, the evidence supporting existence of the theory, and then what each theory predicts. Each of these chapters also contains the SNA model and associated metrics, as well as, an explanation of the metrics and their meaning for Politburo dynamics. In Chapter V, I examine the observations of the current Politburo and include a discussion of the methodologies that I used to develop that network. Chapter VI provides a discussion of the methodology and toolset I used to compare the models to the observations of the current Politburo. Finally, in Chapter VII, I provide my conclusions and some thoughts on the direction of future research and endeavors for this multi-disciplinary approach.

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II. THEORIES OF PERSONAL IDEOLOGY AS PRIMARY

In this chapter, I present the models based on the theory that ideology, or the personal vision of a central leader, provides the best explanation for Politburo behavior. Here, I first review the academic literature behind the theory and its explanatory value, then I present the NA models and metrics, and I conclude by presenting some of the implications that these models have for group Politburo behavior resulting from their relationship with a central leader.

A. THEORIES OF IDEOLOGY AND HOW THEY DRIVE POLITICS

1. Emergence of the Theory

Initial formulations of these theories developed relatively quickly after the CCP won the civil war and founded the PRC in 1949. Rather than enjoying the fruits of victory, the United States found itself in the initial stages of the Cold War, and it needed a strategy to guide foreign policy in this unexpected conflict. As the principal adversary, the Soviet Union received most of the attention; but in the early 1950s, China quickly gained priority as it grew in power and militarily challenged the United States during the Korean War. Academics, analysts, and policy makers alike worked to develop explanatory theories for elite Chinese political decision making to guide U.S. policy development.

One of the earliest hypotheses to emerge was the idea that individual ideology serves as the most important force driving formal and informal relationships within the Politburo. In China's case this dynamic resulted in the core leader thesis. This thesis has been argued perhaps most strongly by Professor Frederick Teiwes. Specifically, he explains that during the first 40 years of the PRC, under Mao Zedong and Deng Xiaoping, the primary or core leaders were the most important factor affecting elite politics. This dynamic was especially true during Mao's tenure as the preeminent leader; Mao's personal ideology and beliefs essentially dominated all important final policy decisions of the Politburo. Others could debate with Mao, in certain forums and up to a point, but

once Mao had reached a decision he allowed for little dissent.[31] Within the Politburo, other leaders could try to convince the Chairman to accept their ideas or alternate policies, but that they had little chance for success if Mao was ideologically opposed. Furthermore, direct, or even perceived opposition, to Mao's personal viewpoints could result in political expulsion or demotion, as happened to Marshall Peng Dehui at Lushan in 1959 when he criticized the Great Leap Forward.[32]

Recently this theory has been updated to explain the current relationships within the Politburo, again based on individual ideology. In this theory the members of the Politburo and the PBSC have been influenced by individualistic aspects of capitalist ideology and this has profoundly affected individual preferences. There is still a mix of traditional ties including familial, business, and institutional, but there is much more room for personal interpretation of ideology.[33]

2. Evidence Supporting Theories of Individual Ideology

The core leader theory is primarily based on observations of Politburo behavior during the periods under Mao Zedong and Deng Xiaoping. Frederick Teiwes points to the reputations of Mao and Deng as revolutionary founders of the PRC as a central element to their authority. To be sure, some other leaders of their generation shared this revolutionary heritage, but it made them particularly unassailable to those who did not have the same pedigree.[34] Another element supporting this thesis is that the core leader's decisions were rarely disobeyed, and this was especially important when other Politburo members did not agree with the decisions. According to Joseph Fewsmith, the idea of a core leader was actually formalized during the Deng's tenure when the "Thirteenth Party Congress passed a secret resolution to refer all major decisions to Deng Xiaoping as the

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[31] Teiwes, "The Paradoxical Post-Mao Transition," 58.

[32] Harry Harding, "The Chinese State in Crisis," in *The Politics of China: Sixty Years of the People's Republic of China*, ed. Roderick MacFarquhar, Third ed. (Cambridge: Cambridge University Press, 2011), 208.

[33] Kerry Brown, Meeting Summery of: *China's Network of Leadership* (London: Chatham House,2013), 3.

[34] Teiwes, "The Paradoxical Post-Mao Transition," 67.

'helmsman' of the Party."[35] The difference between Deng and Mao in this regard was that other members could actually persuade Deng to reverse course from time to time, as Chen Yun did over price reforms in 1988. Chen Yun was able to do this without challenging Deng's authority, but it still required convincing Deng that reversing course, for a limited time, was the proper policy.[36] Further examples of core leader led policies from Mao's era include the Hundred Flowers Campaign, the Anti-Rightist Campaign, the programs of cooperativization and collectivization, the Great Leap Forward, the Socialist Education Movement, and the Cultural Revolution.[37]

Recent theories of personal ideology are derived primarily from thematic analysis of speeches and the new vocabulary being used by Politburo members. This new vocabulary consists of a return to moralistic themes in Xi Jinping's speeches, the drive for economic strength being espoused by Li Keqiang, and the right that China has to great power status in the writings of Liu Yunshan. These moralistic themes are viewed as a reaction by PBSC members to the internal unrest within China, the sense of disappointment among ordinary citizens that economic development has not equated to social development, and the concurrent rising nationalism within China's billion plus population.[38]

3. Explanatory Value

In the core leader theory, a central leader's ideology provides the motivating force driving Politburo policy decisions. Through this theory, researchers describe a strong preeminent leader as the central decision making authority and the most important aspect to understand in explaining Politburo decisions and policies. Therefore, all major new policies and actions come from the central leader, or at least bear his imprimatur, and he

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[35] Joseph Fewsmith, "Reaction, Resurgence, and Succession: Chinese Politics since Tiananmen," in *The Politics of China: Sixty Years of the People's Republic of China*, ed. Roderick MacFarquhar, Third ed. (Cambridge: Cambridge University Press, 2011), 494.

[36] Teiwes, "The Paradoxical Post-Mao Transition," 61.

[37] Tang Tsou, "Chinese Politics at the Top: Factionalism Or Informal Politics? Balance-of-Power Politics Or a Game to Win all?" in *The Nature of Chinese Politics: From Mao to Jiang*, ed. Jonathan Unger (New York: East Gate, 2002), 113.

[38] Brown, *China's Network of Leadership*, 3–4; Joseph Fewsmith, "Xi Jinping's Fast Start," *China Leadership Monitor*, no. 41 (2013): 3–5.

acts as the final arbiter of political conflict.[39] Factionalism may still be important, but the personal vision of the paramount leader trumps all. Less powerful leaders must work to either convince the preeminent leader of their viewpoints or subjugate their own policy preferences to the dominant leader's preferences. This style of leadership appeared to be more effective during the practical, utilitarian era presided over by Deng Xiaoping. This dynamic contrasted sharply with the Mao Era, where policy competition resulted in numerous purges and expulsions from the Politburo of members who lost the confidence of the Mao. Deng, on the other hand, purged only a couple of leaders like Hua Guofeng and Zhao Ziyang.[40]

Other recent observations about the core leader theory combine the earlier theory of a strong, central leader with policies emanating from the current Politburo. For example, Joseph Fewsmith states that "Xi's early days suggest that a confident leader with the right political conditions is still able to dominate politics."[41] This then explains the moralistic language and appeal to the "Chinese Dream" as a method to improve CCP legitimacy through nationalism and populism. Xi's personal vision of a rising China retaking its place in the world explains varied issues like the strong rhetoric on maritime territorial disputes and the high-level campaign against corruption. More broadly, it is Xi's vision of China and his attempt to strengthen Party power that will determine the majority of foreign and domestic policies.[42] For Dr. Kerry Brown, this theory explains leadership's certainty in China's "moral righteousness while maintaining its confidence in China's accumulating capabilities."[43] This would appear to explain not only the moralistic rhetoric and campaigns against official corruption, but also some of the more aggressive policies that China has pursued in territorial disputes.

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[39] Teiwes, "The Paradoxical Post-Mao Transition," 61.

[40] Tang "Chinese Politics at the Top," 124–5; Frederick C. Teiwes, "The Paradoxical Post-Mao Transition," 61, 69.

[41] Fewsmith, "Xi Jinping's Fast Start," 5.

[42] Fewsmith, "Xi Jinping's Fast Start," 6.

[43] Brown, China's Network of Leadership, 4.

B. NETWORK ANALYSIS AND MODELING THE IDEOLOGICAL THEORIES

1. Ideological Model 1: Teiwes' Description of Core Leader

a. Development and Methodology of the Model

I based Ideological Model 1 on Frederick Teiwes' description of the core leader dynamic during Deng Xiaoping's tenure after he wrested control of the Politburo from Hua Guafeng. The description primarily covers the years 1981–9. Teiwes describes the centrality of Deng Xiaoping, visually depicted in Figure 5, and his role in all important decisions of the Politburo, but tempered by activities of the other powerful elder, revolutionary leaders who still very much active at the time.[44] These leaders included Hu Yaobang and Chen Yun. This model therefore captures the centrality of the core leader with a powerful group of elder leaders also active, but at the expense of a nuanced study of the other member's relationships. It is a "snapshot" of the Politburo's transition from revolutionary leadership to the beginnings of technocratic leadership and the early reform period started by Deng Xiaoping.

b. Sociogram and Metrics

The following figures and tables display the operationalization of Teiwes' ideological theory into SNA methodology. Figure 5 depicts the SNA visualization and Tables 1–2 summarize the network and nodal level metrics of the model.

[44] Teiwes, "The Paradoxical Post-Mao Transition," 65–85.

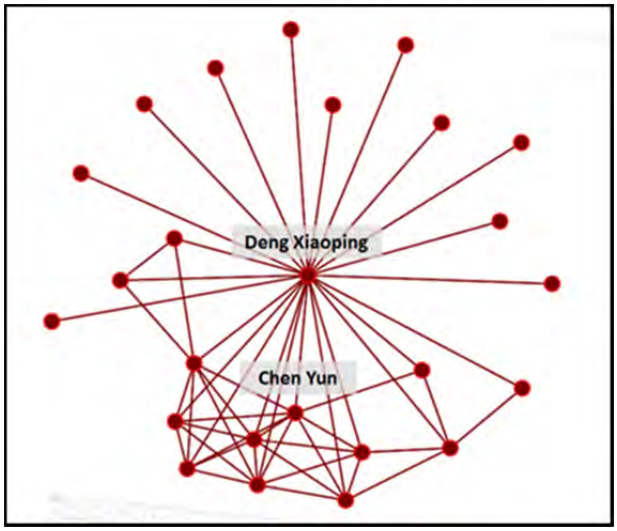

Figure 5. Ideological Model 1

Row count	25
Column count	25
Link count	85
Density	0.142
Charateristic path length	2.217
Diameter	4
Fragmentation	0
Betweeness centralization	0.297
Closeness centralization	1.505
Eigenvector centralization	0.475

Table 1. Ideological Model 1–Network Level Measures

	Total Degree Centrality	Eigenvector Centrality
Deng Xiaoping	0.583	0.665
Ye Jianying	0.333	0.454
Li Xiannian	0.333	0.454
Chen Yun	0.313	0.475
Xu Xiangqian	0.292	0.412
Hu Yaobang	0.229	0.345
Nie Rongzhen	0.229	0.374
Wan Li	0.208	0.218
Deng Yingchao	0.208	0.374
Zhao Ziyang	0.208	0.345

Table 2. Ideological Model 1–Nodal Centrality Measures

2. Ideological Model 2: Fewsmith's Description of core Leader

a. Development and Methodology of the Model

Ideological Model 2 is based upon a combination of Joseph Fewsmith's description of Xi Jinping as a "first among equals" and Cheng Li's factional analysis of the 18th CC Politburo.[45] Fewsmith's description offsets the fragmentation and political infighting of the factions with the existence of a core leader, in this case Xi Jinping, and this can be visually seen by the two clusters with Xi Jinping bridging them in Figure 6. The eminent leader has the political power to build consensus around his vision of China's future and effectively dominate politics.[46] Model 2 is an evolution from model 1, where the interests of different factions within the party are relatively balanced and the central leader's role is thus to create consensus between the different wings and provide strategic vision to guide them.

b. Sociogram and Metrics

The following figures and tables display the operationalization of Fewsmith's' ideological theory into SNA methodology. Figure 6 depicts the SNA visualization, and Tables 3–4 summarize the network and nodal level metrics of the model.

[45] Fewsmith, "Xi Jinping's Fast Start," 5; Cheng Li, "A Biographical and Factional Analysis of the Post-2012 Politburo," *China Leadership Monitor* June, no. 41 (2013): 4.

[46] In Cheng Li's analysis Xi Jinping is assessed as being in Jiang Zemin's faction, but I coded him in model 2 as spanning both camps according to Joseph Fewsmith's description.

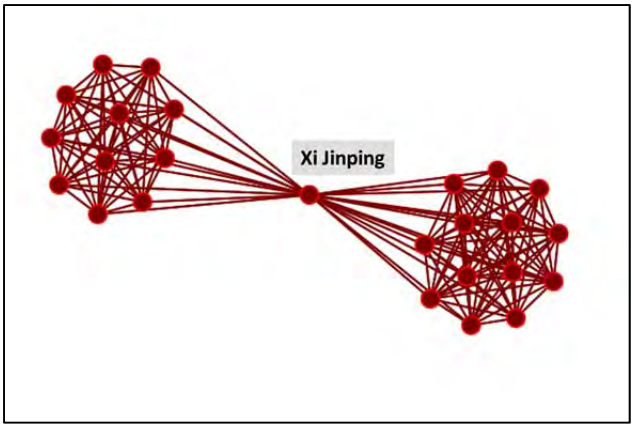

Figure 6. Ideological Model 2

Row count	25
Column count	25
Link count	304
Density	0.486
Charateristic path length	1.495
Diameter	2
Fragmentation	0
Betweeness centralization	0.536
Closeness centralization	1.505
Eigenvector centralization	0.212

Table 3. Ideological Model 2–Network Level Measures

	Total Degree Centrality	Eigenvector Centrality
Xi Jinping	0.980	0.457
Zhang Dejiang	0.531	0.347

Table 4. Ideological Model 2–Nodal Centrality Measures[47]

3. Key Aspects of the Models

The Ideological Model's key feature and its signature is the centrality of the core leader relative to the other members. In the two models, Deng Xiaoping and Xi Jinping, measured 1.75–1.85 times greater than the next highest leader in total degree centrality

[47] I only included the central leader, Xi Jinping, and the next most central leader in this table because, by coding Politburo according to factional relationship, the next 9 most central leaders have the same measurements. The key aspect of this model is the centrality of the core leader as compared to the others.

and 1.31–1.40 times greater in eigenvector centrality. This analysis focused on both the total degree and eigenvector centrality; total degree centrality is simply the count of the all the ties that a node has while eigenvector centrality weights ties to central nodes more heavily than peripheral nodes. In this case both measurements are normalized so that they can be compared later on to the other models and observations of the current Politburo. I developed two models, rather than simply relying on one, to broaden the observation of the centrality measurements and develop a range that an ideologically powerful core leader should fall within.

C. IMPLICATIONS FOR RELATIONSHIPS WITHIN THE POLITBURO

These theories of personal ideology as the most important driving force in elite Chinese politics have implications for the formal and informal relationships formed in the Politburo. First, it means that a core leader exists with significantly more influence within the network than any other single member. Second, this leader has enough formal and informal influence through his ties throughout the network that he can provide an overarching strategic vision despite the presence of factions or subgroups within the Politburo. In Deng's time this was manifested in the economic and political reforms and liberalizations undertaken in the 1980s–90s. For Xi Jinping, this appears to manifest in the realization of the Chinese Dream. Second, the other members will form connections in order build consensus for their own personal visions in order to build support and convince the core leader of particular policy courses. Third, if core leaders face concerted opposition, they may eventually expel rivals which should manifest in minimization of those rivals prestige and centrality within the Politburo as a precursor.

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III. FACTIONAL THEORIES

In this chapter, I present the theories based on the idea that factional politics, or group competition over power, provide the best explanatory value for Politburo behavior. Here, I first review the academic literature behind the theory and its explanatory value, then I present the NA models and metrics, and I conclude by presenting some of the implications that these models have for group Politburo behavior resulting from their individual relationships.

A. FACTIONALISM DRIVES POLITICS

1. Emergence of the Theory

Theories about factionalism have competed with the theories about "core leaders" and the role of personal ideology from early on. These competing viewpoints grew as Mao purged more and more leaders starting with the Gao-Rao affair and continuing through Peng Dehui, Liu Shaoqi, and many others. The dynamics of the Soviet Assistance era in Chinese affairs were changing and theories developed to explain what was happening in elite politics.[48] China watchers have therefore long theorized about groups or blocs either vying for favor or in opposition to Mao's dictums. Later, as Deng's reforms were introduced and shook the foundations of communist ideology and economy, many debated about splits between reformers and conservatives.[49] More recently, these debates about factionalism have been over the role of factions created by personal ties to powerful leaders, the Hu Jintao or Jiang Zemin camps; factions formed by business and familial ties, the oft referred to princeling factions; and informal ties developed through shared experiences, ties to former school mates or formed during provincial and

[48] Frederick C. Teiwes, "The Establishment and Consolidation of the New Regime, 1949–1957," in *The Politics of China: Sixty Years of the People's Republic of China*, ed. Roderick MacFarquhar, Third ed. (Cambridge: Cambridge University Press, 2011), 49–51.

[49] Fewsmith, "Reaction, Resurgence, and Succession: Chinese Politics since Tiananmen," 469–74.

ministerial experiences.[50] These dynamics appear to create informal groups within the Politburo that affect how the political body operates.

As discussed in Chapter I, defining what exactly constitutes a faction has proven to be somewhat problematic. One definition is simply a group "that conspires for power over a longer time span and may endeavor to mobilize outside organizational forces to overthrow the consensus." [51] Another definition more simply states that factions are informal groups that contend for legitimacy and power; this definition is less concerned with the lifespan of the group and could potentially be quite short.[52] Others, like Lucian Pye and Cheng Li, are also less concerned with the formal definition of faction and focus more on analyzing the effect that these groups have on the Politburo. The following models present both types.

2. Evidence

Evidence for the existence of factions within the CCP Politburo has developed from different interpretations of similar evidence as used in the theories of personal ideology. The evidence was drawn by scholars piecing through speeches, CCP historical documents, and interviews with the leaders themselves. An example of factionalism as the driving force behind Politburo politics was between radical elements and moderates during the Great Proletarian Cultural Revolution and its immediate aftermath; and the role of Mao's support of the Gang of Four or other factions. Roderick MacFarquhar breaks this Politburo into three groups: radicals, beneficiaries, and survivors of the Cultural Revolution. The dynamic in question was that of succession and whether a group primarily supported Mao Zedong, Hua Guofeng, or Deng Xiaoping would emerge as the dominate group. [53]

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[50] Cheng Li, "A Biographical and Factional Analysis of the Post-2012 Politburo," *China Leadership Monitor* June, no. 41 (2013), 1.

[51] Dittmer, "Reflections on Elite Informal Politics," 4–5.

[52] Ibid., 4.

[53] Roderick MacFarquhar, "The Succession to Mao and the End of Maoism," in *The Politics of China: Sixty Year of the People's Republic of China*, ed. Roderick MacFarquhar, Third Edition ed. (Cambridge: Cambridge University Press, 2011), 297.

Others theorize that the greater institutionalization of politics has also resulted in continued factionalism because the reduction in ideological competition resulted in leaders with a multitude of issues and problems to address but a lack of ideological purity to prioritize those issues. These leaders therefore build policy portfolios that result in coalitions of support among leaders and opposition from others.[54] An example of this kind of factionalism was provided during the initial period of economic liberalization by the competition between a conservative wing under Chen Yun and a reform wing under Deng Xiaoping over the pace and extent to reforms.[55] Later, during Jiang Zemin's term, Alice Miller observed that the retirement or death of most of the conservative faction within the Politburo by 1999—namely Hu Qiaomu, Li Xiannen, Wang Zhen, Yao Yilin, and Chen Yun—opened the way to further economic liberalization and enterprise reform.[56]

Finally, according to Cheng Li, the shape of the current Politburo reflects the outcome of a long competition for power among the Hu Jintao and Jiang Zemin factions.[57] In this theory, the PBSC is dominated by the "elitist" party as headed up by Xi Jinping, but the rest of the Politburo is split roughly with the "populists." Others see the transition as moving even further in the way of strengthening the Jiang camp, and note that the most recent changes in leadership appear to lessen the political consensus within the Politburo and strengthen those members with ties to Jiang Zemin.[58] These examples provide some of the evidence demonstrating the existence of factionalism, and power struggles, that provide the primary driving force behind informal and formal relationships in the Politburo and therefore also as a driving force behind the policies of the central government.

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[54] Frederick C. Teiwes, "Normal Politics with Chinese Characteristics," in *The Nature of Chinese Politics: From Mao to Jiang*, ed. Jonathan Unger (New York: M. E. Sharpe, 2002), 239–40.

[55] Fewsmith, "Chinese Politics since Tiananmen," 519.

[56] Alice Miller, "Dilemmas of Globalization and Governance," in *The Politics of China: Sixty Years of the People's Republic of China*, ed. Roderick MacFarquhar, Third ed. (New York: Cambridge university Press, 2011), 542.

[57] Li, "A Biographical and Factional Analysis of the Post-2012 Politburo," 3–5.

[58] Joseph Fewsmith, "The 18th Congress: Testing the Limits of Institutionalization," *The China Leadership Monitor* Winter, no. 40 (2013), 5.

3. Explanatory Value

Factional theories emphasize competition as the critical driving formal and informal relationships in the Politburo. During Mao's years, party infighting, purges, and "winner takes all politics" are therefore a result of this competition. Another outcome is a Politburo concerned with power politics rather than rational policy making

> because factions are power-maximizing entities constrained only by the moral imperative to affirm a nominal leadership solidarity, factional struggle does not serve as a vehicle for rational policy debates, organizational interest articulation, or aggregation of political demands and support.[59]

Others have noted that as rules have become more normalized, there are fewer purges and the losers still retain nominal power, it has resulted in a system where factions are roughly balanced and can check each other's power within the top leadership. Coalitions therefore continue to complicate the decision making process and prioritization of policies remains difficult. It would also suggest that the factions attempt to maintain a rough parity.[60]

B. MODELING THE NETWORK

1. Factional Model 1: MacFarquhar's Description of Factionalism

a. Development and Methodology of the Model

Factional Model 1 is developed from MacFarquhar's description of the post-Zhou Enlai Politburo. He described a group that was split into three groups: radicals, beneficiaries, and survivors. The radicals were those that espoused continuous revolution and had been the main push behind the Great Proletarian Cultural Revolution; the beneficiaries were those members that were generally younger and brought into power because of the revolution, and the survivors were the more practical minded members, like Deng Xiaoping, that were largely sidelined politically by the revolution.[61] The one change that I made in developing the relational matrix for this model was

[59] Dittmer, "Reflections on Elite Informal Politics," 7.

[60] Li, "A Biographical and Factional Analysis of the Post-2012 Politburo," 9–10.

[61] MacFarquhar, "The Succession to Mao and the End of Maoism," 296–7.

including a tie between Mao and leaders of the other two groups, Deng Xiaoping and Hua Guofeng. Despite his ideological leanings, Mao needed to run China and choose a successor; Mao needed support from the other groups to accomplish these requirements. Mao was also particularly adept at playing different groups off of each other in order to maintain his personal power. I assessed that for this model Mao therefore maintained relations with the other faction leaders.

b. Sociogram and Metrics

The following figures and tables display the operationalization of MacFarquhar's' factional theory into SNA methodology. Figure 7 depicts the SNA visualization and Tables 5–6 summarize the network and nodal level metrics of the model.

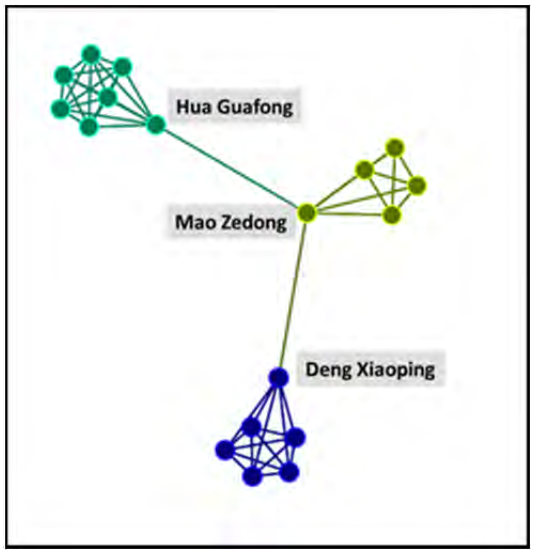

Figure 7. Factional Model 1: Post-Zhou Enlai Poltiburo with Three Factions: Radicals (Yellow), Beneficiaries (Light Blue), and Survivors (Dark Blue).

Row count	18
Column count	18
Link count	48
Density	0.314
Charateristic path length	2.438
Diameter	4
Fragmentation	0
Betweeness centralization	0.637
Closeness centralization	0.414
Eigenvector centralization	0.357

Table 5. Factional Model 1–Network Level Measures

	Total Degree Centrality	Eigenvector Centrality
Hua Guafeng	0.412	0.546
Mao Zedong	0.353	0.123
Li Desheng	0.353	0.529
Chen Xilian	0.353	0.529
Ji Dengkui	0.353	0.529
Wang Dongxing	0.353	0.529
Wu De	0.353	0.529
Chen Yonggui	0.353	0.529
Deng Xiaoping	0.353	0.035
Ye Jianying	0.294	0.017

Table 6. Factional Model 1–Nodal Centrality Measures

2. Factional Model 2: Cheng Li's Description of Factionalism

a. Development and Methodology of the Model

Factional Model 2 is based on Cheng Li's analysis of the factional loyalties of the 18th CC Politburo. His assessment is that the CCP is essentially a "one-party, two coalitions" system wherein the Politburo members are roughly equal in their representation of factional loyalty and effectively split power. Cheng Li's analysis was comprehensive, in that he included a factional assessment of all the Politburo members, but overall faction leanings of three members were unclear: Fan Changlong, Zhao Leji, and Li Zhanshu. For the model, I coded Li's estimate as the factional relation and the tie between various leaders.

b. Sociogram and Metrics

The following figures and tables display the operationalization of Li's factional theory into SNA methodology. Figure 8 depicts the SNA visualization and Tables 7–8 summarize the network and nodal level metrics of the model.

Figure 8. Factional Model 2

Row count	25
Column count	25
Link count	282
Density	0.451
Charateristic path length	1.004
Diameter	2.00
Fragmentation	0.513
Betweeness centralization	0
Closeness centralization	0.019
Eigenvector centralization	0.181

Table 7. Factional Model 2–Network Level Measures

	Total Degree Centrality	Eigenvector Centrality
Xi Jinping	0.531	0.378
Zhang Dejiang	0.531	0.378
Yu Zhengsheng	0.531	0.378
Wang Qishan	0.531	0.378
Zhang Gaoli	0.531	0.378
Ma Kai	0.531	0.378
Wang Huning	0.531	0.378
Xu Qilang	0.531	0.378
Sun Zhengcai	0.531	0.378
Zhang Chunxian	0.531	0.378

Table 8. Factional Model 2–Nodal Centrality Measures

3. Key Aspects of the Models

Factional Model 1 captures the effect that the different factions have on relationships within the Politburo while retaining a central leader who provides a bridge between them. Topographically, the three factions are depicted as the separate clusters in Figure 7 with Mao Zedong bridging—or exploiting depending on one's interpretation—the gaps between them. Without the central leader, Mao, the network would disaggregate and would be similar to Factional Model 2. This is captured in the topographic fragmentation score of 0 and 0.513, respectively. Unlike the ideological models, the core leader's centrality is not significantly greater than other members; in fact, in this model the core leader's total and eigenvector centrality are lower than one of the faction leaders: Mao's own heir apparent, Hua Guafeng. Table 6 highlights this observation, where it shows Hua Guofengs scoring 0.412 in total degree centrality while Mao Zedong only scores 0.353.

Factional Model 2 presents a pure model of factional relationships, at least by NA standards and compared with Factional Model 1. All the nodes in each faction have ties amongst themselves, but without ties between the factions. This results in the fragmentation of the network at a topographic level, but with dense, closely tied clusters at the sub-groups level. Furthermore, because there is not a bridging leader in this model, the members all have comparable centrality scores of 0.531 in total centrality and 0.378 in eigenvector centrality. What these scores mean in practical terms is that no single member dominates the others; rather it is the aggregate behavior of the faction as a whole and then the competition between the factions that dominate Politburo.

C. IMPLICATIONS FOR RELATIONSHIPS IN THE POLITBURO

Factional theories explain the competition over power that characterizes relationships within the Politburo. The two models presented in this chapter capture two possible dynamics. In the first model, a leader may span the differences between the factions, even if he is ideologically drawn to one, and provide some resource transfer between them. In the second model, the absence of ties between the two factions; results in a network without resource transfer between the factions. Instead this model would

likely result in competition between the factions over membership and power. In both cases, it is not the individual members that dominate elite politics, but how the factional groups act. A Politburo operating under this model should exhibit competition or conflict between the groups as they vie to control the political; a study over time of this dynamic should show a trend of increasing and decreasing centralization scores for the aggregate faction.

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IV. THEORIES OF INSTITUTIONALISM

In this chapter, I present the theories based on the idea that increased institutionalism, or regularization of the rules of the game, provide the best explanatory value for Politburo behavior. As in the previous two chapters, I first review the academic literature behind the theory, then I present the SNA models and metrics, and I review some of the implications that these models have for Politburo behavior.

A. INSTITUTIONALISM DRIVES POLITICS

1. Background

More recent in development than the other two theories, institutional representation provides a third overarching set of explanations for formal and informal relationships within the Politburo. While factionalism and ideology offer adequate explanations for dynamics observed during Mao's and Deng's years some observers see new dynamics at work in the tenures of leaders following the revolutionary generations. Mao's and Deng's era were marked by the roles that ideology and factional politics within the Politburo; however, once in power, Deng instituted reforms to institutionalize both the succession and the norms of Politburo power. Some theorize that the informal and formal relationships have become increasingly bureaucratic and normalized as a result of this process. Currently, leaders appear to be driven by the advancement of the ministries and bureaucracies that they lead as their primary motivation. Thus relationships are now characterized by professional ties and advancement of political outcomes in support of their organizational representation rather than by political maneuvering solely over power. Coalitions and groupings form around bureaucracies that complement each other's goals, while divisions occur between leaders competing over the limited resources for their respective bureaucratic fiefdoms.

2. Evidence

This institutionalism has deep roots in elite political behavior. During the Mao years, issues of secondary importance were often debated along organizational lines due

to the increased bureaucratization of the Chinese government as a whole. Frederick Teiwes observes that "where policies were still undecided, however, appeals for organizational interests were often blatant."[62] Early on this dynamic was simply outgrowth of the shifting CCP focus from a revolutionary party dedicated to overthrowing a regime to one running a state. The institutionalism and bureaucratization of the party is also one of the prime dynamics that Mao fought against, and may have driven his ideological core leader style.

The post-Deng Politburos however have demonstrated an increased institutionalism particularly regarding the rules governing succession of power. In discussing the 1st Plenum of the 15th CC, Alice Miller notes that "turnover on the Politburo was more modest, although nonetheless significant, both in terms of an emergent institutionalization of leadership succession procedures and an enhancement of the power of Jiang Zemin."[63] This trend was carried even further with during the apparently orderly transitions to Politburos led by Hu Jintao and, most recently, to Xi Jinping.[64] Here the succession process is marked by a relatively orderly transition from older leaders to younger leaders that appear to be consensus candidates from within the elite leadership. As a direct response to those who see factionalism and power politics are the primary driving force of elite relationships, Miller states that

> another explanation for the appointments to the Standing committee is simpler and, because it does not rest on the often slippery speculation about the factional linkages of individual leaders, more efficient. In this view, the promotions to the standing committee reflect the simple criterion of seniority.[65]

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[62] Frederick C. Teiwes, "The Establishment and Consolidation of the New Regime, 1949–1957," in *The Politics of China: Sixty Years of the People's Republic of China*, ed. Roderick MacFarquhar, Third ed. (Cambridge: Cambridge University Press, 2011), 77.

[63] Alice Miller, "Dilemmas of Globalization and Governance," in *The Politics of China: Sixty Years of the People's Republic of China*, ed. Roderick MacFarquhar, Third ed. (New York: Cambridge university Press, 2011), 550.

[64] Miller, "Dilemmas of Globalization and Governance," 572–3.

[65] Alice Miller, "The New Party Politburo Leadership," *The China Leadership Monitor* Winter, no. 40 (2013), 6.

As the succession question became more regularized, the dynamics of the Politburo were no longer characterized by "winner takes all" and the trend for elite consensus increased.

This institutionalization resulted in a leadership focused on the process and organization of modernizing China as a state rather than ideological struggle and pursuit of a utopian vision. After the 15th Party Congress, members of the Politburo have been younger, better educated, less technically trained, and increasingly civilian. [66] Furthermore, these leaders are more concerned with complex organizational issues and broad political objectives like economic development and reform; objectives that cut across party lines.[67] These dynamics result in a Politburo with institutionalized political rules and members that form relationships based on advancing organizational interests.

3. Explanatory Value

The institutionalization theory of power explains the normalization and bureaucratization of elite political behavior. Since the rules of succession are normalized, elites appear willing to abide by these rules even when it means a temporary loss of power for particular groups. It also explains the backgrounds and attributes of the leadership because they are focused on ruling a modernizing country beset with a complex, bewildering agenda and must manage the continued rise of China. This requires a leadership with a different educational and experience background than the revolutionary era leadership. In this environment, Politburo members may support policies of other members in anticipation of future support for their own preferences, and because they no longer face expulsion from elite for this. Institutionalization of the rules results in organizational representation as member form relationships focused around accomplishing the goals that the Party has assigned to them. According to Sangkuk Lee institutions "shape agents' goals and strategy and regulate their behaviors and interactions, imposing constraints while also providing opportunities."[68] These leaders

[66] Miller, "Dilemmas of Globalization and Governance," 554.

[67] Barry Naughton, "Signaling Change: New Leaders Begin the Search for Economic Reform," *The China Leadership Monitor* Winter, no. 40 (2013): 6.

[68] Sangkuk Lee, "Institution, Network and Elites' Political Attitudes: An Analysis of the "Wen Jiabao Phenomenon," "*Communist and Post-Communist Studies* 45, no. 1 (2012): 107.

are invested in rational policies and stable institutions rather than mass mobilization and ideology.

B. NETWORK ANALYSIS MODELING OF THE INSTITUTIONAL THEORIES

1. Institutional Model 1:

a. Development and Methodology of the Model

This model is based on Alice Miller's description of Politburo members and their respective policy clusters.[69] Unlike the other two models, these model's ties are based on an affiliation created through the shared clusters; the individual Politburo members create ties through shared work. I conducted an analysis of the model by measuring the network in its two mode state, and by folding—multiplying the relational matrix by its transpose—the network in order to measure ties directly between Politburo members (Figure 9).

b. Sociogram and Metrics

The following figures and tables display the operationalization of Miller's institutional theory into SNA methodology. Figure 9 depicts the SNA visualization and Tables 9-10 summarize the network and nodal level metrics of the model.

[69] Alice Miller, "The Work System of the Xi Jinping Leadership," *China Leadership Monitor* Summer, no. 41 (2013): 3.

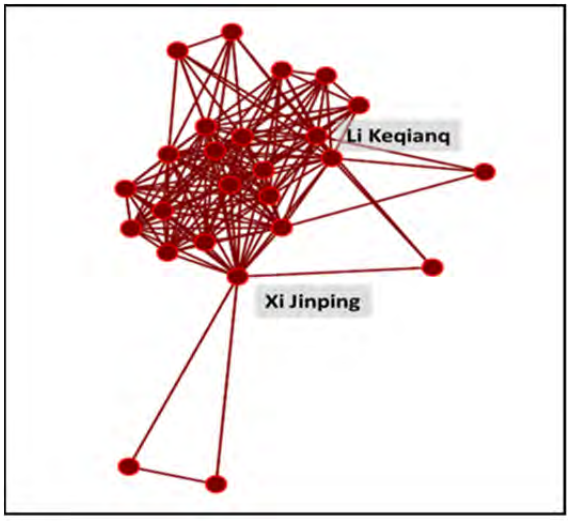

Figure 9. Institutional Model 1 (relational network)

Row count	25
Column count	25
Link count	159
Density	0.530
Charateristic path length	1.597
Diameter	3
Fragmentation	0.827
Betweeness centralization	0.192
Closeness centralization	0.344
Eigenvector centralization	0.256

Table 9. Institutional Model 1–network level measures of one mode

	Total Degree Centrality	Eigenvector Centrality
Sun Chunlan	0.313	0.482
Sun Zhengcai	0.313	0.482
Zhang Chunxian	0.313	0.482
Guo Jinlong	0.240	0.379
Han Zheng	0.240	0.379
Hu Chunhua	0.240	0.379
Li Keqiang	0.240	0.359
Li Yuanchao	0.240	0.359
Meng Jianzhu	0.208	0.329
Xi Jinping	0.188	0.252

Table 10. Institutional Model 1–nodal level measures

2. Key Aspects of the Model

Using the policy clusters to create ties among the members results in two primary topographic observations. First, the network is relatively sparse, as measured by density, with two major subgroups created by the policy clusters of party apparatus and finance and economy. This density would increase if the isolated members where observed as having involvement in the policy clusters as well. Second, Xi Jinping, as the primary leader, scores high on the centrality measurements; though not as high as in total centrality as in the ideological models. Here the top leader scores 1.37 times higher rather than the other members whereas in the ideological model the core leader measured 1.78–1.85 times higher. This results from his assessed involvement in a greater number of policy clusters than the other members.

C. IMPLICATIONS FOR RELATIONSHIPS IN THE POLITBURO

The important assumption of this model is that as institutionalism increases, and the rules of power succession and politics are normalized, Politburo members form ties centered on their successfully accomplishing assigned work. The CCP will reward success with future promotion and greater responsibility. It is an extension of the adage that “where you stand depends on where you sit.” Politburo members will therefore preference the creation of relationships based on accomplishing their shared work rather than on factional loyalty; while factions may still be important, they will not be the most important factor in this theory. Leaders become more central to this model through the breadth of policy clusters that they are involved in, and this supports the idea that the top level leadership responsibilities go to the most important leaders.

V. ANALYSIS OF THE CHINESE COMMUNIST PARTY'S 18TH CENTRAL COMMITTEE POLITBURO

In this chapter, I present my analysis of the 18th Central Committee of the Chinese Communist Party's Politburo. This is the current Politburo that was officially elected in November, 2012. First, I detail the methodology that I used to create networks from the China Vitae dataset. Second, I present three networks and some of their key features. Finally, I aggregate these networks to create a fourth that serves as a current observation of the potential ties within the Politburo and that networks key features. In the next chapter, this aggregated network is analyzed with the models in the previous chapters for a comparison or best fit.

A. METHODOLOGY

To analyze the current Politburo, I created relational and attribute matrices based on biographical and professional data derived primarily from China Vitae; however, at times I supplemented the China Vitae data with biographical data from the Hoover Institutes' China Leadership monitor.[70] From this data, I created three relational networks: shared politburo policy portfolio (Figure 12), alumni history (Figure 14), and shared work history (Figure 16). Using the NA tools in UCINET and ORA, I examined each network. Finally, I folded the three networks into a combined network (Figure 17) for an analysis of potential composite relationships in the current politburo. The following paragraphs introduce each network and present key metrics and observations from each.

The politburo policy portfolio relational matrix was built by using the China Vitae repository. For each politburo member, China Vitae tracks their various meetings and appearances and links the Chinese news article, normally either Xinhua or People's Daily

[70] China Vitae is an authoritative site with the stated purpose of "furnishing accurate, unbiased, biographical information about Chinese leaders is intended to facilitate this process, allowing world leaders in government, academia, media, and business to be better informed about the backgrounds, interaction, and decision making environment of China's political elite." The site is available at http://www.chinavitae.com/index.php. Naval Postgraduate School's School of International Graduate Studies Professor Alice L. Miller is the editor of the Hoover Institutes' China Leadership Monitor and the publication is available at: http://www.hoover.org/publications/china-leadership-monitor.

English sites, to that particular appearance.[71] From reading the statements by the members and the meetings they attended, I developed a two-mode affiliation matrix of the policies that each member was interested in, i.e., economic development, internal security, official corruption, etc. I chose the thematic categorizations based on the categorization that China Vitae uses and also upon my personal interpretation of the broad themes that the politburo is concerned about and headings that the authoritative source, China Vitae, assigned them. This network serves as an observation of which members work most closely with each other currently.

The second network is the shared alumni relations between the politburo members. I derived the data in almost exactly the same manner as policy portfolio network. In this network I assume that ties are created between Politburo members through shared educational experiences. Using China Vitae I recorded the school affiliations of all the politburo members into a 2-mode network and then used UCINET to transform that into a 1-mode relational network capturing shared alumni relationships. Of note, this data captures the relations of which members have attended the same schools, and not which members have attended the same school at the same time. The data shows that two schools are particularly central: the Chinese Communist Party (CCP) Central Party School and Beijing University.

The final network, like the previous two, I derived from information taken from China Vitae. China Vitae documents the professional histories of the politburo members, and from that information, I developed a relational matrix based on which members served in capacities that could have created previous professional working relationships. I ignored the current shared relationships in the top party and state institutions—politburo, CCP Central Committee, etc.—as all the members share these relationships and I believe that the important aspects of the current relationship are captured in the shared policy portfolio network. In developing this network, I had to make numerous judgment decisions; for example, if a member was a student or professor at a university in Beijing

[71] The two newspapers are the PRC paper and the CCP state paper, respectively. I was also limited to the English versions of the papers as I unable to translate from Mandarin. The online versions of the paper are available at: http://www.xinhuanet.com/english/ and http://english.peopledaily.com.cn/.

at the same time another member served on a Central Party Committee I did not include that as a relationship. However, if members served in groups or ministries at the same time that could reasonably bring them together, then I counted that as a relation. For example, Wang Qishan served as the director of the State Commission for Restructuring the Economy at the same time that Yu Zhengsheng was heading the Ministry of Construction and therefore counted that as a tie between them. This relational matrix, combined with the alumni relations, attempts to capture the historical relationships between the politburo members.

B. SHARED POLICY PORTFOLIO

Analysis of the shared policy portfolio network reveals three primary observations. First, this network is very dense, meaning that each politburo member shares numerous thematic ties or overlapping portfolios, with the others. The algorithms in the SNA programs calculated meaningful subgroups primarily in the k-core analysis, which is a means of subdividing the network based on the number of shared ties.[72] Another method of visualizing a core center of the group is depicted in Figure 13; this visualization shows the actors that share at least four portfolios with each other. This subdivision depicts a core of 14 members. This model confirms what intuition suggests, that membership on the PBSC is important to the breadth of issues that the party delegates to members. A second observation is the relative importance, as measured by in degree centrality, of four specific policy themes to the CCP: foreign relations, economic development, government reform, and official corruption, and I will return to the implications of this in Chapter VII.

[72] A k-core score refers to a group of actors that share (k) number of ties to other group members.

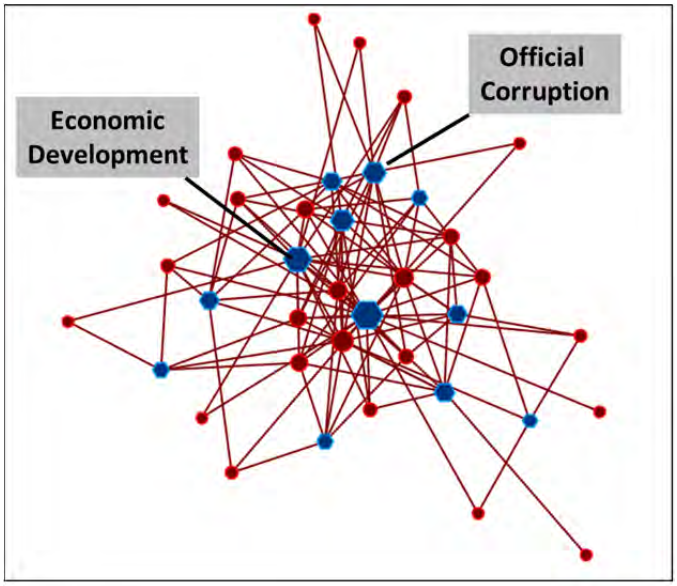

Figure 10. Shared Policy Portfolio network with the policy nodes sized by in degree centrality.

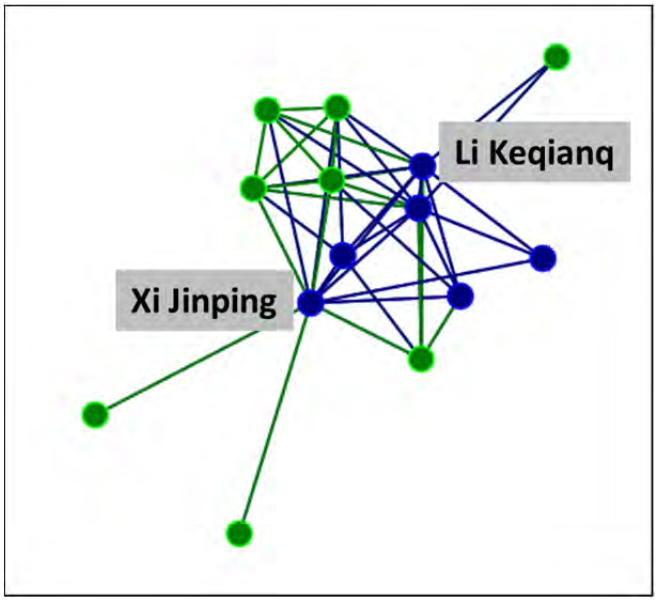

Figure 11. Shared Portfolio Network depicting one view of a "core network" by showing only nodes with at least 4 shared links. PBSC members are shown in blue.

C. SHARED ALUMNI NETWORK

As with the shared policy portfolios of the Politburo members, analysis of the alumni reveals two primary lessons. First, as depicted in Figure 14, two schools play a central role in forming potential bonds between the current members: the Central Party School in Beijing and Beijing University. Eleven members have attended these two schools, which accounts for almost half the network. The Central Party School was begun as an indoctrination school for party cadres, but has more recently been described as a place to cultivate useful professional ties, as well as, acting as a think tank for the current regime.[73] The CCP is secretive about this school and access to outsiders is limited; however, Beijing University is not. The resulting alumni network between the Politburo members is depicted in Figure 15. Second, by measuring the betweeness centrality of this network, the extent to which members lie on the shortest path between the other members, Hu Chunhua becomes a potential bridge between other members, and he may have the ability to bridge different groups because of this.

[73] William Wan, "China's Mid-Level Party Officials Spend Professional Training Time Cultivating Allies," *The Washington Post*, sec. Asia & Pacific, October 12, 2012; Dan Levin, "China's Top Party School: At Beijing's Central Party School, it's a Lot More Communist Platforms than Kegstands," *Foreign Policy* (March 6, 2012).

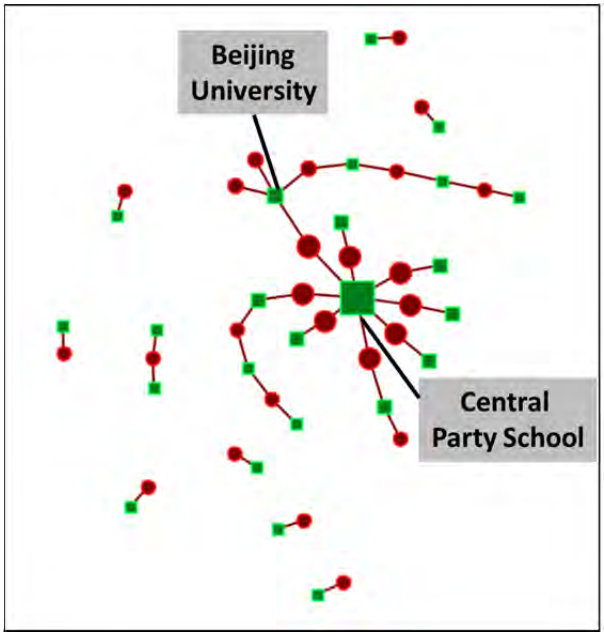

Figure 12. Alumni network (affiliation network) depicting the centrality of Beijing University and the Central Party School

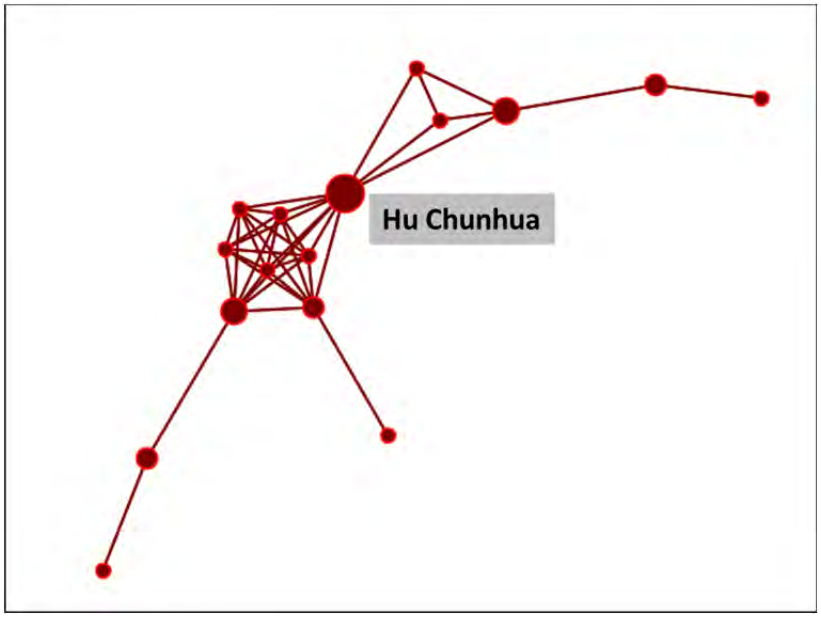

Figure 13. Alumni network (relational network) depicting the betweeness centrality of the members. The potential for Hu Chunhua to act as potential bridge between groups becomes visually evident in this sociogram.

D. SHARED WORK HISTORY NETWORK

CCP Politburo members tend to have three general paths in upward promotion. First, by working for the Central Party in Beijing. These members tend to be thematic specialists; for example, Ma Kai who has worked extensively in development, banking, and economic reform. Second, are members who have developed through running municipalities up through provinces, these members produce the overall generalists. For example, Xi Jinping made his career in Fujian and Zhejiang provinces and Shanghai municipality. Third, are the career military members, and the recent Politburos have limited military membership to two individuals. The 18th CCP Politburo retained this number, and the two current military members worked together previously in the Shenyang Military Region of Liaoning Province. The resulting network of relations is depicted in Figure 16. Analysis of this network leads to two primary observations. First, when the Politburo members previous work relationships are analyzed by Eigenvector Centrality Table 10, a measure that weights the potential of an actor's social capital, the central members are Wang Yang, Yu Zhengsheng, and Wang Qishan. Xi Jinping's score is roughly in the middle; this hints that Xi Jinping, as the top leader, may have to work hard to foster current relationships as compared to some of the other members due to the previous relationships. The second observation is that these experiences in the provinces likely provide strong executive and leadership skills, but work in the central party in Beijing is also important for the cultivation of ties and exposure to central policy issues, especially economic issues. Three members appear to have cultivated their important ties through their policy work for the CCP rather than by their geographic work. These three worked in the banking sector, the Ministry of Construction, and the National Development and Reform Commission.

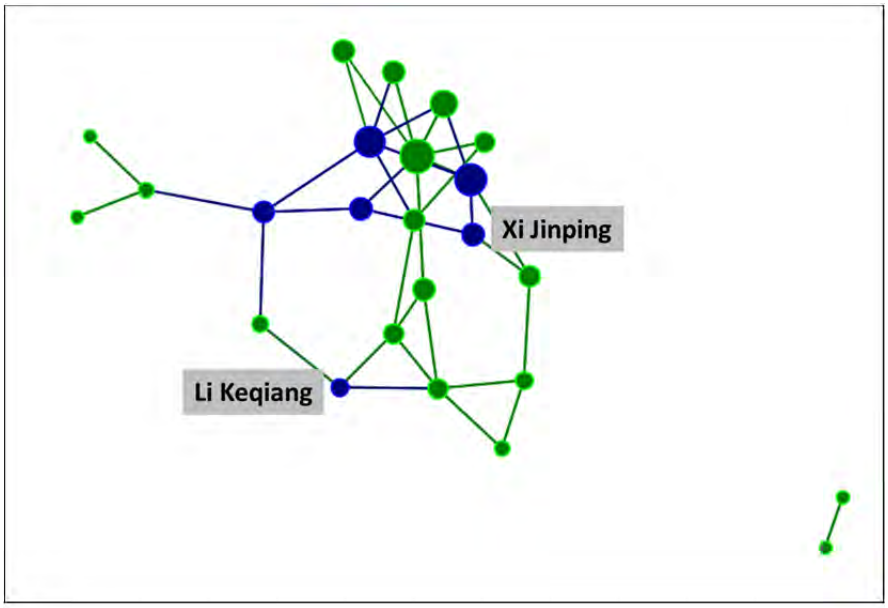

Figure 14. Shared Work History Network with the size of the nodes drawn by Eigenvector Centrality measurement. PBSC members are colored blue.

	Eigenvector Centrality
Wang Yang	0.610
Yu Zhengsheng	0.545
Wang Qishan	0.538
---	---
Xi Jinping	0.281

Table 11. Eigenvector Centrality for the three highest measured members in the alumni network and Xi Jinping.

E. AGGREGATED NETWORK OF THE 18TH CENTRAL COMMITTEE'S POLITBURO

By folding—multiplying the relational matrices by each other—the networks, I created a single aggregated network to serve as a combined set of observations of the potential relationship ties within the 18th Central Committee's Politburo. This aggregated network allows for measurement, analysis, and comparison of the potential observed ties. It includes historic networks, alumni and work history, with current observations of shared policy portfolios.

1. Sociogram and Metrics of Aggregated Politburo Networks

The following figures and tables display the operationalization of the aggregated observations of the CCP Politburo into SNA methodology. Figure 15 depicts the SNA visualization and Tables 12–13 summarize the network and nodal level metrics of the model.

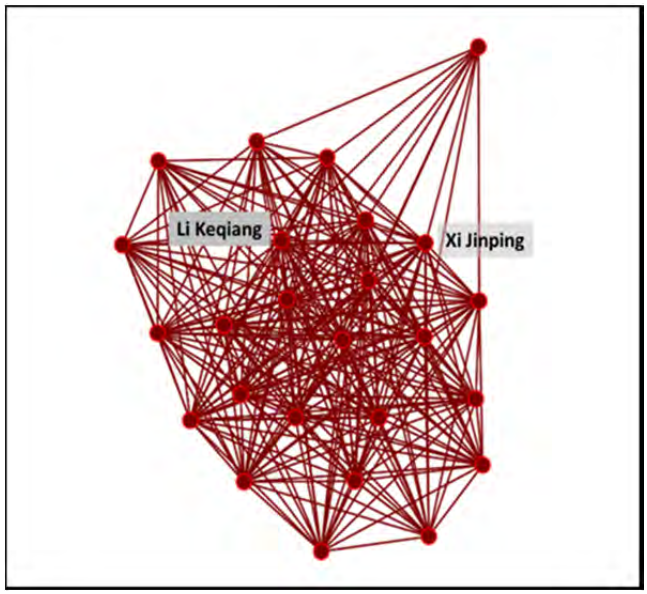

Figure 15. 18th CC Politburo–aggregated network

Row count	25
Column count	25
Link count	287
Density	0.883
Charateristic path length	1.687
Diameter	3
Fragmentation	0
Betweeness centralization	0.117
Closeness centralization	0.371
Eigenvector centralization	0.315

Table 12. Network level measurements–aggregated network

	Total Degree Centrality	Eigenvector Centrality
Xi Jinping	0.354	0.543
Li Keqiang	0.305	0.474
Zhang Dejiang	0.274	0.425
Li Yuanchao	0.258	0.384
Liu Yandong	0.237	0.367
Guo Jinlong	0.234	0.360
Liu Yunshan	0.225	0.330
Wang Qishan	0.225	0.333
Wang Yang	0.218	0.316
Ma Kai	0.215	0.337

Table 13. Nodal level measurements–aggregated network (PBSC members highlighted)

2. Key Aspects of the Network

Characteristics of the resulting network are its high density, it includes no isolated members, and it has a relatively short path length between its nodes. The density and short path length means that resources, particularly information, should be quickly disseminated throughout the network. This will not necessarily result in consensus among members, but it does imply that there is little opportunity to act as an information broker by keeping other members "in the dark." The high network density, and noted desire for consensus style decision making, may also increase the Politburo's propensity for groupthink and stifle creative problem solving. In their examination of the "small world" phenomenon, Brian Uzzi and Jerrett Spiro discovered that "Intense connectivity can

homogenize the pool of material available to different groups, while at the same time, high cohesiveness can lead to the sharing of common rather than novel information." [74]

[74] Brian Uzzi and Jarrett Spiro, "Collaboration and Creativity: The Small World Problem," *American Journal of Sociology* 111, no. 2 (2005): 449.

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VI. COMPARISON OF THE CURRENT POLITBURO AND THE MODELS

In this chapter I present the comparison of the models with my observations of the current Politburo. First, I review the multiple regression quadratic assignment procedure (MR-QAP) and correlation methodology for comparing whole networks with each other and assessing the amount of correlation between them. Then I present the analysis of the data from the comparisons using toolsets in UCINET 6 for Windows.[75] Next I present a logistic regression analysis that I conducted in the R statistical language.[76] This provides a second method for conducting regression analysis that is more common outside of SNA researchers. I conclude this chapter with my interpretation of the results from these regression analyses indicating that both Ideological Model 1 and the Institutional Model provide the best fit to my current observations and what there results imply for Politburo behavior.

A. METHODOLOGY FOR COMPARING RELATIONAL MATRICES

Network analysis poses special problems for standard statistical tools, and therefore uses some specialized techniques. Normal statistical methods are "designed to analyze random samples so that researchers can generalize their results to the population at large," and they assume that observations are independent of each other.[77] NA methodologies by their very nature assume that the ties between nodes make them interdependent rather than independent. Therefore, to apply statistical methods between relational matrices NA researchers developed techniques of nonparametric randomization or permutation testing. The MR-QAP

> technique correlates the two matrices by effectively reshaping them into two long columns…and calculating an ordinary measure of statistical association such as Pearson's *r*. We call this the 'observed' correlation. To

[75] S.P. Borgatti, M.G. Everett, and L.C. Freeman, *UCINET 6 for Windows: Software for Social Network Analysis* (Harvard: Analytic Technologies, 2002).

[76] R Core Team, *R: A language and environment for statistical computing*, (Vienna: R Foundation for Statistical Computing, 2013), http://www.R-project.org/.

[77] Everton, *Disrupting Dark Networks*, loc 7409–14.

> calculate the significance of the observed correlation, the method compares the observed correlation to the correlations between thousands of pairs of matrices that are just like the data matrices, but are known to be independent of each other. To construct a *p*-value, it simply counts the proportion of these correlations among independent matrices that were as large as the observed correlation.[78]

By using this regression technique, two matrices can be effectively compared to each other. For this analysis, I ran the regression and correlation tools in UCINET 6 twice using both the 1-mode version of the shared policy portfolio network and the aggregated network of the 18th CC's Politburo, Figures 12 and 17, respectively, as the dependent variables and each of the models as the independent variables.

B. ANALYSIS AND INTERPRETATION OF THE MR-QAP RESULTS

Running the analysis in UCINET yielded the following results:

18th CC Politburo Aggregated Relations

Model	Standardized Coefficient	*p*-value
Factional Model 1	0.001	0.488
Factional Model 2	0.024	0.369
Ideological Model 1	0.075	0.233
Ideological Model 2	-0.101	0.248
Institutional Model	0.037	0.364

	Correlation	*p*-value
Factional Model 1	0.002	0.562
Factional Model 2	-0.064	0.150
Ideological Model 1	0.074	0.291
Ideological Model 2	-0.083	0.100
Institutional Model	0.044	0.369

18th CC Politburo Policy Portfolio Network

Model	Standardized Coefficient	*p*-value
Factional Model 1	-0.021	0.386
Factional Model 2	0.13	0.317
Ideological Model 1	0.141	0.178
Ideological Model 2	-0.197	0.244
Institutional Model	0.023	0.399

	Correlation	*p*-value
Factional Model 1	-0.019	0.428
Factional Model 2	-0.04	0.244
Ideological Model 1	0.144	0.177
Ideological Model 2	-0.081	0.087
Institutional Model	0.035	0.401

Table 14. Regression and correlation results from comparing aggregated 18th CC Politburo network to the models.

The table is interpreted by examining it in three columns. The first column indicates which model the scores belong to. The second column, standardized coefficient and correlation, provides two pieces of information: direction and magnitude of effect. In

[78] Stephen P. Borgatti, Martin G. Everett, and Jeffery C. Johnson, *Analyzing Social Networks* (SAGE Publications Limited, 2013), 125–6.

the case of a negative number, the model appears to have a dampening or negative correlation to the observed Politburo network. The third column is the most important; it provides the *p*-value or significance test. In statistical testing, a lower number indicates a "better fit" between the dependent and independent variables. When testing against a null hypothesis, researchers are usually looking for *p*-value <= 0.05 as this score is generally regarded as being statistically significant and an indicator of strong evidence against the null hypothesis. In this research, I was examining the data for a "best fit" or which theory comes closest to describing current observations rather than a null hypothesis. Therefore, I interpreted the lowest *p*-value, with a corresponding positive standard coefficient or correlation, as providing this. In this case, all four tests produced the same result, and they indicate that, of the models analyzed, an ideological model based on Teiwes' theory of the core leader dynamic provides the closest fit to the observed Politburo.

The theories and the SNA MR-QAP results can be integrated together in a couple of different ways. One interpretation is that the ideological theory alone accurately describes current dynamics within the CCP's political elite. Central to this theory is the role of the core leader, and that analysis of the core leader's relationships and preferences will be the single most important aspect of understanding the CCP Politburo. The theory predicts that Xi Jinping should be the central figure in the current Politburo. The most important factor to the formation of individual relationships, subgroups, and factions should be the development of support and influence of the core leader; therefore, other Politburo members should form relationships with the goal of influencing the central leader. It also means that Xi Jinping's vision for the future of China is the most important single factor in understanding the potential trajectory of Chinese policy as, according to the theory, it is his ideology which should dominate the overall policy decided upon by the group.

A second interpretation of the results would synthesize the three theories. From this perspective, the core leader interpretation is correct because that role has been institutionalized within the norms of elite Chinese politics, and that this leader is expected to bridge differences or mediate between any groups or factions that could otherwise split the façade of a unified Party leadership. This interpretation still preferences the role of a

strong leader, and Xi's high centrality scores within the observed aggregated network, but recognizes that this dynamic could be by political design rather than the result of personal power as in Mao's and Deng's eras. If institutionalism has normalized the power politics in the Politburo, and the primary danger to CCP rule comes from internal strife rather than external threat, then leadership with a single strong leader who can cast a deciding vote or provide overarching guidance may be preferable to potential deadlock or schism due to rampant factionalism.

Neither interpretation of the analysis means that understanding the role of factions or institutionalization of political norms is any less useful in understanding the behavior of Politburo members and therefore predicting how they are likely to act. But it does suggest that examining how these dynamics interact with a central leader may be useful.

C. ANALYSIS AND INTERPRETATION USING LOGISTIC REGRESSION

Logistic regression provides a second method for conducting the analysis between the models and the observed network. It is a technique in common use outside of the SNA community and bridges a gap between pure SNA tools and standard statistical practices. This technique is appropriate for binary data or categorical data that can be represented as binary. For my data, the ties between members are coded within a matrix as zeros and ones. The zeros indicate an absence of a tie while the ones indicate the existence of a tie. However, a matrix is not the only form of coding or storing this data. The ties between members can also be saved as an edgelist. An edgelist simply stores the ties between nodes as a list in columns rather than as a matrix. It therefore gives the ties in the format of a vector that a logistic regression can be run on. These vectorized networks of binary ties for the aggregated Politburo network and the models are depicted in Figure 16. The trendlines in Figure 16 simply provide a quick visual reference for comparing the respective ties between networks.

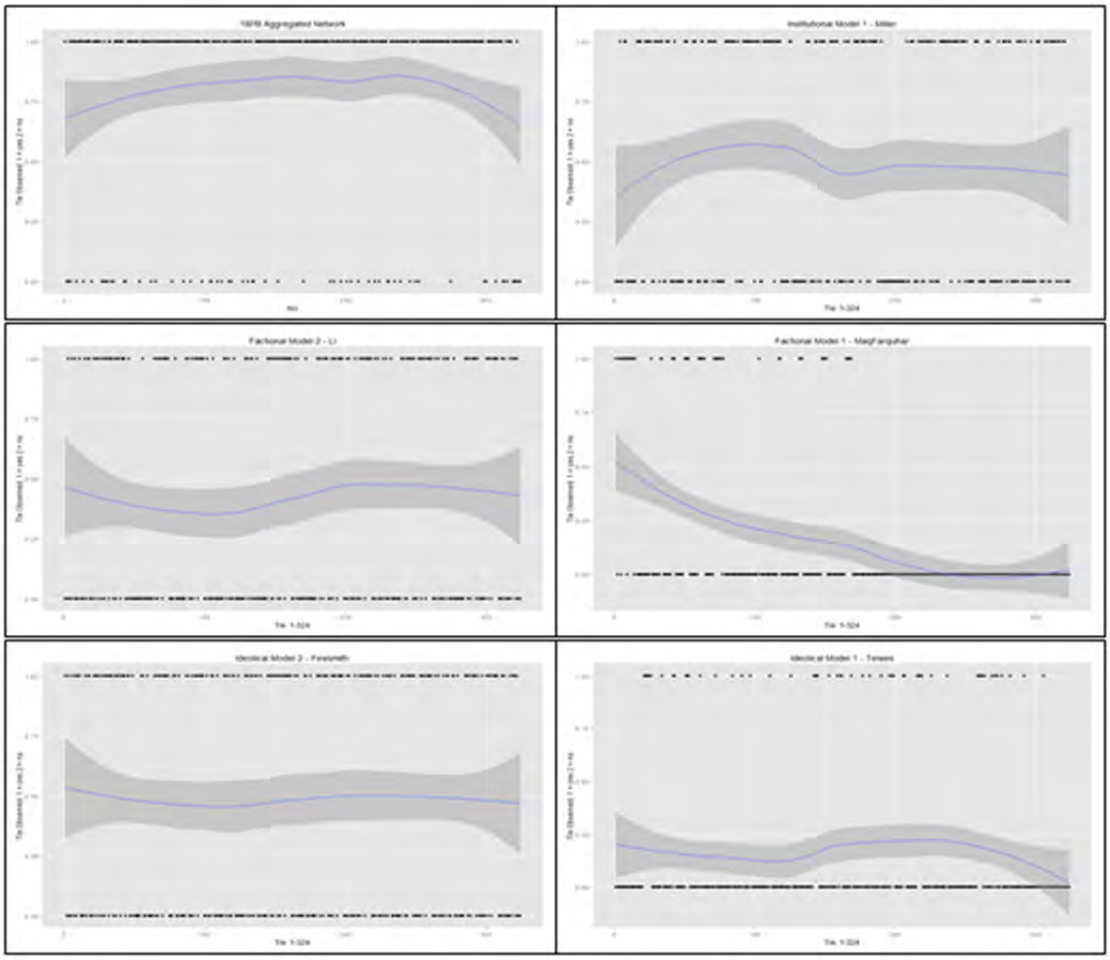

Figure 16. Vectorized binary Politburo relationships with trendlines.

I conducted the logistic regression analysis in nearly the same manner as the MR-QAP analysis. In this case, I only used the aggregated network of the 18th CC politburo as the dependent variable and the models of the theories as the independent variables. I also used a statistical computing language called R to handle the complex mathematics of the actual regression procedures.[79] The results of this analysis are summarized in Table 15.

[79] R Core Team, *R: A language and environment for statistical computing*.

18th CC Politburo Aggregated Relations

Model	Coefficient	*p*-value
Factional Model 1	0.575	0.224
Factional Model 2	-0.293	0.636
Ideological Model 1	1.264	0.021
Ideological Model 2	0.731	0.225
Institutional Model	0.951	0.002

Table 15. Logistic regression results from comparing aggregated 18th CC Politburo network to the models in R

These results are similar to trends that I observed in the MR-QAP analysis, but the logistic regression results also differ in some important ways. Both regressions demonstrate that the most important models for explaining Politburo behavior are Ideological Model 1 and the Institutional Model. However, they differ in the scoring trends. First, in the logistic regression, two of the models have statistically significant *p*-values of < 0.05: Ideological Model 1 and the Institutional Model. Second, according to this analysis, the Institutional Model provides a better fit because it is has smaller *p*-value, but Ideological Model 1 has a greater effect on the network as measured by its larger coefficient. As in the MR-QAP analysis above, these results support an interpretation that both of these models have explanatory value for the behavior of the Politburo.

D. WHAT DOES THIS ALL MEAN?

The importance of these models in explaining Politburo behavior has implications to crafting engagement strategies with the Politburo. First, the institutionalization of a "first among equals" does not mean that Xi Jinping has the same power as wielded by Mao or Deng, but the analysis does suggest that he has more power relative to the other members. Meetings that do not include the central leader may lack a decisive element and require consultation with that central leader before any agreements are made. The results also mean that the public statements of the core leader should be given special attention as they are more likely to contain the language that describes China's strategic trajectory.

For example, decoding what exactly Xi Jinping means by his "Chinese Dream" will be important to predictive analysis of Chinese strategic vision.[80]

Second, the institutionalization of political succession, or normalization of the rules of power politics, has resulted in a high degree of organizational representation by the other Politburo members. While the Politburo members lead and manage their organizations, they are also shaped by those same organizations. A thorough understanding of the ministries goals and resource needs will provide insight into the likely preferences of particular Politburo members. This analysis will also provide insight into targeted engagement options. For example, on the issue of currency valuation it is most important to engage with those members most closely aligned with the finance and economics ministries, but also those policy portfolios. While this last statement may seem obvious, it is not always clear what policy portfolios leaders may carry without careful analysis. These results indicate that there is no easy answer for either predicting Politburo behavior or crafting an engagement strategy. They do however offer hope that diligent research and consistent, nuanced reading of Politburo behavior can offer guide posts to analysts.

E. POTENTIAL LIMITATIONS WITH THE METHODOLOGY

There are some important critiques that must be addressed with this methodology. The strongest is perhaps that the models themselves are flawed. These models represent my first attempt at taking rich, nuanced academic descriptions of complex events and producing a simplified SNA model of them. The models also represent my own interpretation of those theories. Therefore, the models could easily be improved by a greater collaboration between SNA methodologists and the academic specialists in Chinese history and political science.

A second argument regards the results of the SNA tools. For example, Xi's centrality scores do not match the scores that were a key feature of the ideological model. In the models, the core leader's centrality scores were 63 to 85% higher than Xi's observed scores. However, if analyzed by ranking order, Xi did consistently rank as the

[80] Fewsmith, "Xi Jinping's Fast Start," 6.

most central individual member of the current Politburo. This suggests that his authority or influence may not be as great as predicted by the model, but that he still is the individual with the most potential influence in the group. The high centrality scores indicate that Xi has the most access to resources within the network, and the most potential to influence overall outcomes. At the very least, Xi's conception of the "Chinese Dream" and the policies that he is involved in appear to be the most central issues facing China.

Another argument is that the networks I developed for the 18th CC's Politburo, Chapter V, represent only the potential ties between Politburo members, and do not actually match reality. Here, I again agree that the networks can certainly be improved upon by a greater collaboration with the academic specialists of the field. However, the networks are simply another way of describing, or modeling, reality. The models will always be somewhat problematic given what observable data is available and the paucity of data about actual relationships and political bargaining that occurs among Chinese political elites because of their secrecy. Due to this penchant for secrecy, the methodology that I presented in this research provides another way to test and analyze hypotheses about how the relationships among the Politburo members affect the overall behavior of that group. I present it simply as a means to augment, and not supplant, traditional research methods.

VII. CONCLUSION

My goals in conducting this research were twofold. First, I endeavored to provide an example of how SNA provides a useful addition to traditional historical and political science research. Second, I wanted to then test, using SNA methodology, academic theories about the nature of elite Chinese politics. In regard to the first goal, SNA provides another lens through which to examine human behavior. Traditional research often focuses on an analysis of an individual's attributes; or it provides a narrative describing individual actions and events along a continuum in order to develop a cohesive framework of events. SNA, by contrast, preferences the ties and an analysis of the flow of resources and constraints through them over individual attributes. More simply, SNA researchers tend to believe that people act the way they do because of the social networks that they are involved in. For example, a teacher or a leader behaves in a certain fashion because of the ties between that teacher and their students or those between a supervisor and their employees. In other words, the relationships that a person has are the most important factor in understanding their behavior.

These assumptions provide a distinct way to approach my second goal. From this methodological approach, I developed SNA models derived from the descriptive theories about the formal and informal relationships in the Politburo. Each of these models leads to distinct assumptions about the way in which Politburo members form relationships and their resulting behavior. The ideological model assumes a central leader with greater access to knowledge and resources than the rest. While in the factional model, individual relationships are formed around the political factions, and it is the behavior of the factions that drives the overall dynamics. The institutional model, by contrast, assumes that the rules of political succession and norms have been regularized to the point that relationships form around advancing shared goals, in this case the policy portfolios that members are assigned to, rather than political advancement or infighting. These models provide both a means to visually examine these theories, as well as, a method of measuring and comparing them to each other.

This comparison also provides a mechanism through which these theories can be objectively tested against one another. My initial hypothesis was that the institutional model provided the best explanation for Politburo dynamics. However, the results from the analysis contradicted my assumption and lead to a different conclusion. My analysis indicates that there is a preeminent leader or a "first among equals" and that modern theory needs to account for this dynamic. My interpretation of these results is that the centrality of this leader has been institutionalized into the norms of the Politburo.

This result leads me to some thoughts on the direction of potential future research. My approach essentially constituted a cross-sectional analysis, or snapshot in time, of the current Politburo. A longitudinal analysis or analysis over time, of successive Politburos could yield observations of how dynamics, as measured through centrality and topographic metrics, have changed and what the likely trajectory for the near future may be. This would require a time intensive project of parsing and coding data for numerous Politburos that was beyond the scope of this research. Another interesting approach would be to improve upon my methods through a team based approach. Close interaction of a team composed of social network analysts and China experts could result in improved models and observations that may yield different conclusions than the ones based solely upon one researcher's interpretations.

In closing, I believe that this project has successfully achieved my original goals. Apply social network analytics to the study of elite Chinese politics is a useful approach for augmenting traditional research. However, to be useful, the social network analysts must have roots in solid historical narrative and political science theory. Developing a deep knowledge in all three approaches may be a bridge too far for a single researcher and it may yield more substantive results in a research partner or team environment.

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