Economics of Transition
Economics of Transition
Volume 26(4) 2018, 615–648
DOI: 10.1111/ecot.12167

Economic transition and the rise of alternative institutions

Political connections in Putin's Russia

Natalia Lamberova* and Konstantin Sonin**
*University of California, Los Angeles. E-mail: natalam@ucla.edu
**University of Chicago, Chicago, IL,USA. E-mail: ksonin@uchicago.edu

Abstract

The economic transition from socialism in Russia has not resulted in the emergence of impersonal, rule-based institutions. Instead, the natural demand for institutions that protect property rights has led to the emergence of alternative, inefficient institutions such as that of cronyism – the practice of appointing personal acquaintances of the political leader to key positions. A political leader not constrained by institutions appoints cronies, as competent subordinates are more prone to switching allegiance to a potential challenger. As competence makes a bigger difference in a rule-based environment, such a leader has no interest in any institutional development. In a simple empirical exercise, using a dataset that covers the richest Russians, we find a positive and significant effect of direct connections to the personal circle of President Putin on the wealth of businessmen. The magnitude of the effect varies at different levels of rents available for redistribution and 'network centrality of a businessman': it is higher during the years of high oil prices, but is attenuated by the prominence of the businessman in the network.

Keywords: Alternative institutions, political connections, network analysis.
JEL classification: P20, G28, D02, O17.

Received: September 13, 2017 Acceptance: March 15, 2018

1. Introduction

Economic transition from the planned Soviet economy to a market economy has rightly been called 'the greatest economic experiment ever'. From the start, economists were concerned with the absence of economic institutions that protect property rights, and thus create proper incentives for businessmen, a necessary condition for sustainable development. The main rationale for rapid privatization was the necessity to create political demand for appropriate institutions (Shleifer, 1997).

The results of 25 years of transition show that a significant part of the logic was correct. Privatization did succeed in enhancing productivity (Gelbach *et al.*, 2012) and created some demand for institutions that protect private property (Denisova *et al.*, 2009). As opportunities to make profit are greatly enhanced when property rights are protected, businessmen have been looking for ways to achieve such protection. However, there is a missing element in the theory of the natural emergence of property rights: the political system that transforms political demand into laws and regulations was assumed to be democratic (at least imperfectly, Polishchuk and Savvateev, 2004). In reality, it was often not: today most of the former Soviet Union countries are dictatorships of varying degrees. While the presence of democracy does not guarantee the emergence of good institutions, in a dictatorship, rule-based institutions have had almost no chance to develop beyond a relatively primitive stage. In their place, alternative institutions that provide short-term protection, yet are detrimental to long-term development, have emerged. 'Crony capitalism', a system under which political leaders appoint their personal friends to run ministries and state-controlled companies in return for their political loyalty, has become the norm.

In this paper, we analyze the development of crony capitalism from both a theoretical and empirical perspective. In the short theoretical part, we adopt a simple version of the 'dictators and their viziers' model by Egorov and Sonin (2011) to demonstrate that a leader who is concerned with loyalty, which is endogenous, does appoint personal relations to important business positions. While having a competent professional results in a higher efficiency and, potentially, in higher rents for the leader, the additional rents generated by the professional might also be used to support the opposition and hurt the incumbent. The possibility of a political 'betrayal' prevents the Coasian bargain between the leader and a competent agent. Furthermore, such a leader is not interested in operating through impersonal, rule-based institutions.

In the empirical part of the study, we propose a network-based measure of political connections that can be applied both to different populations (individuals or companies) and different country contexts. Using network statistics, we construct a parameter that measures the political connections of Russian business elite to the 'inner circle' of President Vladimir Putin, and then apply both parametric and nonparametric methods of analysis to assess the value of political connections. (See Treisman, 2016 for an overview of the Russian billionaires' wealth.) There are two main conclusions. First, it appears that political connections have a robust and

significant effect on a person's wealth. Second, political connections appear to be much more valuable at times of resource abundance, as during these periods the gap between the wealth of connected and unconnected individuals widens.

To collect data on political and business elites in Russia, we employ the approach introduced by Lee *et al.* (2010). With media outlets moving online, it is possible to visualize social networks of pre-defined populations using co-occurrence of two people in many personal webpages, Wikipedia, search engines, or other websites. As in Lee *et al.* (2010), we measure social ties as co-occurrence in general web pages, through the news section of the most popular Russian search engine, Yandex. As in Mahdavi (2014), we use keywords to restrict searches to capture only positive and neutral joint mentions and avoid spurious joint mentions (such as wealth comparison of businessmen or their claims against each other in court).

As we are interested in connectedness of businessmen to a member of a particular group of people (the inner circle of President Putin), we extract the network parameter that measures the distance from a businessman to the nearest member of the inner circle and use it as the main explanatory variable. Then, we extract the network parameter that measures the centrality of a businessman in the network and use it as the crucial control. This approach has several advantages. First, this method allows us to detect individual (and not only corporate) political connections. Second, it is more replicable in a cross-country context. Third, it is agnostic of the mechanism of establishing and monetization of political connections, hence one has a higher chance to detect the value of ties that operate through different channels. Fourth, the network measures of centrality provide a natural way to control for the general propensity of the individual to form connections, which is important for analyzing the value of political connections.

While our study is focused on the value of political connections for individuals, most of the existing empirical literature on political connections focuses on the value of political connections at the firm level, with measures of political connectedness varying from study to study. The pioneering work of Fisman (2001) utilized an index compiled by a Jakarta-based economic consulting firm to measure if a company enjoys political connection to the Indonesian dictator Suharto, while Johnson and Mitton (2003) relied on the opinion of experts. Such estimates cannot capture how individuals might profit from political connections in ways that do not generate cash flows for their firms, e.g. by creating special corporate vehicles for public procurement contracts and channeling money to offshore zones. Sobel and Graefe-Anderson (2014) use lobbying efforts of companies to indicate political connections; Akey (2015), Voth and Ferguson (2008), Jayachandran (2006) look at campaign donations. In the Chinese context, firms are assumed to be connected if some of their shareholders hold a high government office (as in Faccio, 2010 and Nee and Opper, 2010), or were appointed by government (as in Cull *et al.*, 2015). In other studies, firms are assumed to be politically connected if their future employees occupy public office (as in Canayaz *et al.*, 2014) or are coming from the same hometown or village as a politician or incumbent (as in Faccio and Parsley, 2009). Acemoglu *et al.*

(2016) provide three measures of a firm's political connections to the former United States Secretary of the Treasury, Timothy Geithner: the number of times Geithner interacted with firm executives while staying in office; the 'relationship maps' created by journalists at muckety.com; and the firm's location (dummy for residing in New York). Eggers and Hainmueller (2014) employ three measures of political connections of US senators to companies and treats them as connected either if a company is headquartered in a member's home district, or provided campaign donations, or if a member performs any oversight of a company through his/her committee assignment.

Research, motivated to some extent by the transition experience, has contributed to the theory of property rights protection and institutional development in general.[1] Murphy, Shleifer, and Vishny (1993) suggested a first model, in which a society might be trapped in a bad equilibrium with poor protection of property rights. (See Acemoglu, 2008, and the subsequent literature for models of 'oligarchic' societies.) In a pioneering model, Polishchuk and Savvateev (2004) demonstrated that it is the rich who might be the main beneficiaries of rent-seeking and thus a source of demand for bad institutions (see also Glaeser *et al.*, 2003 and Hoff and Stiglitz, 2004). In Sonin (2003), the rich invest in private protection of property, e.g. by corrupting bureaucrats responsible for the enforcement, and thus are interested in weak institutions. The theoretical model in this paper belongs to the modern political economy of non-democratic regimes (see Roland, 2000, and Acemoglu and Robinson, 2006, for the foundations, and Gehlbach *et al.*, 2016, for a recent survey).

The rest of this paper is organized as follows. Section 2 discusses the structural foundations of crony capitalism. Section 3 describes our data and approach to the measurement of political connections based on network analysis. Section 4 presents the results of the econometric analysis, and discusses robustness. Section 5 concludes.

2. Theory: Why cronies?

The question of why a leader appoints a crony to an important business position is a not a trivial one. Indeed, appointing a competent professional should result in a higher total rent and, quite plausibly, in a higher total welfare. The leader could then be better off appointing such a professional rather than a crony: it is possible, at least theoretically, to secure a higher payoff both for the agent (naturally, a more qualified agent would require a higher compensation) and for the leader himself. However, the 'political Coase theorem' does not hold in our circumstances. In the rest of the section, we demonstrate that a political leader who is concerned with keeping power appoints, in equilibrium, personal relations to the key position exactly because of their incompetence. To do this, we simplify, to the point of near triviality,

[1] Roland (2000) is an excellent first source on transition economics.

the 'dictators and their viziers' model of endogenous loyalty in a principal-agent relationship (Egorov and Sonin, 2011). Importantly, we do not assume any exogenous loyalty on behalf of the crony: the only difference between the crony and the competent agent is that the latter has a higher ability to distinguish between good and bad circumstances, and, therefore, to collect payments from business.

2.1. Setup

Our strategic interaction is structured as follows. First, the incumbent leader determines the institutional regime, which may be either institutionalized protection of property rights, or the regime in which protection is provided by the leader. If the regime is institution-based, then the incumbent cannot collect any private rents from the business. If the regime is personalistic, the leader appoints a subordinate, who might be either competent or incompetent, to collect bribes from business. Businesses are willing to pay the leader for protection of property rights, but the willingness to pay is uncertain. Specifically, there is a unit continuum of businesses, with each business $i \in [0,1]$ characterized by its profit, $\pi_i = \pi + \varepsilon_i$, in which π is equal to π^H with probability λ ('investment opportunities are present'), and π^L with probability $1 - \lambda$ ('no opportunities'), $\pi^H > \pi^L > 0$, and ε_i is distributed uniformly $[0, \bar{\pi}]$. When deciding how much money to collect from a business for allowing them to operate, the incompetent subordinate, a crony, cannot tell whether or not investment opportunities are present, while the competent subordinate can perfectly discriminate between the two situations.

The incumbent's probability of keeping power, either through re-election in a democracy, or surviving a revolution in a dictatorship, depends positively on the amount of rent collected by him through the agent and, negatively, on the amount of resources at the challenger's disposal. In a personalistic regime, the probability is $p(R^I, R^C) = \frac{R^I + a^I}{R^C + R^I + a^C + a^I}$, where R^I is the amount of rent at the disposal of the incumbent, R^C is the challenger's resources, and a^I, a^C non-negative parameters. Under the institutionalized regime, the probability is $p(0,0)$. The leader maximizes the expected utility, in which he receives V if he stays in power, and 0 otherwise; we assume that the leader is risk-averse.

The subordinate's utility depends on his prospects under the incumbent leader and the challenger.

$$U_S = u_S(I) \times p(R^I, x) + u_S(C) \times (1 - p(R^I, x)) - mx,$$

where $u_S(I)$ and $u_S(C)$ are the subordinate's utilities under the incumbent and the challenger, respectively, x is the amount of money he spends on supporting the challenger, a choice variable for him, and m is the marginal utility of money. The challenger does not have any other resources but that of the subordinate, so $R^C = x$ in any equilibrium.

2.1.1. Timing

1. The leader chooses the regime, either personalistic or rules-based. Under the latter regime, the game proceeds to the pay-off stage, stage 4.
2. If the regime is personalistic, the leader chooses a subordinate, either a competent one or a crony, for a specified amount of rent that the subordinate promises to deliver.
3. The subordinate collects payments for protection from business, pays the leader according to their contract, and decides how to divide the rest of the rent between the incumbent and the challenger.
4. The outcome is realized, and the pay-offs received.

We are interested in subgame-perfect Nash equilibria of the above game.

2.2. *Analysis*

To find a subgame-perfect equilibrium, we will start by focusing on the situation when the incumbent chooses the personalistic regime. The crony is unable to tell whether or not investment opportunities are present. Thus, one option is to focus on the 'worst-case scenario', choosing the bribe to maximize the total revenue that provides full insurance against bad circumstances. That is, to choose:

$$b_U^* = \arg\max_b b\left(1 - \frac{b - \pi^L}{\bar{\pi}}\right),$$

where $1 - \frac{b-\pi^L}{\bar{\pi}}$ is the share of all firms that can afford to pay b for entry if the times are bad. The total amount collected is:

$$R_{Crony}(b_U^*) = \frac{1}{4\bar{\pi}}\left(\pi^L + \bar{\pi}\right)^2.$$

The other option is to maximize the total amount, i.e. to choose:

$$b_M^* = \arg\max_b b\left(\lambda\left(1 - \frac{b - \pi^H}{\bar{\pi}}\right) + (1-\lambda)\left(1 - \frac{b - \pi^L}{\bar{\pi}}\right)\right).$$

If the bribe is set at b_M^*, then the total amount collected is:

$$R_{Crony}(b_M^* | \text{ no opportunities}) = \frac{1}{4\bar{\pi}}\left(\pi^L + \bar{\pi}\right)^2 - \frac{1}{4\bar{\pi}}\left(\lambda\left(\pi^H - \pi^L\right)\right)^2 < R_{Crony}(b_U^*).$$

For a sufficiently risk-averse leader, this is unacceptable: he would prefer full insurance. (Parameters of the utility function, and λ,π^H,π^L affect these preferences in the standard way.) Thus, if the leader is sufficiently risk-averse, the crony's optimal choice is:

$$b^* = b_U^* = \frac{1}{2}\left(\pi^L + \bar{\pi}\right).$$

The competent subordinate can discriminate between the two states of the world. In other words, he is able to collect up to $\frac{1}{4\bar{\pi}}\left(\pi^H + \bar{\pi}\right)^2$ if investment opportunities are present, and up to $\frac{1}{4\bar{\pi}}\left(\pi^L + \bar{\pi}\right)^2$ if not. Thus, the competent subordinate collects higher rents in expectation. However, the main problem is that as the leader himself cannot distinguish whether or not investment opportunities are present, the competent subordinate might tell the leader that the opportunities are bad (and therefore, the rent collected is low), while spending the rent differential on supporting the challenger.

The difference between the crony and the competent agent is in their ability to set up the optimal price of entry for business. At the same time, the very same ability allows the competent agent to betray more effectively, as he, through his competence, has more resources at his disposal. This is the essence of the loyalty vs. competence trade-off: the more competent the subordinate, the more options he has, and, consequently, the more expensive he is for the principal. In our situation, a competent agent might potentially bring higher rents for the leader; however, he also has more resources to contribute to the challenger's cause. In contrast, the crony cannot help the challenger as he does not have any informational advantage over the leader. As for any positive amount of support x available to the challenger, $p(R_{Crony},0) > \lambda p(R_{Crony},x) + (1 - \lambda)p(R_{Crony},0)$, the incumbent leader always prefers a crony.

Now let us consider the incentives of the subordinates. The crony does not have the opportunity to betray as the leader knows, in equilibrium, the amount of rent collected by the crony and specifies this amount in the contract. The competent subordinate betrays the incumbent and supports the challenger by providing the necessary resources. His optimization problem looks as follows:

$$\max_{0 \le x \le R^C} \left\{ u_{Competent}(I) \times \frac{R^I + a^I}{R^I + a^C + a^I} + u_{Competent}(C) \times \frac{x + a^C}{x + a^C + a^I + R^I} - mx \right\},$$

where $R^I = \frac{1}{4\bar{\pi}}(\pi^L + \bar{\pi})^2$ and $R^C = \frac{1}{4\bar{\pi}}(\pi^H + \bar{\pi})^2 - \frac{1}{4\bar{\pi}}(\pi^L + \bar{\pi})^2$. Denote $\Delta u_{Competent} = u_{Competent}(C) - u_{Competent}(I)$. The first-order condition implies, assuming an interior solution, that

$$x^* = \sqrt{\frac{R^I \Delta u_{Competent}}{m}} - R^I. \tag{1}$$

When does the competent subordinate support the challenger, i.e. $x^* > 0$?

$$\Delta u_{Competent} > \frac{m}{4\bar{\pi}}\left(\pi^L + \bar{\pi}\right)^2 \tag{2}$$

Condition (2) is intuitive. The competent subordinate's willingness to betray, i.e. spend money supporting the challenger, depends positively on the difference in the

continuation value under the challenger and the incumbent, respectively, and negatively on the size of rent available to the incumbent, and, naturally, on the marginal value of money for the subordinate. If the value given by (1) exceeds R^C, the maximum amount of rent that the subordinate can spend supporting challenger, then $x^* = R^C$. In this case, intuitively, higher earnings when an investment opportunity is present, π^H, result in a higher willingness of the competent subordinate to betray the incumbent.

The following Proposition 1 summarizes the above discussion.

Proposition 1. *Suppose condition (2) holds. Under the personalistic regime, the following is a unique subgame-perfect Nash equilibrium. The incumbent leader appoints a crony and demands a payment of* $\frac{1}{4\bar{\pi}}(\pi^L + \bar{\pi})^2$ *in return. The crony does not support the challenger; the competent subordinate support for the challenger in good circumstances is given by (1)*

Finally, we can analyze the institutional choice that precedes the choice of an agent. Under the rules-based regime, the leader's probability to keep power is $p(0,0)$. As we saw above, the personalistic regime results in a survival probability of $p(\frac{1}{4\bar{\pi}}(\pi^L + \bar{\pi})^2, 0) > p(0,0)$, which makes the latter option (the personalistic regime and a crony as a subordinate) more attractive. If we assume, naturally, that the institutionalized regime results in a higher expected economic performance and, thus, a higher re-election probability, then the leader has some incentives to choose institutions. However, the basic trade-off remains the same: a personalistic regime, while constrained, in terms of efficiency, by the inability to keep a competent subordinate loyal, might be preferable to the incumbent leader as it allows extraction of private rent, e.g. in the form of more resources that are used to keep the office.

Proposition 2. *Suppose that the competent subordinate prefers the rule of the challenger. Anticipating this, the incumbent leader chooses the personalistic regime and a crony as the subordinate in a unique SPNE described in Proposition 1.*

3. Data and methodology

3.1. Business elite and political connections

The most straightforward way to map personal connections of the Russian leader, Vladimir Putin, is to start with the eight people who established a cooperative of *dacha*[2] owners, called 'Ozero', in the countryside of St. Petersburg. They were

[2] Dacha is a country-house used for recreation. Dacha cooperatives manage the utilities and club goods that are paid for by the members of the cooperative.

Vladimir Smirnov, Nikolay Shamalov, Vladimir Yakunin, Vladimir Putin, Yurij Kovalchuk, Vladimir Myachin, and Sergey and Andrey Fursenko. By 2011, five of them had left the cooperative, but eight new members had joined. Unknown to the public in the 1990s, some 'Ozero' members reached prominence after Vladimir Putin's accession to power.[3] Starting with members of 'Ozero', we append the list with university friends, former colleagues and relatives of Putin, whose biographies and connections to Vladimir Putin were featured in *Novaya Gazeta*, a newspaper famous for its investigative journalism.[4] All of these inner circle members formed their relationships with Vladimir Putin well before his accession to power. Thus, the resulting list is conservative and not exhaustive; omission of inner circle members would bias our results downward. Finally, we treat businessmen as connected to adversaries of Vladimir Putin if they have a connection (of any degree) to Mikhail Khodorkovsky or Boris Berezovsky, two Russian magnates that voiced their opposition to him and ended up in jail and exile, respectively.

We consider all businessmen who appeared in the Russia Forbes' list of 200 wealthiest businessmen at least once during the 2005–2015 period. In total, there are 253 such persons and 1,386 person-year observations. There is a significant variation in the wealth of Russia's richest businessmen: the richest person has US $24.5 billion dollars in his best year, while the least wealthy has US$28 million in his worst year. There also appears to be a significant difference in average wealth of groups with different degrees of connections (see below): while directly connected individuals have US$28 million to US$24.5 billion in wealth, averaging at US$1.35 billion, the wealth of unconnected individuals varies from US$28 million to US$15 billion, with an average of US$94 million. We demonstrate that the distribution of asset holdings in major sectors represented in Forbes list (Finance Sector, Oil Sector, and Financial & Industrial Group) is comparable across groups with different degrees of connections.

3.2. *The network of connections*

To construct a network comprising people on the Forbes list and members of the president's inner circle, we use the following definition. Two people are assumed to be connected if they were jointly mentioned in the News section of the most popular search engine in Russia – Yandex – during the period immediately preceding the

[3] Connections between Vladimir Putin and 'Ozero' members were featured in major news outlets such as Forbes Russia, Bloomberg, Novaya gazeta, etc. See, for example, Sokolova (2011), Reznik (2015).

[4] 'Novaya Gazeta' : 'Thirteen' /Vladimir Putin's Friends, Colleagues, Neighbors, and Acquaintances. Available online at: http://www.justicefornorthcaucasus. com/jfnc_message_boards/abuse_and_crimes.php?entry_id=1295704197.

period that we focus on, 2004–2005.[5] We use a binary measure of connection in order to mitigate the bias that can arise from the different propensities of people to receive media coverage.

Inspection of news stories shows that most joint mentions reflect business partnerships, joint business projects, or attendance of social events.[6] For example, businessmen Andrei Komarov and Alexandr Fedorov are marked as connected because on June 3, 2005, several news outlets stated that they both joined the board of directors of a factory in Chelyabinsk. It is also reassuring that 'Ozero' members are found to be connected. Businessman Yuri Nikolaev is connected to many members of the inner circle list as a co-founder of the bank Rossiya ('Russia') in November 2005. At the same time, some mentions that appear in our database are due to social events. For example, Roman Abramovich is mentioned together with Mikhail Friedman attending the celebration of Hanukkah organized by the Russian Jewish Congress in December 2005.

Figure 1 presents the social network of Forbes and inner circle members as it appeared in news searches in 2004-2005. White nodes are the members of Forbes list, black nodes are the members of the inner circle, star nodes are people who belong to both the inner circle and the Forbes list, and square nodes are two businessmen who were prosecuted under Putin: Khodorkovsky and Berezovsky.

Figure 2, which features a fragment of the network in Figure 1, illustrates our measures of connectedness. In Figure 2, persons 1, 2, and 3 are members of the inner circle. In addition, agent 3 is also a Forbes list member. A, B, C, D and E are Forbes list members. C can reach the closest member of the inner circle in one step; in other words, he has a direct connection. B, on the other hand, needs two steps to reach the closest member of the inner circle. D is not connected at all. For Person 3, the number of steps needed to reach the closest member of the inner circle is 0, since he is a member himself. (Since there are only four such people in our network, we only keep them as treatment nodes.) Note that were agents A and E connected, A's closest path to the member of the inner circle would go through E, so that he would be able to reach the connection in two steps, rather than in three, and only this connection would be recorded.

Of course, the extent of one's connectedness can reflect some personal characteristic of a businessman. For example, he can attend various social meetings and be more likely to have connections with everyone, not just the members of the inner circle. This makes it hard to distinguish the role of connections to the former from the positive effect of having connections with other Forbes members. To account for the general connectedness of a person, we use the Eigenvalue Centrality (EVC) measure, which takes into the account the 'importance' of his connections - the person that

[5] We constructed a special list of stop-words, so that the articles with the mention of those do not appear in the results in order to avoid negative (such as conflicts) or spurious (such as wealth comparisons) joint mentions.

[6] The web scraping code is available upon request.

Figure 1. Structure of connections between Businessmen and Ozero members, 2004-2005 [Colour figure can be viewed at wileyonlinelibrary.com]

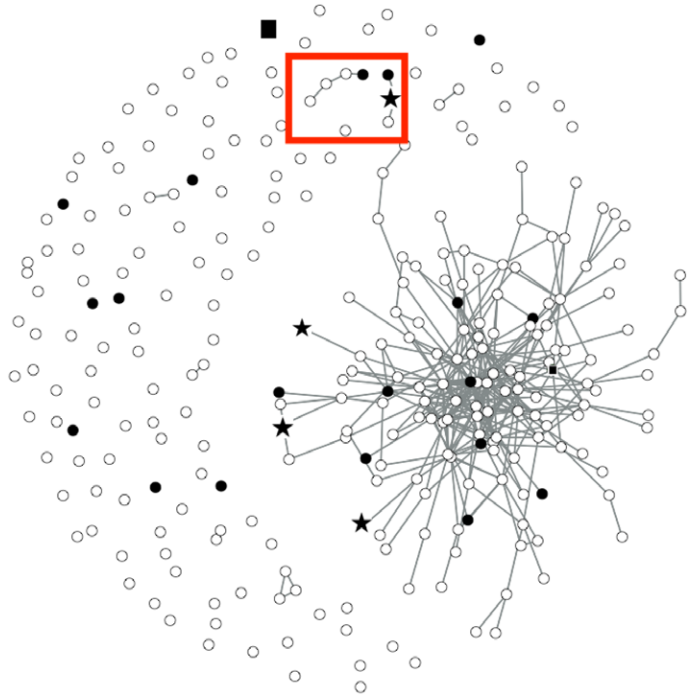
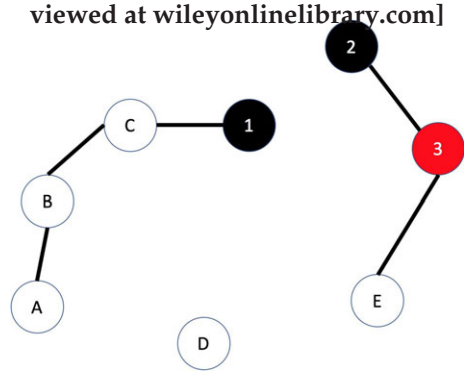


Figure 2. Example of network distances and connections [Colour figure can be viewed at wileyonlinelibrary.com]



has influential friends becomes more influential himself, for our analysis. Formally, it is the sum of the centralities of its neighbours, $C_D(n_i) = \frac{1}{\lambda}\sum_1^g x_{ij}C_D(n_j)$, attenuated by a scaling constant. This is the best one-dimensional approximation to structure of

the sociomatrix, and it provides the core-periphery measure. (Using alternative measures of centrality does not affect the results.)

There is a concern that the members of the inner circle are more likely to forge connections with businessmen who tend to be wealthier. One might suggest that this is due to network homophily, or to selection of connections on the basis of their wealth. As most members of the inner circle are not wealthy enough to enter the Forbes list, the homophily effect on wealth is unlikely. The selection hypothesis poses a greater threat to the analysis. Note, however, that the Forbes members are the 253 wealthiest businessmen in Russia, and even the least wealthy of them hold very large wealth and important assets.

3.3. *A glance at the raw data*

First, we check whether the raw data confirm the hypothesis that better-connected individuals have greater wealth. Figure 3 demonstrates that the distribution of wealth of connected individuals lies to the right of such distribution for unconnected individuals.

Next, we check whether or not connected businessmen are comparable to others in their likelihood to appear in each year's Forbes list. Here, the dependent variable takes the value of 1 if the wealth of the businessman is observed in a given year (i.e. he is listed among the top-200 richest Russian businessmen), and 0 otherwise. We use both Logit and OLS specifications to check if any degree of connectedness is associated with higher probability to observe the wealth of a businessman. The unit

Figure 3. Distributions of wealth of directly connected and unconnected individuals [Colour figure can be viewed at wileyonlinelibrary.com]

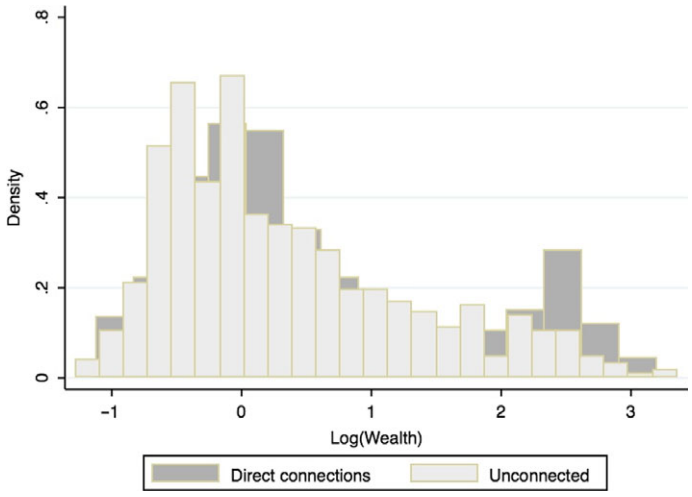


Table 1. Probability of observing wealth

	OLS	OLS	Logit	Logit
Main				
Members of inner circle	0.47***	0.44***		
	(0.030)	(0.032)		
Direct connection	−0.041	−0.033	−0.18	−0.16
	(0.068)	(0.066)	(0.29)	(0.28)
1 intermediary	−0.046	−0.037	−0.19	−0.17
	(0.055)	(0.053)	(0.22)	(0.22)
2 intermediaries	−0.015	−0.012	−0.061	−0.053
	(0.064)	(0.061)	(0.26)	(0.25)
3 intermediaries	−0.0062	0.066	−0.025	0.36
	(0.18)	(0.090)	(0.70)	(0.37)
EVC	0.25	0.30	1.19	1.55
	(0.40)	(0.37)	(1.92)	(1.85)
Sector dummies	No	Yes	No	Yes
Observations	3,036	3,036	2,827	2,,827

***Notes*:** Standard errors in parentheses; *$P < 0.15$, **$P < 0.05$, ***$P < 0.01$.

of analysis is person-year, and the errors are clustered at the level of individual. Table 1 suggests that, apart from the four members of the Forbes list who also belong to the inner circle, there is no effect of connection on the probability of observing businessmens' wealth. These four businessmen only enter the analysis as treatment nodes, and not as observations.

To examine the relationship between different extents of connectedness and industrial specialization of businessmen, we look at three major clusters of sectors presented in the Forbes list: the oil sector, finance, and industrial and finance groups.[7] This is a highly path-dependent parameter, so it can be regarded as pre-treatment even for cases where we observe wealth after looking at connections. Creating respective dummies if the businessman entered the Forbes list with major holdings in one of these sectors, we see in Figure 4 that businessmen with three intermediaries are disproportionally concentrated in industrial and finance groups. This can account for the result that such people are on average less wealthy than non-connected individuals. The distribution of specializations is comparable between other groups.

[7] The number of sectors presented in the Forbes list is 16, but many sectors occur in the list for only one or two businessmen.

Figure 4. Asset holdings at different degrees of connection [Colour figure can be viewed at wileyonlinelibrary.com]

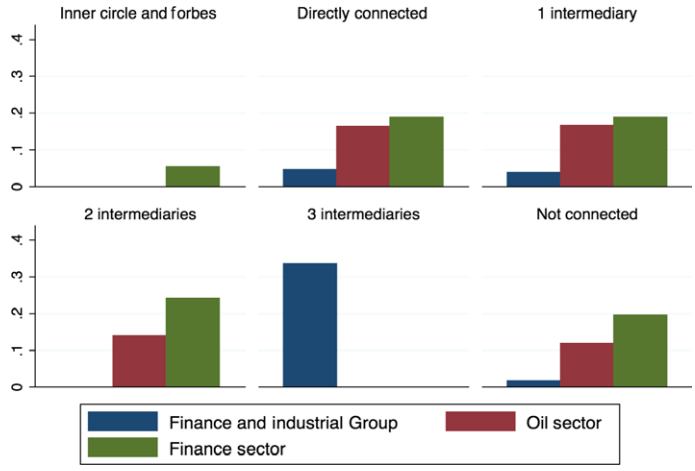
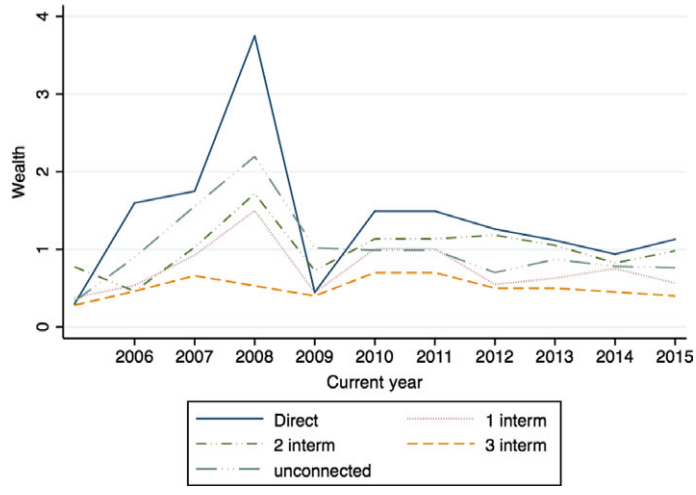


Figure 5. Comparison of average wealth by different levels of connection [Colour figure can be viewed at wileyonlinelibrary.com]



Let us now look at the changes in average wealth of businessmen with different measures of connections as presented in Figure 5. One can see that the directly connected individuals enjoyed rapid growth of wealth in the 2005–2008 period when the Russian economy experienced a boom, while the crisis of 2008–

2009 affected them the most. As the economy recovers from the boom and bust of this period, the gap in wealth patterns of directly connected individuals and unconnected ones closes, and the average wealth of the two groups starts to move in parallel.

In sum, the preliminary analysis suggests no systematic relationship between the observability of a businessman's wealth and his connections, and also the industry specialization and his connection. Also, the raw data suggest that there is a systematic difference in wealth levels of directly connected and unconnected individuals, and that it changes at different levels of availability of rents.

4. Evidence: Do connections pay off?

Table 2 presents the results of the baseline OLS model. The relationship between wealth and connection to the members of the inner circle is presented in comparison to non-connected individuals. Here we see that it is positive for all degrees of connection to the inner circle, and significant for all cases except three intermediaries. We control for eigenvalue centrality, but find that it has no significant effect on wealth, which is counterintuitive. As we cannot observe a businessman's wealth before his appearance in Forbes, we use the presence of a businessman in Forbes in 2005 as a proxy for prior wealth to indicate the 'older' (if not 'old') money. The model is robust to measuring starting wealth as the wealth at their first mention in Forbes. Similarly, we only observe wealth of the individual if he enters the Forbes list in a given year. We show the results of truncated regression, with truncation value being set for each year to equal the wealth of the 200th person in the Forbes list that year in Table A1 of the Appendix, and the results of the baseline model survive.

The magnitude of the result is quite large: moving an individual from an unconnected to a directly connected state increases his wealth by 215%. The move from unconnected to connected with one intermediary raises wealth by 169%, and moving him from unconnected to connected with three intermediaries increases his wealth by 188%. This model has a reasonable fit, as shown in residuals-versus-fitted values plot and fitted-versus-actual values plot in the Appendix. Table 2 presents the effect of length of connection only among connected businessmen. It shows that a greater distance to the member of the inner circle is associated with a lower wealth.

Once the existence of a positive relationship between connectedness and future wealth of businessmen was established in several models, we investigated whether or not the effect of connectedness changes at different levels of rents available for redistribution. The latter are proxied by positive shocks to oil prices, as oil revenues constitute a major share of the Russian budget and are largely exogenous (Table 3). The hypothesis is that connections to the inner circle are especially valuable in years when higher rents are available for redistribution. In our baseline specification, we

Table 2. Baseline OLS results

	Log(Wealth) OLS
Direct connection	1.15
	(0.22)
1 intermediary	0.99
	(0.29)
2 intermediaries	1.06
	(0.30)
3 intermediaries	0.18
	(0.53)
EVC	1.98
	(1.51)
Present in Forbes 2005	0.79
	(0.11)
Connected to Foes	−1.17
	(0.25)
Oil Rents	0.0065
	(0.00077)
Year	41.7
	(9.89)
$Year^2$	−0.010
	(0.0025)
Oil sector assets	0.24
	(0.19)
Financial sector assets	0.38***
	(0.14)
Financial and industrial group assets	0.33
	(0.39)
Adjusted R-squared	0.29
Observations	1,386

Notes: Standard errors in parentheses; *$p < 0.15$, **$p < 0.05$, ***$p < 0.01$.

treat oil prices that are above the five-year moving average by at least 10% as positive oil shocks.[8] Adding usual controls and looking at the untruncated OLS version does not change our results. However, the results of the baseline specification

[8] The results with 10-year moving average and 5% deviation are similar and are available upon request.

Table 3. Differential effects of oil shocks on Log(Wealth)

	Log(Wealth)	Log(Wealth)
Oil shock*Direct connection	0.093*	0.083**
	(0.050)	(0.041)
Oil shock*1 Intermediary	0.047	0.045*
	(0.041)	(0.030)
Oil shock*2 Intermediaries	−0.029	−0.0086
	(0.039)	(0.027)
Oil shock*3 Intermediaries	−0.034	−0.035*
	(0.034)	(0.021)
Direct connection	0.054	0.017
	(0.045)	(0.023)
1 Intermediary	−0.00073	−0.022*
	(0.037)	(0.015)
2 Intermediaries	0.038	−0.0038
	(0.034)	(0.015)
3 Intermediaries	−0.21**	−0.096*
	(0.10)	(0.058)
EVC	−0.055	−0.15
	(0.39)	(0.17)
Oil shock	0.25***	0.12***
	(0.019)	(0.019)
Present in Forbes 2005	0.23***	0.077***
	(0.031)	(0.019)
Year		−0.074***
		(0.0052)
Sector dummy	No	Yes
lnsigma		
year	−0.13***	−0.25***
	(0.014)	(0.016)
Observations	1,388	1,388

***Notes*:** Standard errors in parentheses; *$P < 0.15$, **$P < 0.05$, ***$P < 0.01$.

change: only direct connections appear to be positively associated with wealth, and only during positive oil shocks.

But are directly connected individuals in a better position to handle economic downturns? In other words, 'are the friends indeed friends in need'? Table A2 of the Appendix suggests that there is no such effect. This is consistent with the view that

the redistribution to connected businessmen is constrained by the economic situation and rents available for the incumbent. This finding contradicts the popular view that Putin 'compensates' connected businessmen that suffer loss due to bad economic conditions. Thus, it appears that connections are more valuable in periods where the incumbent is less constrained in rents.

Finally, we check if a connection to adversaries of Vladimir Putin has any effect on individual wealth. Specification 1 of Table A3 in the Appendix shows a significant negative relationship. However, this effect is attenuated at higher levels of eigenvector centrality. Connections to foes are also instructive as a placebo measure for connections to the inner circle. One might argue that the individuals that are more connected in general are both more likely to have direct connections to the members of the inner circle, and reap the benefits of exogenous economic growth as well. However, this argument should apply to the propensity of businessmen to be connected to the adversaries of Vladimir Putin as well. Since the latter have no power to distribute the benefits that accrue in the years of high oil prices, they can serve as a placebo to test whether the additional wealth is associated with the access to oil rents. The results of the model in specification 2 of Table A3 are in line with this hypothesis.

4.1. The KLRS approach

In this subsection, we explore the nonlinearities in the effects of political connections. Namely, we investigate whether or not the effect of connections changes at different levels of oil rents and centrality of a businessman in a more flexible manner. While OLS and truncated regression support our hypotheses, there exists a serious danger of misspecification bias. All model specifications discussed thus far put strong assumptions on the model that are unlikely to hold. For instance, the OLS model assumes that the marginal effect of variables remains the same at all levels. Similarly, logistic regression assumes that log-odds remain constant across different levels of other variables. These assumptions are consequential for this study, since its setup assumes that the effects of political connections may vary at different levels of oil rents, centrality of the businessman, etc. This problem can be partially solved in an OLS or ML setup by including interaction terms in the model. However, making arbitrary decisions about the number and nature of terms to include in the explicit basis exposition of X creates a risk of model misspecification.

In order to avoid misspecification problems and to achieve a better interpretability of the results, we utilize the Kernel Regularized Least Squares (KRLS) model introduced in Hainmueller and Hazlett (2013). This approach leverages similarity between observations, so that the closer X_i is to X_j, the more weight X_j has on predicting the objective function. It uses a flexible hypothesis space that includes infinitely many higher-order terms and interactions in the model. However, such flexibility would lead to dramatic overfitting without a penalty on the complexity of

the model. This penalty parameter is set by Leave-One-Out cross-validation, with no discretion on my part.[9]

The flexibility of KRLS will reduce the bias that can arise from misspecification, but at the cost of increased variance due to the usual bias-variance trade-off. However, the regularization imposes a high penalty on complex, high-frequency functions, effectively reducing the space of functions and ensuring that small variations in the data do not lead to large variations in the fitted function.

While KRLS helps to address the misspecification bias, it does not protect from the omitted variable bias. Since the political connections are not randomly assigned to individuals, it is still possible that unobserved confounders are responsible for the observed correlations between individual wealth and connections to the inner circle. Another important point to note here is that for now, KRLS does not allow clustering of standard errors, while it is natural to assume that observations of wealth of a particular businessman would not be independent over time.

KRLS does not express the best-fitting CEF in easily-understood (e.g. linear) functions of X. Instead, it creates a dataset of marginal effects of all variables at all values of other variables. Hence, it provides a picture of the distribution of pointwise marginal effects. In what follows, we utilize this fact to explore the nonlinearities of effects of political connections.

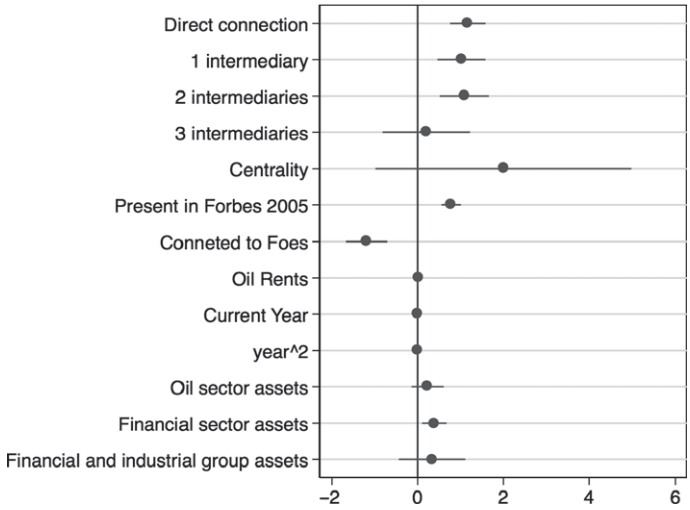
Figure 6a presents the results for the baseline OLS specification with standard errors clustered at the individual level. This is the basic specification with no interactions that is comparable to the one used in the KRLS model. The dependent variable here is log of individual wealth in billions of dollars, and the effects of connections to the members of the inner circle are presented in comparison to individuals with no such connections. These results suggest that connected individuals of any degree of connection are on average wealthier than unconnected ones. However, this approach does not provide any intuition about the sources of this advantage. Because this specification assumes constant effects of one variable at all levels of other variables, one has to specify interaction terms in order to see that the value of political connections is channeled through directly connected individuals, as was shown in Table 3.

The statistic presented in KRLS results is average marginal effects of parameters. Once we employ the KRLS model that allows interactions and higher order terms, we find that only direct connections to the inner circle members of Vladimir Putin are systematically related to higher wealth in later periods, as shown in Figure 6b. This is similar to OLS and truncated regression models with interactions. However, this result was generated without modelling decisions about the structure of interactions and

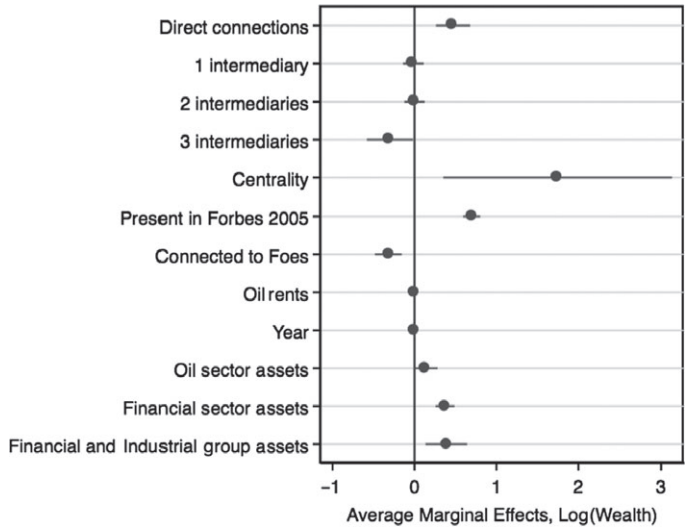
[9] The model employs Gaussian kernel $k(x_j, x_i) = e^{\frac{\|x_j - x_i\|^2}{\sigma^2}}$ and the target function that is approximated by $f(x) = \sum_{i=1}^{n} c_i k(x, x_i)$, where c_i is the weight of each pattern.

The method leads to overfitting, so the additional constraints embedded in it are the preference for functions that minimize squared loss and for smoother functions. The former ensures that the resulting function has a clear interpretation as a conditional expectation function, while the latter chooses smoother functions over more complicated ones all else being equal.

Figure 6. Comparison of OLS and KRLS results. (a) OLS Results, Log(Wealth) (b) KRLS Results, Log(Wealth)



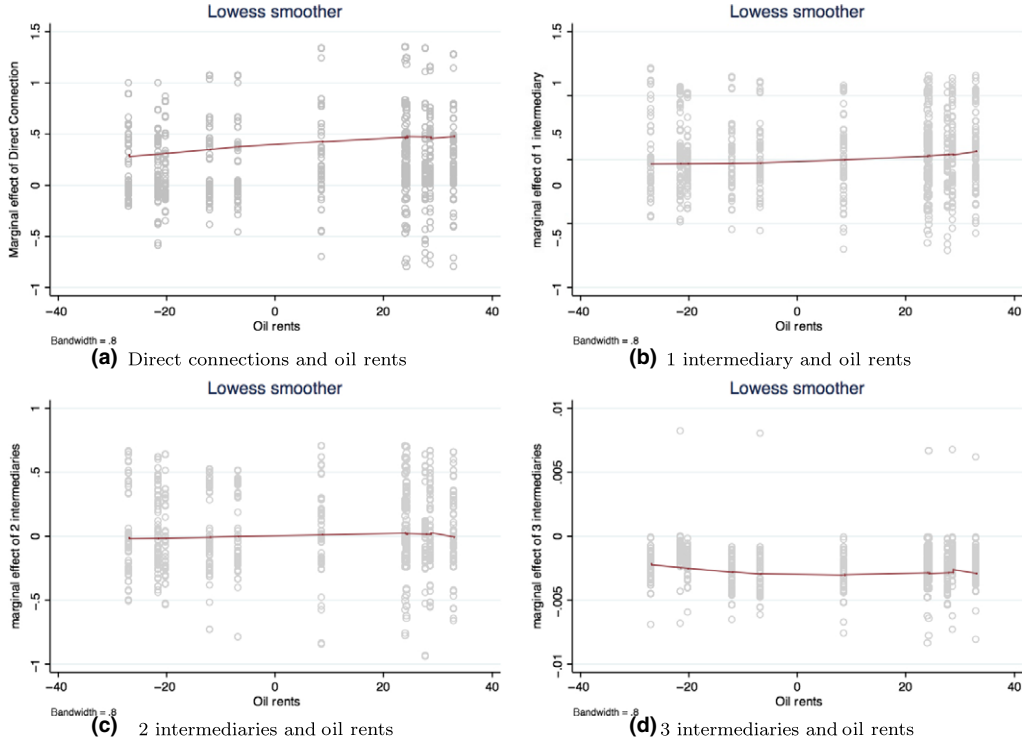
(a) OLS Results, Log(Wealth)



(b) KRLS Results, Log(Wealth)

higher order terms on our part. KRLS provides a different interpretation to the baseline model. Moreover, it recovers a positive and significant effect of network centrality of a businessman on wealth, which we expected but failed to find in the OLS model.

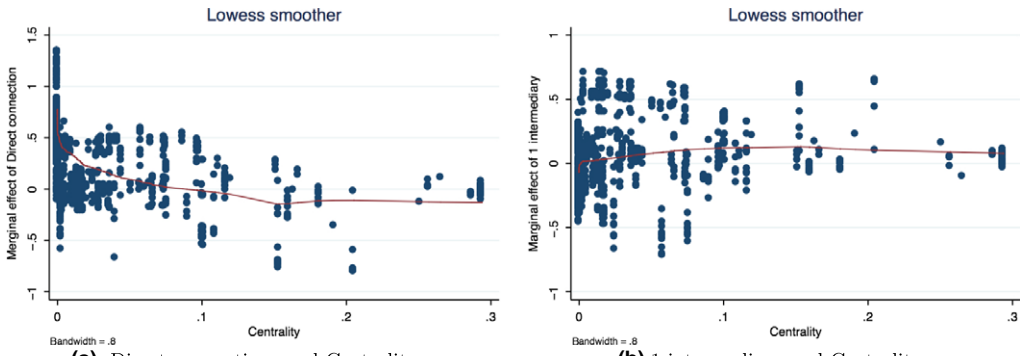
Figure 7. Marginal effects of connections at oil rents (a) Direct connections and Oil Rents (b) 1 intermediary and Oil Rents (c) 2 intermediaries and Oil Rents (d) 3 intermediaries and Oil Rents [Colour figure can be viewed at wileyonlinelibrary.com]



Since KRLS estimates marginal effects of each predictor at different levels of other variables, it provides more intuition for the researcher. Let us look at the marginal effects of different degrees of connections at all levels of oil rents. Figure 7a suggests that direct connections to the inner circle are more valuable at higher values of oil rents. The marginal effect of connections at the highest levels of oil rents is roughly twice as large as the effect at the lowest levels of oil rents. Furthermore, the dependency on the effect connected to oil rents exists only for the directly connected individuals.

The other important correlate of wealth is the overall centrality of the businessman in the network. This result is intuitive, as it suggests that more contacts with fellow Forbes members and central businessmen are associated with greater wealth. However, the more connections a businessmen has, the more likely it is that he became connected to the member of the inner circle by chance, and is therefore less likely to reap higher rents from such a connection. Figure 8a supports this view - the

Figure 8. Marginal effects of connections and Centrality (a) Direct connections and Centrality (b) 1 intermediary and Centrality [Colour figure can be viewed at wileyonlinelibrary.com]



(a) Direct connections and Centrality **(b)** 1 intermediary and Centrality

marginal effect of direct connections on wealth is much higher at lower levels of centrality. That is, the more connections a businessmen has to other businessmen, the less value he reaps from the direct connection to members of the inner circle. As suggested before, indirect connections to the members of the inner circle are not associated with greater wealth of the businessman. Thus, we do not expect to see any relationship between these types of connections and centrality. Figure 8b is in line with this view.[10]

So far we have explored the relationship between wealth and different degrees of connections to the members of the inner circle. The results suggest that direct connections are associated with a greater wealth, and that this effect grows with higher oil rents, but falls with greater centrality of the businessman in the network. These relationships are present only for directly connected individuals, and do not hold for indirect connections.

The models presented in Figures 2 and 3 suggest that the connections to adversaries of Vladimir Putin are associated with lower levels of wealth. Figure 9 shows that this negative effect is attenuated at higher levels of centrality. As before, one can argue that more central individuals can become connected to the adversaries of Vladimir Putin by chance, and not because of robust business and social ties to them. In fact, individuals at the highest levels of centrality have no adverse effect of connections to adversaries of Vladimir Putin.

Furthermore, there are no changes in the effect of connections to 'wrong' people at different levels of oil rents, as shown in Figure 10. The marginal effect of such connections is negative and uniform across all levels of oil rents. Figure 11 presents an

[10] Connections with 2 and 3 intermediaries also display no change in marginal effects at different levels of centrality

Figure 9. Marginal effect of connection to Foes and Centrality [Colour figure can be viewed at wileyonlinelibrary.com]

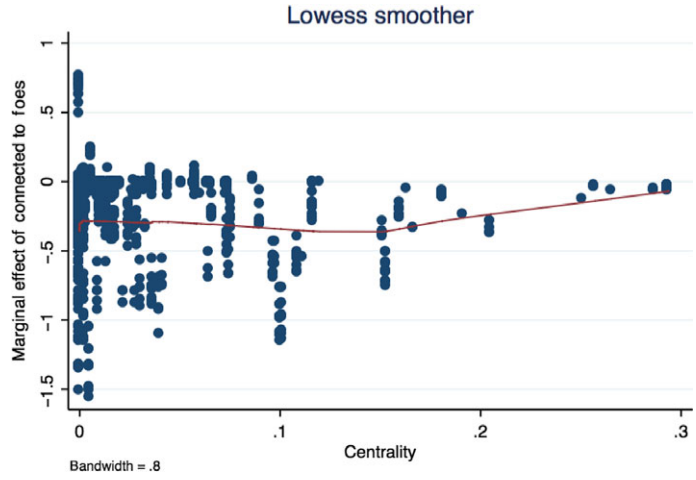
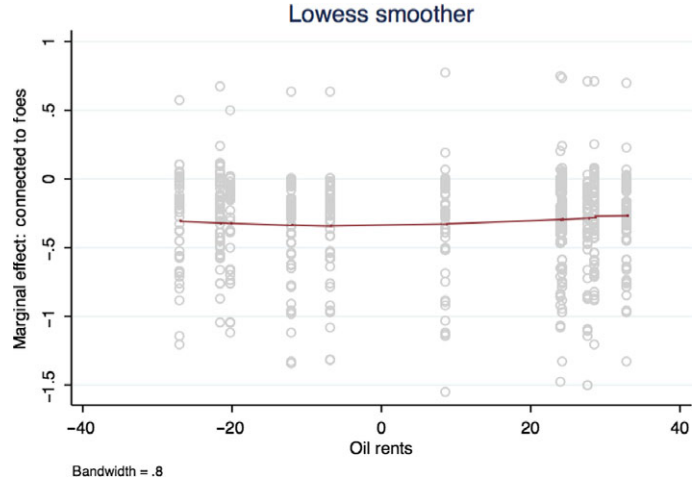
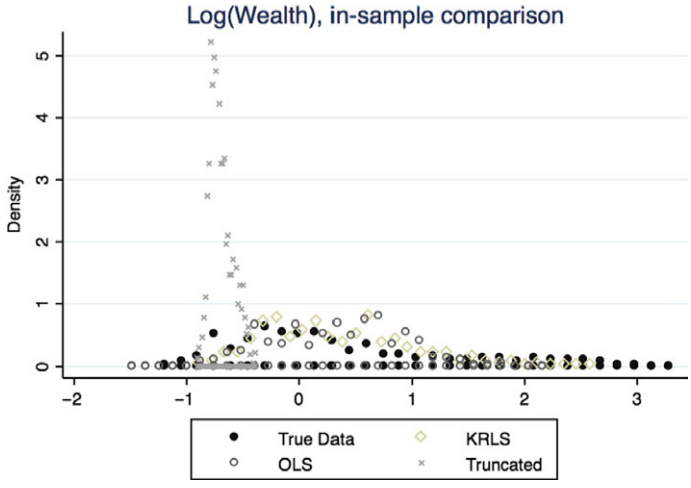


Figure 10. Marginal effects of connections to Foes and Oil Rents [Colour figure can be viewed at wileyonlinelibrary.com]



in-sample comparison of the fitted values from different models with the actual data. Without this, we are unable to evaluate the performance of the models out of sample. At its highest levels, the effect of direct connections is twice as strong as at its lower levels. Similarly, the effect of direct connections is not constant across

Figure 11. Model comparison [Colour figure can be viewed at wileyonlinelibrary.com]



different levels of centrality: higher centrality attenuates the effect of connection. For businessmen that are connected to adversaries of Vladimir Putin, centrality mitigates the negative relationship between such connections and wealth. Thus, most of the results of KRLS model are consistent with the OLS results and results of truncated regressions. One might worry that the KRLS model overfits the data (indeed, its adjusted R-squared is 0.55, while baseline OLS has adjusted R-squared is 0.29). However, the in-sample comparison of models does not indicate substantial overfitting.

Overall, the analysis suggests that there are significant nonlinearities of the effects of connections. It is not true that the effect of connections is constant at different levels of other predictors. On the contrary, we see that directly connected individuals have twice as high an advantage over unconnected ones in years of high oil rents. This is not consistent with the view that the incumbent supports his inner circle during 'lean' years. In fact, we see that the gap between connected and unconnected individuals is lower during these periods. Another important result is that direct connections to the incumbent are more valuable for less central individuals. In contrast, the effect of negative connections is attenuated at higher levels of centrality.

4.2. Robustness

While the results presented above are fairly robust to different model specifications, inclusion of different controls, and use of different measures of parameters, several

important concerns remain. First, there is a possibility of measurement error in the main explanatory variable; this can take the form of a failure to detect and include in the network some important members of the inner circle and mismeasurement of connections within the existing network. While we have no tools to address the former issue, such an error would bias our results downward, since some of the observations that are currently regarded as untreated would in fact be treated. Then, we try to mitigate the mismeasurement concern by using the binary (and not the count) measure of connections. This mitigates some (but not all) bias that can come from the different propensity of businessmen to receive media coverage. Spurious mentions can pose another threat to the validity of this study. In order to avoid such joint mentions as wealth comparisons or mentions related to conflict, we utilize a list of stop words (available upon request), and use connections to members of the inner circle rather than to Vladimir Putin directly in order to avoid mentions that are due to protocol meetings or current policy.

Another important concern is endogeneity. One form of this is homophily, i.e. the propensity of individuals to form ties on basis of their similarity. However, the members of the inner circle (treatment nodes) do not usually have enough wealth to enter the Forbes list, so homophily on the basis of wealth is unlikely to occur. Moreover, the universe of interest here is such that all its members are by definition at the highest level of wealth in Russia, so it is natural to assume that they are similarly unconstrained in their investment opportunities. Note next, that despite the fact some of the inner circle members rose to occupy prominent positions in government or in government corporations, they did not do so in the period that we detect connections. Thus, in contrast to looking at lobbying efforts and campaign contributions of companies, or their geographic affiliations with politicians, we look at connections to people who in this period of time are prominent mainly because of their personal connections with Vladimir Putin.

Still, cronyism ties can form endogenously. For instance, businessmen might invest in forming connections if such connections are valuable as a protection. To argue that the value of connections was not fully endogenized by the businessmen, we measure connections in 2004–2005, i.e. during a period that is still close to the peak of pro-business reforms and liberalization, when most economic decisions were made by technocratic government and the value of connections to the members of Vladimir Putin's inner circle was not as evident as later. Thus, these early connections do not reflect the value of connections as perceived by the businessmen in the periods we conduct our analysis. This view is consistent with the fact that many more businessmen acquired a similarly defined connection to the members of the inner circle of Vladimir Putin in later periods, as illustrated by 2008–2009 and 2014–2015 networks, as will be discussed later. There, we observe that the inner circle members are more central to the network in general, and fewer of them remain isolated. Moreover, the source of variation in the amount of rents discussed in this study, oil prices, were at less than half of their value in 2004 compared to 2008, so businessmen did not anticipate the full scale of possible benefits from connectedness.

Another important issue is balance. Are connected and unconnected individuals comparable on other characteristics apart from their connections? For the wealthiest businessmen, each of them has appeared in the Russian list of 200 wealthiest people at least once in the 2000s, one might argue that at this level of wealth we are looking, simultaneously, at people at the highest level of entrepreneurial ability, all of whom are unconstrained in their investment opportunities and instruments. Next, we check whether or not connectedness can predict the propensity of businessmen to appear in the Forbes list in a given year, and find no evidence of its significance. Furthermore, we investigate whether or not the difference in outcomes derives from the difference in the distribution of asset holdings of businessmen with different degrees of connections and find no evidence of that either.

Even so, the results of this study should be interpreted with caution: the detected connections can still be endogenous. Moreover, some important controls can only be observed at the post-treatment stage (such as initial wealth of a businessman), and the proxies we use might be too crude to solve the problem (such as presence in Forbes list 2005). However, the use of exogenous variation in rents available to the incumbent for redistribution appears to corroborate the hypothesis that political connections bring wealth. That is, the systematic difference in wealth that occurs at different levels of connectedness is suggestive evidence of the positive value of political connections in Russia.

5. Conclusion

In this paper, we discuss the emergence of 'crony capitalism', an alternative set of economic institutions that emerged in the formerly planned economies during transition. In the theoretical part, we present a simple model which demonstrates that a leader who has an opportunity to appoint a crony to a position of control is not interested in the development of rules-based institutions. In the absence of such institutions, businesses receive protection from personal acquaintances of the leader. In the empirical part, we propose a new method of measuring political connections that can be applied to individuals and can be replicated in different country-specific contexts. The measure is based on constructing a social network from joint mentions of people on the Internet and reflects the presence of connections regardless of their origin, be it a business relationship or simultaneously being present at a social event. Using a dataset on wealth and connections of the Russian business elite, we find a positive and significant relationship between direct connections to the inner circle of the incumbent leader and the wealth of businessmen. Using both parametric and non-parametric approaches, we find that the magnitude of the effect varies at different levels of rents available for redistribution and overall centrality of businessmen.

References

Acemoglu, D. (2008). 'Oligarchic versus democratic societies', *Journal of the European Economic Association*, 6(1), pp. 1–44.

Acemoglu, D. and Robinson, J. A. (2006). *Economic Origins of Dictatorship and Democracy*, Cambridge University Press: Cambridge, UK.

Acemoglu, D., Johnson, S., Kermani, A., Kwak, J. and Mitton, T. (2016). 'The value of connections in turbulent times: Evidence from the United States', *Journal of Financial Economics*, 121(2), pp. 368–391.

Akey, P. (2015). 'Valuing changes in political networks: Evidence from campaign contributions to close congressional elections', *Review of Financial Studies* 28(11), pp. 3188–3223.

Canayaz, M. I., Martinez, J. V. and Ozsoylev, H. N. (2014). 'Is the revolving door of Washington a back door to excess corporate returns?' *Working Paper*, Oxford University.

Cull, R., Li, W., Sun, B. and Xu, L. C. (2015). 'Government connections and financial constraints: Evidence from a large representative sample of Chinese firms', *Journal of Corporate Finance*, 32(0), pp. 271–294.

Denisova, I., Eller, M., Frye, T. and Zhuravskaya, E. (2009). 'Who wants to revise privatization? The complementarity of market skills and institutions', *American Political Science Review*, 103, pp. 284–304.

Eggers, A. and Hainmueller, J. (2014). 'Political capital: Corporate connections and stock investments in the US congress, 2004-2008'. *Quarterly Journal of Political Science*, 9(2), pp. 169–202.

Egorov, G. and Sonin, K. (2011). 'Dictators and their viziers: Endogenizing the loyalty-competence trade-off', *Journal of the European Economic Association*, 9(5), pp. 903–930.

Faccio, M. (2010). 'Differences between politically connected and nonconnected firms: A cross-country analysis', *Financial Management*, 39(3), pp. 905–928.

Faccio, M. and Parsley, D. C. (2009). 'Sudden deaths: Taking stock of geographic ties', *Journal of Financial and Quantitative Analysis*, 44(3), pp. 683.

Fisman, R. (2001). 'Estimating the value of political connections', *American Economic Review*, 91(4), pp. 1095–1102.

Gelbach, S. G., Earle, J.S. and Brown, J.D. (2013). 'Privatization'. In S. Weber and M. V. Alexeev (eds.) *The Oxford Handbook of the Russian Economy* (Oxford University Press: Oxford), pp. 161–189.

Gehlbach, S., Sonin, K. and Svolik, M. W. (2016). 'Formal models of nondemocratic politics', *Annual Review of Political Science*, 19, pp. 565–584.

Glaeser, E., Scheinkman, J. and Shleifer, A. (2003). 'The injustice of inequality', *Journal of Monetary Economics*, 50(1), pp. 199–222.

Hainmueller, J. and Hazlett, C. (2013). 'Kernel regularized least squares: Reducing misspeciligfiligcation bias with a flexible and interpretable machine learning approach', *Political Analysis*, 22, pp. 143–168.

Hoff, K. and Stiglitz, J. E. (2004). 'After the big bang? Obstacles to the emergence of the rule of law in post-communist societies', *The American Economic Review*, 94(3), pp. 753–763.

Jayachandran, S. (2006). 'The Jeffords effect', *Journal of Law and Economics*, 49, pp. 397–425.

Johnson, S. and Mitton, T. (2003). 'Cronyism and capital controls: Evidence from Malaysia', *Journal of Financial Economics*, 67(2), pp. 351–382.

Lee, S. H., Kim, P.-J., Ahn, Y.-Y. and Jeong, H. (2010).' Googling social interactions: Web search engine based social network construction', *PloS one*, 5(7), pp. e11233.
Mahdavi, P. (2014). 'Google correlations: New approaches to collecting data for statistical network analysis'. APSA 2014 Annual Meeting Paper. Available online at: https://ssrn.com/abstract=2451756.
Murphy, K., Shleifer, A. and Vishny, R. (1993). 'Why Is rent-seeking so costly to growth?', *The American Economic Review*, 83(2), pp. 409–414. . Available online at: http://www.jstor.org/stable/2117699
Nee, V. and Opper, S. (2010). 'Political capital in a market economy', *Social Forces*, 88(5), pp. 2105–2132.
Polishchuk, L. and Savvateev, A. (2004). 'Spontaneous (non)-emergence of property rights', *Economics of Transition*, 12(1), pp. 103–127.
Reznik, I, Pismennaya, E and Arkhipov, I (2015). 'Putin's Dancing Daughter Said to Run Fund Backed by Dad's Allies', Bloomberg.com, 30 January. Available online at: http://www.bloomberg.com/news/articles/2015-01-30/putin-s-dancing- daughter-said-to-run-fund-backed-by-dad-s-allies#news/articles/2015-01- 30/putin-s-dancing-daughter-said-to-runfund-backed-by-dad-s-allies; http://www.novayagazeta.ru/politics/49409.html
Roland, G. (2000). *Transition and Economics: Politics, Markets and Firms*. (Cambridge, MA: MIT Press)
Shleifer, A. (1997). 'Government in transition', *European Economic Review*, 41(3), pp. 385–410.
Sobel, R. S. and Graefe-Anderson, R. G. (2014). 'The relationship between political connections and the financial performance of industries and firms'. Working Paper 14–18. Arlington, VA: Mercatus Center, George Mason University.
Sokolova, A. (2011). Кто Занял Место Путина? [Who took Putin's place?], Forbes Russia, January. Available online at: http://www.forbes.ru/ekonomika/vlast/61859-kto-zanyal-mesto-putina
Sonin, K. (2003). 'Why the rich may favor poor protection of property rights', *Journal of Comparative Economics*, 31(4), pp. 715–731.
Treisman, D. (2016). 'Russia's billionaires', *American Economic Review*, 106(5), pp. 236–41.
Voth, H.-J. and Ferguson, T. (2008). 'Betting on Hitler : The value of political connections in Nazi Germany', *Quarterly Journal of Economics*, 123(1), pp. 101–137.

Appendix

Figure A1. Social network 2008–2009 [Colour figure can be viewed at wileyonlinelibrary.com]

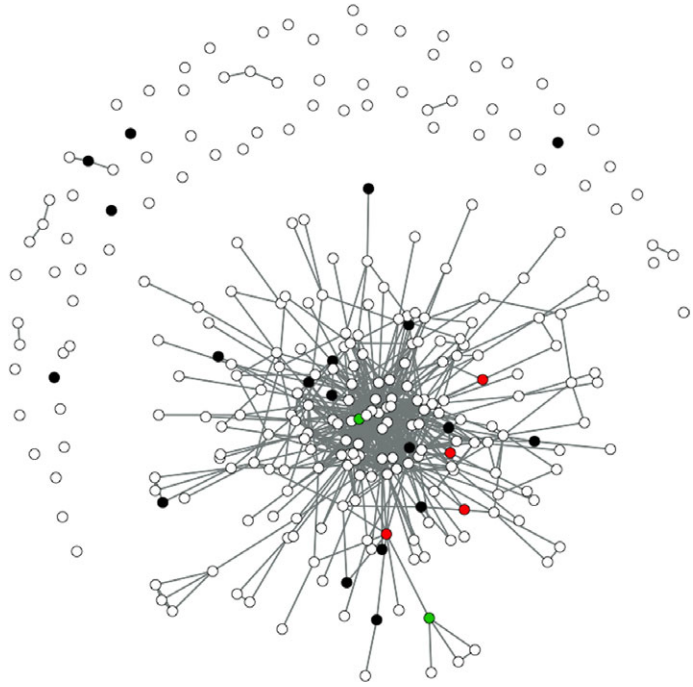


Figure A2. Social network 2014–2015 [Colour figure can be viewed at wileyonlinelibrary.com]

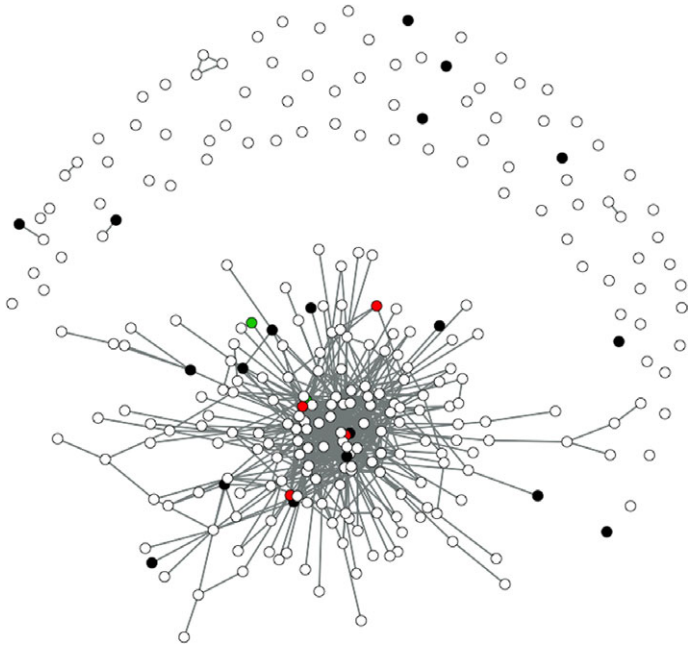


Figure A3. Fitted-versus-actual values [Colour figure can be viewed at wileyonlinelibrary.com]

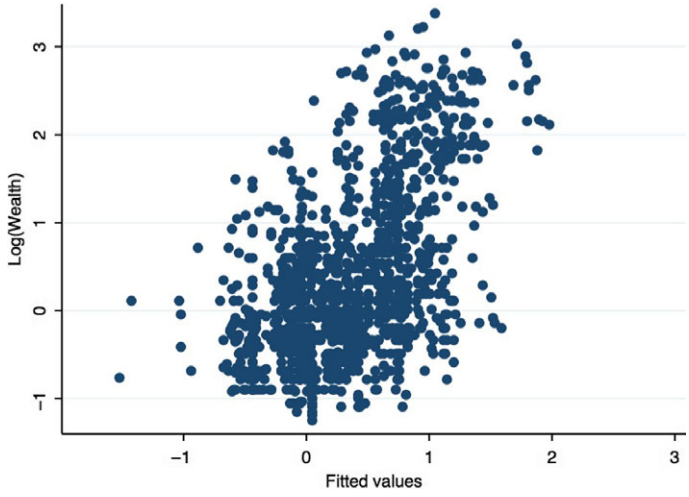


Figure A4. Fitted-versus-residuals values [Colour figure can be viewed at wileyonlinelibrary.com]

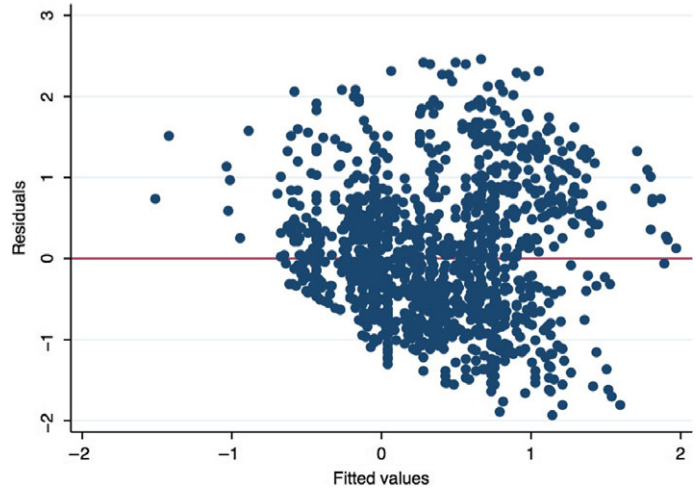


Table A1. Truncated regression, Log(Wealth)

	Log(Wealth)	Log(Wealth)	Log(Wealth)	Log(Wealth)
Direct connection	0.085**	0.10***	0.10***	0.097***
	(0.040)	(0.033)	(0.033)	(0.030)
1 intermediary	0.011	0.025	0.021	−0.011
	(0.028)	(0.025)	(0.025)	(0.024)
2 intermediaries	0.018	0.013	0.0070	−0.036
	(0.027)	(0.026)	(0.027)	(0.026)
3 intermediaries	−0.24***	−0.24***	−0.28***	−0.29***
	(0.072)	(0.064)	(0.077)	(0.084)
EVC	0.26	0.056	0.042	0.022
	(0.28)	(0.27)	(0.27)	(0.24)
Early	0.21***	0.23***	0.21***	
	(0.022)	(0.020)	(0.021)	
Oil price		0.0051***	0.0050***	0.0049***
		(0.00039)	(0.00039)	(0.00044)
Oil sector			0.018	0.031
			(0.026)	(0.025)

Table A1. (Continued)

	Log(Wealth)	Log(Wealth)	Log(Wealth)	Log(Wealth)
Financial and industrial group			0.089*	0.070
			(0.053)	(0.052)
Finance sector			0.072***	0.050**
			(0.024)	(0.023)
Year of first mention in Forbes				−0.041***
				(0.0025)
lnsigma year	−0.12***	−0.12***	−0.12***	−0.12***
	(0.0081)	(0.010)	(0.010)	(0.010)
Observations	1,388	1,388	1,388	1,388

***Notes*:** Dummy 'early' takes value of 1 if a person was present in the 2005 Forbes list. The coefficients of regression change drastically in comparison with Table 1, since by employing truncated regressions we are effectively increasing our sample. Last specification replaces the dummy for early appearance in the Forbes list for the 'first year of Forbes membership' control. The results remain consistent across specifications. Standard errors in parentheses; *$P < 0.15$, **$P < 0.05$, ***$P < 0.01$.

Table A2. Truncated regression, Log(Wealth)

	Log(Wealth)	Log(Wealth)	Log(Wealth)	Log(Wealth)
Direct connection	0.085**	0.10***	0.10***	0.097***
	(0.040)	(0.033)	(0.033)	(0.030)
1 intermediary	0.011	0.025	0.021	−0.011
	(0.028)	(0.025)	(0.025)	(0.024)
2 intermediaries	0.018	0.013	0.0070	−0.036
	(0.027)	(0.026)	(0.027)	(0.026)
3 intermediaries	−0.24***	−0.24***	−0.28***	−0.29***
	(0.072)	(0.064)	(0.077)	(0.084)
EVC	0.26	0.056	0.042	0.022
	(0.28)	(0.27)	(0.27)	(0.24)
Early	0.21***	0.23***	0.21***	
	(0.022)	(0.020)	(0.021)	
Oil price		0.0051***	0.0050***	0.0049***
		(0.00039)	(0.00039)	(0.00044)
Oil sector			0.018	0.031
			(0.026)	(0.025)
Financial and industrial group			0.089*	0.070
			(0.053)	(0.052)

Table A2. (Continued)

	Log(Wealth)	Log(Wealth)	Log(Wealth)	Log(Wealth)
Finance sector			0.072***	0.050**
			(0.024)	(0.023)
Year of first mention in Forbes				−0.041***
				(0.0025)
lnsigma year	−0.12***	−0.12***	−0.12***	−0.12***
	(0.0081)	(0.010)	(0.010)	(0.010)
Observations	1,388	1,388	1,388	1,388

***Notes*:** Standard errors in parentheses; *$P < 0.15$, **$P < 0.05$, ***$P < 0.01$.

Table A3. Looking at Economic Downturns

	Log(Wealth)	Log(Wealth)
Oil shock*Direct connection	−0.040	−0.051
	(0.10)	(0.097)
Oil shock*1 Intermediary	−0.15**	−0.16**
	(0.076)	(0.076)
Oil shock*2 Intermediaries	−0.061	−0.065
	(0.11)	(0.10)
Oil shock*3 Intermediaries	−0.081	−0.14
	(0.15)	(0.19)
Direct connection	0.094	0.081
	(0.22)	(0.20)
1 Intermediary	−0.071	−0.096
	(0.16)	(0.16)
2 Intermediaries	−0.023	−0.072
	(0.17)	(0.15)
3 Intermediaries	−0.85**	−0.87*
	(0.42)	(0.51)
EVC	1.75	1.64
	(1.57)	(1.54)
Oil Shock	−1.04***	−1.03***
	(0.097)	(0.097)
Present in Forbes 2005	0.90***	0.82***
	(0.12)	(0.11)

Table A3. (Continued)

	Log(Wealth)	Log(Wealth)
Sector Dummies	No	Yes
Year FE	Yes	Yes
Observations	1,388	1,388

Notes: Standard errors in parentheses; *$P < 0.15$, **$P < 0.05$, ***$P < 0.01$.

Table A4. Connection to Foes

	Log(Wealth)	Log(Wealth)
Connection to Foes	−0.70***	−0.71***
	(0.17)	(0.21)
EVC	11.8***	11.8***
	(2.25)	(2.25)
Oil Price	−1.74***	
	(0.23)	
Present in Forbes 2005	2.62***	2.62***
	(0.18)	(0.18)
Connected to Foes*Oil Shock		0.024
		(0.33)
Oil Shock		−2.46***
		(0.36)
Year FE	Yes	Yes
Sector dummies	Yes	Yes
Observations	1,388	1,388

Notes: Standard errors in parentheses; *$P < 0.15$, **$P < 0.05$, ***$P < 0.01$.