How does the circle of inner elites evolve over time in dictatorships? We draw on theories of authoritarian power-sharing to shed light on the evolution of politics in the People’s Democratic Republic of Korea. Yet the evaluation of competing theories is difficult in the North Korean context given the inherent challenges in collecting individual-level data on the formation and dissolution of elite circles surrounding the Supreme Leader. In this paper, we address this shortcoming using data on the evolution of the inner elite under Kim Jong-un (2012-present). Employing web-scraping techniques to capture inspection visits by the Supreme Leader as reported by the state-run Korean Central News Agency, we assemble network data on the co-occurrence of high-ranking elites in these visits over time. We test the network durability of the inner elite since Kim Jong-un’s rise to power in January 2012 to find suggestive evidence of elite shuffling. Our findings contribute to the broader literature on elite dynamics in authoritarian regimes and to subnational studies on the politics of power-sharing in communist states. Importantly, our approach also helps bring the study of North Korean politics more firmly in the mainstream of political science inquiry.
1. Introduction

How does the circle of inner elites evolve over time in dictatorships? In this paper we draw on theories of authoritarian power-sharing to shed light on the politics of North Korea since the ascendency of Kim Jong-un. In particular we examine whether Kim Jong-un has used either the “elite shuffle” or “cooptation” techniques evident in many other authoritarian regimes. However, the evaluation of these competing hypotheses is difficult given the inherent challenges in collecting individual-level data on the formation and dissolution of elite. In this paper, we address this shortcoming using data on the evolution of the inner elite in North Korea captured using web-scraping techniques. Parsing inspection visits by the Supreme Leader as reported by the state-run Korean Central News Agency, we assemble network data on the co-occurrence of high-ranking elites in these visits over time. We test the network durability of the inner elite during the period since Kim Jong-un’s rise to power in January 2012. Our findings will contribute to the broader literature on elite dynamics in authoritarian regimes and to subnational studies on the politics of power-sharing in communist states.

A second purpose of this study is to examine whether North Korea itself can be studied in comparison with other authoritarian regimes. Indeed, given North Korea’s highly secretive nature, it has been very difficult for political science scholars to study systematically. Much of the existing work by political scientists has largely relied on impressionistic “readings of the tea leaves” or broad “strategic” predictions on the future of the regime (often without empirical support). More recently, scholars have examined North Korean politics more systematically (Eberstadt, 2007; Haggard and Noland, 2007; Noland, 2004) albeit focusing on the state of the North Korean economy, or its nuclear
program, or on public opinion using expatriate populations of North Koreans in Manchuria (Noland and Haggard, 2011). Can North Korean politics be profitably examined using the “lens” of theoretical literature developed from other authoritarian regimes?

In the next section we review two competing theories of how dictators manage their inner elite circle during times of crisis and formulate hypotheses to test in the context of Kim Jong-un’s North Korea. We then turn to describing relational data on a select group of elites in Kim’s circle and use these data to in dynamic network analysis for each year from 2012 to 2014. We conclude in section four with a discussion of further applications of these data and how our case can generalize to other personalist dictatorships, particularly those in the post-communist countries.

2. Elite management strategies in dictatorships

The interplay between a leader and her circle of inner elites is one of the foundations of regime stability in a dictatorship. How she manages the composition, responsibilities, and hierarchy of elites can be the determining factor in whether the dictatorship survives or fails. A key debate within this aspect of rule is whether the dictator should shore up support from elites by consolidating their power within the state or whether she should ensure that no one member of the ruling class obtains sufficient power to overthrow her. The dictator can achieve the former by fostering a sense of permanence and security regarding the status of elites, such that each member is assured of his place within the ruling coalition. The dictator can achieve the latter through purges, rotations, and frequent shuffling of the inner elite.
When do dictators choose one strategy over the other? It could be that variation in dictators’ strategies of elite management is determined by the perceived strength of their regime. Consider the sample of entrenched dictators with long time horizons -- this would include monarchs, personalist leaders, and in rare cases, military dictatorships. These otherwise strong autocrats may feel it necessary to mix up the hierarchy and composition of their elites if they perceive they are losing their grip on power. Such is the case of Mussolini’s oft-cited “changing the guard” strategy of shuffling the posts of his top cabinet members when he felt any one of them was gaining too much support and power within either the elite or the mass public (Lewis 2002, p.23).

A classical debate on how to handle the elite arises from Machiavelli’s advice in satisfying the “most powerful classes” while maintaining the throne. One sure-fire challenge to the perceived strength of a regime is economic recession and fiscal instability. But in these situations of crisis, scholars do not agree on which strategy dictators will pursue in managing their elites. In particular, two theories have emerged on elite dynamics in dictatorships.

A dictator’s interest is to survive. How she does this depends on how relationships with the ruled and other rulers develop. As Svolik (2012, p.2) notes, politics of authoritarian regimes involves two fundamental relationships--the relationship between the rulers and the ruled (or what he calls the “problem of authoritarian control”) and the relationship between the dictator and the other members of the “winning coalition”(or the “problem of authoritarian power-sharing”). Our focus in this paper is on the latter relationship. How has Kim Jong-un’s relationship with other members of the “winning coalition” evolved since 2012?
There are three general contending perspectives often discussed in the extant literature as to what constitutes the “best” strategies that a dictator can adopt vis-a-vis other members of the winning coalition. First, there is the “elite shuffle” which involves the moving of subordinates in and out of office as a survival technique used by rulers. This strategy was exemplified by Mobutu of Zaire, whose ruling style was described as a “musical chairs system of government” (Berkeley 2002 p.122). Such a strategy helps to warn off potential rivals, by creating uncertainty within the elite and preventing them from establishing bases within the administration from which they may reduce the dictator’s influence, or even worse, attempt to remove her from power. By creating uncertainty the dictator can prevent the development of regime insiders who could otherwise threaten the autocrat’s control of the state. Further, by periodically purging “key administrators or military commanders” this publicly signals “the dictator’s independence from his administrators” (Svolik 2012). This strategy is summarized by Bueno De Mesquita and Smith when they provide the following “advice”:

   Rotate them [the officials] around in different positions, pit them against each other, fire them and re-hire them in other roles. Place them in position where they are unqualified and won’t be able to produce results…Anyone who becomes a threat must be removed…But this implies a lot of staff turnover. Who cares? People are cheap and abundant (Bueno De Mesquita and Smith 2011 p.49)

A variation of the “elite shuffle” strategy, which is designed to keep potential rivals off balance, is the “purge strategy” which not only physically removes potential adversaries, but signals to others in the elite that challenges to the leader will not be tolerated (and hence keeps potential adversaries off balance). This strategy involves repression and or elimination of political enemies within the
dictator’s inner circle. Machiavelli, for instance saw the value of violence as an instrument of power building. Physical elimination of political rivals and removal of other persons capable of ruling help secure the position of the Prince (Machiavelli, chapters 17 and 19).

In the modern era purges have been used to great effect by new dictators attempt to consolidate power. Purges, which involve the removal of other elites through violence thus represents both a way to permanently remove potential elite challengers, but also helps create a fear to dissuade others from considering actions against the dictator (Brzezinski 1958; Frantz and Ezrow 2011) Stalin for example used the Great Purges to cleanse the Soviet elites of any potential challengers to his authority in the 1930s and replaced the old revolutionary elite with a new generation of elites (which include Nikita Khrushchev and Leonid Brezhnev). Further Saddam Hussein executed most members of the revolutionary elite that had accompanied him to power in 1979, including some of his closest associates, who had staged the revolt of 1979 and replaced them with more dependent supporters (Ezrow and Frantz 2011). However, the use of purges is also a very risky strategy. As Bove and Rivera (2015, p. 456) point out elite repression can be generally counterproductive for the survival of autocrats because if repression is seen by other elites as “unfair or even unpredictable, they are more likely to consider their safety at high risk and hence will be more prone to lead or support a plot against the dictator.” Thus the purge strategy carries with it a considerable amount of risk for a dictator.
A second strategy is “cooptation” (Acemoglu, Robinson and Verdier 2004; Egorov and Sonin 2011). This perspective contends that autocrats create formal institutions – such as single parties – to credibly share power and revenue with other members of the winning coalition and at times with opposition leaders (Brownlee 2007; Gandhi and Przeworski 2007; Magaloni 2008; Slater 2010; Blaydes 2011; Svolik 2012). This work focuses on the process of “power sharing” where the autocrat seeks to accommodate with potential challengers to her authority by providing them with access to office and authority. A cooptation strategy thus often involves the use of government resources, which are offered up strategically to potential elite challengers as concessions, thus providing them with a vested stake in the survival of the regime (Gandhi 2008; Gandhi and Przeworski, 2007; Frantz and Kendall-Taylor, 2014). This also facilitates monitoring of potential opponents (i.e. “keeping your enemies close”) (see e.g. Svolik, 2012; Gandhi and Przeworski, 2006). In this sense, then, cooptation is seen as an important strategy in building authoritarian stability (Gerschewski, 2013; Wintrobe, 1998).

Certainly, these strategies should not be seen as “mutually exclusive” propositions. Leaders can use each of these strategies, often in combination, to effectively consolidate power and authority. Further these strategies may vary over time, given new circumstances (Bueno de Mesquita and Smith 2010; Wintrobe 1990)

As much of the literature on the behavior of chief executives generally suggest, the strategies used by leaders can be a function of the characteristics of the leader as an agent, or as a response to changes in the social, political, and economic environment. As
Peele (1992) and Masciulli, Molchanov, and Knight (2009) note, how leaders behave relative to other political actors are not only a function of the personality and traits of a leader or leaders, including her or his ethical and cultural character but also the societal or organizational context in which the leader–follower interaction occurs (which is made up of the general culture, political culture, political climate, norms, institutions etc, but also whether leaders face times of crisis). Indeed, as Joseph Nye points out, to understand, explain and predict patterns of political leadership, scholars need to analyze the beliefs, values, characters, power relations, and ethical/unethical values, attitudes and actions of leaders and followers, as well as historical situations (Nye 2008). Thus, the nature and urgency of the issues facing leaders also impacts the survival strategy chosen. For instance, in times of crisis, leaders often engage in the “elite shuffle” to find a “fall guy” for policy failures, and to signal that policy changes are being pursued to meet the crisis.

However, beyond idiosyncratic personality characteristics and structural conditions facing leaders, and additional important factor that may impact the choice of strategy is the extent to which leaders have already completed the process of power consolidation. As George Breslauer (1985) noted in his landmark study Soviet leaders, leaders engage in two related processes upon coming to power: power consolidation and authority building. Power consolidation involves building the leader’s power base through the recruitment of loyal associates. Through this process the leader creates a loyal client network on which she can rely for support as leverage in political competition with other elites. Authority building, according to Breslauer, is the process by which leaders develop an image of themselves as effective problem solvers and can generate the goods in which their followers, and others, are interested. Authority building is thus the
process of getting others beyond one’s immediate network of associates to accept the authority of the leader as legitimate.

The leadership strategies identified above are all effectively part of the power consolidation process, where the leader seeks to make other elites dependent on them. However, the elite shuffle presumes that a leader has already developed a network of somewhat reliable and dependent associates (indeed the elite shuffle is a strategy that seeks stave off the possibility of other elites becoming independent). Cooptation can be used to make independent elites dependent on the leader, but it presupposes that the leader has the resources to reward potential followers (meaning that the leader has already built up a power base). Purges, on the other hand, are a tactic used by leaders that are insecure in the power consolidation process, and are challenged by other elites who may have independent power bases apart from the leader. Purges are the product of leaders who do not have a well developed network of associates and who perceive themselves challenged by other elites who have independent bases of power.

3. Comparing the Transitions of Kim Jong-il and Kim Jong-un

In many ways the leadership transitions from Kim Il-sung to Kim Jong-il in 1994 and from Kim Jong-il and Kim Jong-un in 2011 were quite different, both in terms of the domestic crises and international challenges facing the regime. In the case of the former transition, Kim Il-sung’s death shook the system to its core—a system that had been entirely built around his cult of personality. His death in 1994 also occurred during a time of great uncertainty and crisis for the regime. Internationally, the collapse of the USSR had created great economic hardships for the North Korea in the 1990s, as the
regime had depended heavily on the Soviet Union for fuel subsidies and markets for its products. The demise of the Soviet Union overnight deprived the North Korean state access to cheap fuel, leading to the rapid shrinkage of the economy, which some estimated at 5% annual decline in gross national product from 1990-1997 (Oh and Hassig 1999; for other estimates see Eberstadt, 2000). Ultimately, the economic downturn, coupled with a series of poor harvests, resulted in the great famine of the late 1990s in which several hundred thousand North Koreans died of starvation and led to the complete collapse of the economy (Haggard and Noland, 2007).

Thus, the new leader Kim Jong-il was faced with an extreme systemic crisis upon his ascendancy to power, where there was the real and imminent question of regime survival. It was during this time of extreme challenges to the regime that Kim Jong-il engaged in a remarkable strategy to consolidate his power, via the ‘honor-power’ system (Ishiyama 2013; Jeon, 2000). This practice involved retaining senior officials from his father’s regime in honorary positions, but real power was passed to their ‘subordinates’ in the various ministries and military commands. In this way Kim Jong-il engaged in more of a cooptation strategy to deal with the crisis facing the regime in the 1990s.

The transition from Kim Jong-il to Kim Jong-un was remarkably different. Although the new leader Kim Jong-un was also faced with economic and international challenges, these did not rise to the same systemic crises that had faced the leadership transition in the 1990s. In many ways the North Korean economy had stabilized, in part because of the benefits of the “Sunshine Policy” of South Korea under President Kim Dae Jung and his successor Roh Moo-hyun, which led to significant investment in the North. Further, some limited reforms were introduced in the early 2000’s to liberalize
aspects of the economy and to develop “gray markets” in the cities of the North. As a result, the Seoul-based Bank of Korea estimated that the North Korean economy experienced significant growth from 2000-2006.\(^1\) However, growing tensions with the South in 2006, and the election of hardliner Lee Myung Bak as South Korean president, led to a curtailing of FDI and the suspension of aid shipments to the North. This in turn contributed to the contraction of the North Korean economy from 2006-2010, although the contraction did not approximate the declines of the 1990s.\(^2\)

Thus, in many ways, the challenges facing Kim Jong-un were different than those that faced his father in 1994. Unlike Kim Jong-il, who had been groomed by Kim Il-sung as a successor at least since the 1970s, Kim Jong-un was the little known third son of the Supreme Leader. Kim Jong-il had not prepared any of his children for the mantle of leadership, although for a brief time it was expected that his eldest son, Kim Jong-nam would succeed him—at least until the Japanese Disneyland debacle in 2001, which led to his fall from favor.\(^3\) Kim Jong-un was only mentioned in 2009 as a possible successor to Kim Jong-il—who had suffered a stroke in 2008—and had held no official positions until his ascendancy to a mid-level position in the National Defense Commission in late 2009. After this he was quickly promoted and ascended to the position of Supreme Leader upon his father’s death in December 2011.

Unlike his father, who had developed a network of allies and supporters in both the army and the party, Kim Jong-un had very little in the way of established ties with other North Korean elites. Since ascending to the mantle of leadership, Kim Jong-un has faced numerous challenges, both within the regime and from without, including the numerous foreign policy challenges facing the regime as the result of continued tensions
with the South and the United States. Many observers suggest that Kim Jong-un has had great difficulty in consolidating power since his ascendance to power: there have even been numerous challenges to his authority (either perceived or real) which has led to his frequent purging of those who were senior officials in his father’s regime, most notably the execution of his uncle Jong Song-thaek.\(^4\)

So how does Kim Jong-un’s strategy for building authority compare to that of his father, after his accession to power following the death of Kim Il-sung in 1994 and the subsequent economic and political crisis of the 1990s? As Ishiyama (2014a and 2014b) and Haggard Herman and Ryu (2014) suggest, one way to think about the extent to which relationships between the autocrat and the winning coalition change is reflected by two dimensions: the size of the winning coalition (does it get larger or smaller), and the degree to which there is volatility in the composition of the winning coalition. If the coalition grows larger, then this might indicate the use of an accommodationist strategy. If the winning coalition grows smaller, this may suggest more removals and hence may indicate an “elite shuffle” strategy, or a purge strategy. On the other hand, more volatility in the winning coalition may also indicate a more elite shuffle strategy or a purge strategy.

4. Assessing elite dynamics in North Korea under Kim Jong-un

Both the size and the composition of the inner elite in North Korea are difficult to assess with conventional approaches used in studies of authoritarian power-sharing in other contexts. Ethnographic work and field-based research is challenging given the harsh environment for scholars working within the state, leaving our understanding of North
Korean politics to observation from the outside. Similarly, statistical analysis is impeded by the lack of data on even the most basic indicators so commonly available in other authoritarian contexts. Systematic information is lacking, for instance, on changes in cabinet composition, legislative and subnational elections or appointments, political imprisonments, and reliable socio-economic indicators such as GDP, unemployment, life expectancy, and literacy; indeed these are typically gathered from third party sources in the South rather than from reports from the North Korean government.⁵

4.1. Data

While we cannot solve the former problem, we can use novel techniques to assess the size and composition of Kim Jong-un’s elite by parsing state-run newspaper reports about his political visits across North Korea. We then code these visits into a relational dataset that measures the frequency with which elites co-appear at these political events with the Supreme Leader. By looking at how this network evolves over time, we can assess changes in the size and composition of the regime’s winning coalition -- and ultimately, whether Kim Jong-un’s strategy in retaining power has been one of “elite shuffle” “purge” or “elite cooptation.”

4.1.1. Network data as repeated co-occurrences

There are a variety of methods to collect network data in political contexts. The primary variable of interest is the existence and/or intensity of social ties between individuals in politics. In studying legislators, scholars often use text analysis to parse laws and legislative reports to assemble network data based on attributes such as voting patterns
(Fowler 2006), co-membership in party lists (Victor and Ringe 2009), and sources of campaign donations (Koger et al. 2010). Similar approaches are used to create networks beyond legislators, such as parsing promotion patterns and bureaucratic co-occurrences of Chinese Communist Party officials (Keller 2014) and analyzing court case citations for judges in the European Court of Human Rights (Lupu and Voeten 2012). Scholars also use interview and archival methods to gather relational data on interactions between individuals. An example from the study of authoritarian politics is work by Vizoso (2015) on elite coalitional stability using network data gathered based on interviews with former elites in Iraq and Syria.

None of these approaches is immediately applicable to analyzing inner elite dynamics in North Korea given the inherent challenges to identifying such behavioral information. Instead we draw on the method of measuring social ties using co-appearances at public events. Here, ties are inferred based on the frequency with which people interact in public to assemble what is often referred to as an “affiliation network” (Wasserman and Faust 1994).

Affiliation networks have long been studied in sociology, starting with the Davis et al. (1941) network study on the social activities of women in the Southern U.S. Here, the authors collected network data through the use of newspapers and interviews to record how often the subjects attended the same social events. Affiliation networks are less common in the context of political networks. Notable exceptions include Desmarais et al. (2015) who apply this approach to capture ties among U.S. senators occurring together at press events, while Mahdavi (2016) uses public co-occurrences reported by newspapers to measure ties among and between the Nigerian oil elite and presidents.
Jonathan and Buhari. In general, existing legislative co-sponsorship and caucus membership data can be loosely construed as affiliation networks.

Affiliation networks may also be particularly well suited to studying elite dynamics in authoritarian contexts. Being seen with the dictator often in public is a signal of closeness with the regime, while changes in the frequency of public appearances in the regime entourage are symptomatic of changes in the relationships between the dictator and his/her elites. In opaque and isolated dictatorships, it may be difficult for outsiders to assess the information given by the official positions, titles, and functions of elites compared to their actual behavior and standing within the regime.

In North Korea in particular, scholars have ascertained the composition of elites and their access to the great leader by examining public appearances with him -- whether it be Kim Il-sung, Kim Jong-il, or Kim Jong-un -- in “inspection tours” or visits (Gause 2004, Ishiyama 2014b, Lim 2002, Noland and Haggard 2011). These visits began with Kim Il-sung’s “on the spot guidance” tours of agricultural and industrial sites to impart practical wisdom on management and performance instead of relying on abstract Marxist slogans and directives. While anyone within the regime could perform these visits, the highest honor was in receiving guidance from the great leader himself, accompanied by high-ranking party officials and members of the dictator’s inner circle (Kim 2006).

Both Kim Jong-il and Kim Jong-un continued this practice, although the spontaneity or “on the spot” nature of visits gave way to planned and calculated inspections which allowed the subject of these visits ample time to prepare before the arrival of party officials. Guidance visits were often targeted to sectors of high political importance (such as defense, education, health, and agriculture) and became the basis of
policy priorities. These visits are carefully choreographed, and planned well in advance, and was considered a great honor. Thus, inspection visits by the supreme leader is not seen as a “punishment” for poor performance, but a reward for “model” units. As Ishiyama (2014b, p. 139) notes, “Indeed, accompanying the Dear Leader as part of his entourage on these inspection tours were determined well in advance, and were considered highly prestigious for the participants.” As such, we draw on these visits to provide insight, albeit informally and indirectly, on the size and composition of the dictator’s elite circle.

4.1.2. On the use of web-scraping tools to collect relational data

Following Lee et al. (2010) and Mahdavi (2016), we use web-scraping tools to gather information on the co-occurrence of elites at these inspection visits by parsing through news reports published online. We initially scrape all daily reports in English from the Korea Central News Agency (KCNA) website from January 2012 to June 2015, but for our purposes we stop the analysis at December 31, 2014 to maintain consistency across full calendar years. We then identify any report that provides information on an inspection visit using keyword stems associated with these events. We subsequently verify each report manually to ensure that each is indeed reporting on an inspection visit by Kim Jong-un; this step yields a total of 303 reports, with a total of 281 for the 2012-2014 period. Using a list of 88 elites within the regime at the end of 2011 based on Ishiyama 2014b and from NK News (at https://www.nknews.org/pro/nk-leadership-tracker/) we identify both the events each individual attended with the great leader and the frequency of co-occurrences with any other elites at each event. The latter results in
an 88-row by 88-column matrix (for each year) where each cell provides the number of inspection visits at which individual $i$ and individual $j$ appeared together. We then convert these *socio-matrices* into dynamic network data to assess how the structure of the network evolved over time from 2012 to 2014.

### 4.2. Analysis

Table 1 provides a breakdown of network summary statistics for each of the three co-occurrence networks in the sample. Interestingly, Kim Jong-un increased the number of inspection visits in each year compared to his first year in power. Over the same time frame, the number of co-occurrences declined slightly from 2012 to 2013 and then dramatically from 2013 to 2014. In other words, although the opportunity for increased interaction with Kim Jong-un rose from his first year in power onwards, the number of elites appearing with the leader shrank markedly over time from 41 in 2012 to 25 in 2014, a 39 percent reduction in the size of his winning coalition as measured by public co-appearances.

The composition of the winning coalition shrank over time as well. A simple metric to capture this change is given by the average number of co-occurrences between a given member of the elite and other elites (including Kim Jong-un). This average dropped from 12.0 in 2012 to 3.8 in 2014 (a 68 percent decline), with the clearest shift in composition happening from 2013 to 2014. An alternate metric for composition is given by network density, which measures the number of ties in a network as a proportion of all possible ties to approximate the probability that any given pair of individuals is tied to
each other. Here again we see a noticeable thinning of the network over time, as the density shrinks from 0.138 in 2012 to 0.044 in 2014.9

The full distribution of co-occurrences is presented in Figure 1, where the number of ties is given by the frequency of appearing at a visitation event with Kim Jong-un and with other members of the elite. For example, General Kim Won-hong appeared at 14 inspection visits with the Supreme Leader in 2014 and his degree count is 18. The latter number indicates that the General had ties with 17 other elites (not including Kim Jong-un) at these events, meaning that he co-occurred with 17 other elites at least once during inspection visits in 2014. Hypothetically, Kim Won-hong’s minimum degree count would be 1, which would indicate that each of his 14 inspection visits were only with Kim Jong-un and no other member of the elite. His (or any individual’s) maximum degree count would be 87, which would indicate that in his inspection visits he co-occurred with all other elites in the network at least once.

In aggregate, a lower median degree count reflects a sparser network, meaning that inspection visits are typically made up of a minimal group of elite traveling with Kim Jong-un. A higher degree count, on the other hand, indicates that these visits are attended by most of the elite in a given year. While none of the three networks exhibits high density – the maximum observed degree count across all networks is 40, or 45% of the maximum possible count – it is clear that the composition of Kim Jong-un’s visitations are becoming sparser and sparser over time. Indeed, the number of isolates (elites with no ties at all) rises from 47 in 2012 to 63 in 2014, such that 16 of the elites with ties in the 2012 network are no longer connected to any individuals by 2014.
To provide a comprehensive sense of the changing size and composition of the winning coalition based on inspection visit co-occurrences, we visualize the networks in Figure 2 for each year in the data. Each individual elite is represented by a node with curved lines between nodes indicating a tie between two individuals; the darker and wider the curved line, the more frequently two individuals appear at inspection visits together. The layout algorithm places individuals with more ties closer together, although the distances between individuals does not have any specific meaning.  

What is striking about the figure is the dramatic change in network density and composition from 2012 to 2014 and the gradual withering of the network from 2012 to 2013. Not only does the network shrink in terms of the number of connected individuals, but also in the intensity of ties within the dense cluster surrounding Kim Jong-un – as visualized by the lack of darker, wider lines between nodes in 2014 when compared to 2012 and 2013.

We graph only the 2012 and 2014 networks with labels in Figure 3, with isolates in each case dropped for ease of visualization. The shape of the network in 2012 is not uncommon from what we would expect in a single-party dictatorship (see, for example, the Chinese politburo network in Keller 2015). Namely, we see a cluster of individuals surrounding the leader who are tied with each other, with only a few others tied either only to Kim Jong-un or to the leader and a handful of other influential insiders. We also see dense clustering not only around Kim Jong-un but also around top commanders in 2012, such as Choe Ryong-hae (who fell out of favor in 2014), Pak To-chun (former secretary of the Workers’ Party), and Kim Jong-gak (former defense minister; fell out of favor in 2013). This kind of dense clustering indicates the presence of more than one key
central actor in the network, reflecting inspection visits that encompass several of the same elites over the course of the year.

This pattern disappears in the 2014 network, with clustering more symptomatic of a highly ego-centric network. Here, Kim Jong-un and (up until mid-2014) Choe Ryong-hae are starkly in the center of the network with all others appearing less frequently with other members of the elite throughout the year. Most of the ties (and the intensity of ties) are directed towards the center, with relatively fewer ties in the periphery and across the network. In this case, many of the inspection visits throughout 2014 were composed of different groups of elites – with few opportunities for the same group of elites to interact with one another over the course of the year. This kind of pattern would be expected in a highly personalist dictatorship, although it is difficult to assess given the lack of any network data in such authoritarian regimes (a notable exception is a depiction of Emperor Haile Selassie’s elite network in Woldense 2015).

The 2014 network also highlights the paucity of elites from Kim Jong-il’s regime – based on his inspection visits during 2009-2011 (Ishiyama 2014b) – in Kim Jong-un’s inner circle. Party members who appeared with Kim Jong-un in 2012 and who were also in his father’s inner circle – such as Hyon Chol-hae, Kim Kyong-hui, Ri Myong-su, and Ri Yong-mu – are notably absent from the group of elites attending inspection visits just two years later in 2014. While some of these elites have simply been removed from power via replacement, others have been executed. It is believed, for example, that General Kim Kyong-hui, the daughter of Kim Il-sung and the aunt of Kim Jong-un, has been either imprisoned, poisoned, or exiled after the execution of her husband Jang Sung-taek for charges of treason in 2013.11
There are still some remnants of his father’s entourage as of 2014. However, those who have remained, such as Pak To-chun, Kim Yang-gon, and Kim Yong-chun, are on the periphery of the network and rarely appeared alongside the great leader in his inspection visits. Kim Yong-chun, who was once Vice Marshall and Minister of the Armed Forces, attended only one visit with Kim Jong-un in 2014. Kim Yang-gon, once head of relations with South Korea and a key member of Kim Jong-il’s party, appeared at only two inspection visits in 2014 after attending at 10 in 2012 and 8 in 2013. Indeed his absence at inspection visits foreshadowed his falling out with the great leader in 2015 and, possibly, his sudden death in December 2015.12

Was 2014 an anomaly, or was it part of a downward trend in elite consolidation? While we do not have complete data for 2015, we can still leverage data for the first six months (up to June 26, 2015) to investigate if there was a “bounce back” in network density after 2014. The data show no such pattern: quite the opposite, inspection visits in the first half of 2015 were not only fewer in number—only 22 compared to 53 in the first half of 2014—but also smaller in the size of Kim Jong-un’s entourage. The average number of elites appearing with the leader dropped from 25 in 2014 (see Table 1) to 9 in 2015, while network density shrank from 0.044 to 0.008 (see Figure 4). Clearly, we cannot make strong inferences from this limited sample given the idiosyncrasies of the timing of inspection visits across the year.13 Nonetheless, we can still confirm that the visits that did occur were far sparser in size and composition when compared to 2014—and nowhere near the levels seen in 2012 and 2013.

While these summaries and visual comparisons offer important insights into the changes in the size and makeup of the network, we turn to a more systematic approach to
uncover the dynamic patterns underlying the changing composition of the winning coalition. To do so, we employ a dynamic network model and treat the network as one structure over time (instead of three independent networks; we omit the incomplete 2015 network). Here we draw on the separable temporal exponential-family random graph model (STERGM) as generalized by Krivitsky and Handcock (2012).

The STERGM approach views the network dynamically in terms of actors making decisions on whether to form, maintain or dissolve ties with other actors in the network. It models the formation and dissolution of ties separately, based on the assumption that the social processes that result in actors forming ties are different from the social factors that result in these ties being dissolved. This model is a good fit for elite coalition dynamics: we intuitively expect that the reasons for an elite member’s inclusion in the network, such as her ties with the previous regime, social status, and wealth, will be different than the reasons for her expulsion from the inner circle, such as a change in her support for the leader or the perception that she will challenge the leader for authority. By modeling these processes separately, we can observe and estimate structural patterns in how the network changes over time.

Table 2 shows the results from a STERGM analysis of the three years in our sample. Results are split into two columns. The first column provides estimates of network statistics on the formation model, which gives the probability that a tie will form between two individuals in the network. The second column provides estimates of the dissolution model, which gives the probability that individuals who are tied in the previous network (at time $t - 1$) will retain their ties in the current network (at time $t$). While the models are estimated simultaneously, they can contain different parameters.
For our model, we try a basic specification where the probability of tie formation between two individuals at time $t$ is given by the density of the network at $t-1$ (captured by the \textit{edges} term) and whether the two individuals are mutually connected to at least one other individual in the network (captured by the \textit{triangle} term). The positive coefficient on the latter term indicates that elites in the 2012 network, for example, are more likely to form ties in the 2013 network with other elites if they are tied to a mutual contact. Specifically, the coefficients are given as conditional log-odds, so the 0.195 estimate implies that elites tied to a mutual contact are 21% more likely to be tied to one another in the future than elites who do not share a mutual contact.

For our dissolution model, we include both the \textit{edges} and \textit{triangle} terms and add a metric to capture the effect of popularity on the dissolution of ties. The \textit{concurrent} term adds a network statistic to the model equal to the number of individuals in the model with more than two co-occurrences at inspection visits. The negative coefficient on this term implies that individuals who have attended more than two inspection visits in the past year are extremely unlikely (only 3% likely) to attend an inspection visit in the current year. The \textit{triangle} coefficient is similar in magnitude when compared to the formation model, indicating that individuals who are tied not only to each other but also to a mutual contact are likely to retain that tie in future time periods. The difference in the \textit{edges} coefficients across models is a reflection of what we observed in Table 1, that the density of the networks is declining over time.

4.3. Discussion of results
While not as intuitive to interpret as conventional regression models, the STERGM framework does allow us to estimate the differences in how ties form and dissolve in a comprehensive context. What we can infer about North Korean elite network dynamics from these models is that Kim Jong-un is replacing members of his elite who were previously tight with the regime (measured as the number of co-occurrences in a prior year) with individuals who were largely peripheral (having attended two or fewer inspection visits in a prior year). Further, the models confirm what we observed using summaries and visualizations: both the size and the composition of the inner elite are shrinking over time, with Kim Jong-un not only severing ties with elites entirely but also traveling with fewer and fewer elites in each inspection visit. These results point markedly towards an “elite shuffle” strategy, with almost no evidence of “elite cooptation” even with those individuals who remain within his inner circle.

What might explain these patterns, particularly the fairly large changes in the elite networks from 2013-14? And what might explain the move towards the “purge” strategy employed by Kim Jong-un as opposed to the “elite cooptation” strategy that was used by his father? As to the first issue, changes in the composition of the network coincided with the major purges of senior officials in the regime, particularly marked by the removal and execution of Jang Song Thaek (and the subsequent purge of many of his followers) but also the reported removal or marginalization of a number of other key senior figures who were part of the transitional leadership after the death of Kim Jong-il. As long-time North Korea watcher Michael Madden observed:

Those guys were an amount of window dressing for Kim Jong-un. They were there at the funeral so they could be seen to be regarding him as highly as they did his father. The group were around to make sure the elites respected the transition of power….It was like learning to ride a bike
for Kim - now he's consolidated enough power he doesn't need that training.\textsuperscript{15}

Thus a “thinning out” of the elite networks can be seen as part of the power consolidation strategy by Kim Jong-un.

Then what explains the use of the “purge” strategy used by Kim Jong-un as compared to the cooptation strategy of his father? There are two possible explanations. First, there is the possibility that, as mentioned above, a leader may engage in the elite shuffle (or in the case of Kim Jong Un, purges) in response to external pressures to create “fall guys” for policy failures. Clearly the period between 2013-2015 saw growing tensions with the West (and questionable progress on the development of nuclear weapons and numerous failed ballistic missile tests). To some extent these could be seen as policy failures, but this is unlikely given the trumpeting of success of the nuclear program in Pyongyang, despite these setbacks. Further, although economic growth was slow between 2012-2014 (with GDP growth in North Korea estimated at about 1.1\% on average per year) it was not nearly the catastrophe that had faced Kim Jong-il in the 1990s.\textsuperscript{16} Thus it is unlikely that “crisis” explains Kim Jong-un’s use of the elite shuffle strategy.

The second explanation focuses more on the characteristic of the “leader as agent.” For instance, in his book on Kim Jong-il’s North Korea, Song Chull Kim (2006: 102-103) argues that there were several key features of Kim Jong-il’s personality that structured his management style. Using the classic framework developed by James David Barber (1985), Kim argued that Kim Jong-il had an ‘active-negative’ personality—in other words, the ‘Dear Leader’ had a compulsion to be very active, and the need to have a structured and ordered hierarchy to exercise the maximum of control and the desire to
manage even the smallest details. On the other hand, his level of activity was personally
unsatisfying, and he had a generally negative attitude towards the world around him,
seeing constant threats to his person and position. This resulted, according to Kim (2006),
in Kim Jong-il’s preference for a mix of formalistic and competitive models. On the one
hand, Kim controlled the institutions of the state separately and depended on hierarchical
bureaucratic mechanisms, but he consistently promoted competition between individuals
around him (partially as a way to ‘divide and rule’ and thereby neutralizing potential
future threats). However this meant that he preferred to coopt as many different points of
view around him and to keeping his enemies or potential enemies close. Because he had
developed stable connections with many North Korean elites during his time being
groomed to succeed his father, Kim Jong-il was able to find success using this strategy.

Although we know very little about the personality or management style of Kim
Jong-un, we do know that the characteristics of the transition that led to his ascendancy to
power were very different when compared to his father’s experiences. Unlike his father,
Kim Jong-un was not groomed to fill the mantle of leadership for nearly 20 years. He
lacked the administrative and political experience of his father prior to becoming
Supreme Leader. Presumably, he also failed to develop the extensive interpersonal
networks that his father had, and initially had little choice but to depend on other, more
senior members of the elite for “guidance” (his uncle Jang Song Thaek being a prime
example). At first, Kim Jong-un’s position as a newly established leader was quite
tenuous and far less secure than his father’s. Thus once he had firmly established the
formal bases of power, by assuming all of the offices held by his father by the end of
2012, he followed the pattern of many other dictators who sought to purge key
administrators or military commanders to publicly signal his independence and remove potential challengers to his power (Svolik 2012). Unlike his father, who had developed and extensive network of reliable associates prior to ascending to power, Kim Jong Un did not have such a luxury. However, is this strategy permanent, or does it pave the way for more cooptation later? This is certainly a possibility—Kim Jong-il, once coopting the old elite, did engage in periodic purges and reassignments later (including the demotion and rehabilitation of his brother in law Jang Song Thaek). However, the spate of recent executions of some key members of the elite throughout 2016-17 suggests that the purge strategy has become a fixture of the current regime. But, ultimately, to answer this question definitively, we must await the collection of new data on Kim Jong-un’s behavior as he further hones and develops his strategy of rule in the years to come.

5. Conclusion

Our analytical results using web-scrapped social network data are largely in line with anecdotal evidence and journalistic accounts about the dynamics of Kim Jong-un’s inner elite. Since his first year in power, reports have indicated that he has effectively purged his council of many of his father’s closest advisors and commanders. We have been able to extend this description to show that not only is Kim Jong-un expelling elites and shrinking his winning coalition, but that he is also weakening his ties to those who remain in his inner circle. The “elite shuffle” strategy that the great leader has pursued since taking power in December 2011 after the death of his father has led to an unstable and sparse network of core allies and inner elites.
These patterns are more illustrative of highly personalist dictatorships than of the single-party regimes more common in other Asian communist and post-communist countries. Indeed, our analysis highlights elite dynamics that we might expect to see in historical contexts such as Mobutu’s Zaire and Qaddafi’s Libya, or in the current dictatorships of Nursultan Nazarbayev in Kazakhstan, Emomali Rakhmon in Tajikstan, or Ilham Aliyev in Azerbaijan. As such, our findings suggest that North Korea can indeed be fruitfully examined as a case using theoretical literature developed from other authoritarian regimes, with one wrinkle: that the best comparisons may be with geographically distant personalist dictatorships in the post-communist states rather than with the often-assumed analogous communist single-party regimes of Cambodia, China, Laos, and Vietnam.
References


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Notes


2 Ibid.


5 These are typically provided by the Seoul-based Bank of Korea. See, for example, Gross Domestic Product Estimates for North Korea in 2014.

6 We choose a calendar year as our unit of analysis to ensure a consistent comparison over time. Inspection visits do not necessarily follow a pattern and could be subject to seasonal as well as non-systematic events. Cutting the sample into intervals shorter than 12 months could result in uneven comparisons across time if, for instance, Kim Jong-un prefers inspection visits in the spring, summer, and fall while avoiding domestic travel in the winter. In future work, we may relax this assumption and analyze shorter time intervals to assess any differences in network size, composition, and dynamics.

7 Inspection visits are referred to as an “inspection”, “on the spot guidance” visits, or “instructions” by the great leader. As such, we use a variety of keyword stems: visit, instruct, inspect, guid.

8 The 88 elites have been identified by NK news as the top party, state, and military officials in the country.
While average ties and network density are often correlated, it is not necessarily the case that a decline in one corresponds to a decline in the other. A network may become sparser while the intensity of ties may increase at the same time.

Here, we use a fixed algorithm to determine each node’s location in the graph based on their connectivity in 2014 and apply the same coordinates for each year.


See footnote 6.

The Daily Mail notes that of the seven men other than Kim Jong-un who had stood alongside Kim Jong-un at his father's funeral in 2011, five had been purged or had disappeared from the public scene by 2015. See Tim McFarlan “Brutally executed, banished or 'disappeared': The grim fate of top North Korean officials purged by Kim Jong-un four years after they were pallbearers at his father's funeral” The Daily Mail May 15 2015, accessed 12 August 2016 from http://www.dailymail.co.uk/news/article-3080427/Brutally-executed-banished-disappeared-grim-fate-North-Korean-officials-purged-Kim-Jong-four-years-acted-pallbearers-father-s-funeral.html#ixzz4GTkTQUZh.

Quoted in Ibid.