РЭШ
Российская экономическая школа

МАГИСТЕРСКАЯ ДИССЕРТАЦИЯ

MASTER THESIS

Тема: Вредит ли концентрация власти социально-экономическому развитию?

Title: Does Power Concentration Harm Socio-economic Development? Evidence from Rural Afghanistan

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Оценка/ Grade:

_____

Подпись/ Signature:

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Москва 2012

Does Power Concentration Harm Socio-economic Development? Evidence from Rural Afghanistan*

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June 10, 2012

Abstract

Does concentration of political power harm socio-economic development? In this paper, I address this question at the local level using a rich dataset from a field experiment in Afghanistan. I find that the impact of power concentration on the quality of public goods provision is heterogeneous: it is negative for "decentralized" public goods (e.g., access to drinking water) and insignificant for "centralized" ones (e.g., education and professional medical care). At the same time, power concentration has beneficial consequences: it generally leads to lower corruption among local elites, both actual and perceived. I suggest the "stationary bandit" explanation for this phenomenon and support it by finding a positive relationship between power concentration and survival of local leaders.

Keywords: Corruption, Power Concentration, Public Goods, Power Persistence.

JEL Codes: D72, D73, O12.

*The author is grateful to his research advisors: Ruben Enikolopov, Maria Petrova, and Konstantin Sonin. The author would also like to thank Maxim Ananyev, Paul Dower, Sergei Guriev, Sergey Izmalkov, Ivan Korolev, Olga Kuzmina, and Tatiana Mikhailova for valuable comments and critique, and Daria Kuznetsova for substantial help in preparation of maps.

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1 Introduction

How does political power concentration influence socio-economic development? The answer on this basic question is far from obvious. Comparisons between democracies and dictatorships, divided governments and unified ones, and between other types of regimes with different power concentration (henceforth PC) deliver mixed results. Barro (1996) suggests a nonlinear dependence between the level of democracy and economic growth, while Minier (1998) finds a positive relationship between them. Epstein and O'Halloran (1996) discuss the elusive evidence on the differences between policy efficiency under united and divided governments in the U.S., emphasizing the trade-off between checks and balances and speed of adjustment to shocks (see also Alt and Lowry, 1994; Poterba, 1994). In the corporate governance context, Lam and Lee (2008) and Brickley et al. (1997) discuss mixed empirical evidence on the efficiency of CEO duality — situation when one person combines the key roles of the CEO and the chairman of the Board of Directors in a corporation. Torres (1973) finds a negative correlation between power concentration and development in a cross-country framework but considers a possibility for the opposite causal effect, too.

There are several theoretical arguments which lead to opposite predictions of the impact of power concentration. Separation of powers and checks and balances between them may be necessary to solve agency problems, ensure accountability of elites to citizens, and prevent abuse of power (Persson et al., 1997). At the same time, higher concentration of power may result in higher persistence of power and longer planning horizons of decision makers.[1] This, in turn, might lead to more efficient policy decisions, as in the Olson's (1993) story of roving and stationary bandits. Finally, sharing of power might result in coordination problems among decision makers (Epstein and O'Halloran, 1996). Similarly, Brickley et al. (1997) refer to information costs of power sharing in organizations.

The question becomes even more controversial in the context of traditionally autocratic

[1] In particular, Bueno De Mesquita et al. (2005, chap. 7) indicate that the expected tenure of a "small-coalition leader" (like a dictator) is significantly shorter than of a "large-coalition" (democratic) one. The difference is especially large conditional on the survival for the first few years.

countries. It is sometimes speculated that a strong leader is required for successful development and may be better at keeping peace and order in such environments.[2] Moreover, introduction of *formal* power sharing may simply not work being blocked informally by strong leaders (see Acemoglu and Robinson, 2008).

While the impact of political institutions is extensively studied at the country or regional level, the role of *local* governance structure remains to be sufficiently understood. In this paper, I look at this question by employing the uniquely rich dataset of Beath, Christia, Enikolopov, and Kabuli (2010) on impact evaluation of the largest development program in Afghanistan, National Solidarity Programme (NSP). It allows me to quantify the *de facto* concentration of power in 500 randomly chosen villages and measure various characteristics of public goods provision, corruption, and its perceptions.

In the paper, I define power sharing as the presence of independent actors who influence policy making in the community at a given moment of time. Power concentration is described as the absence or little volume of power sharing. Quantitative measurement of PC is based on the survey question which asks villagers to name three most important decision makers with their institutional affiliation. I use several measures adopted mainly from the literature on market concentration: Herfindahl-Hirschman index, concentration ratio, and the dummy for presence of a "super-strong" leader mentioned by most respondents. Because of significant level of noise in the data, I trust only the results which are robust to different parameterizations.

Since there is arguably no exogenous source of variation in power concentration, I utilize a weaker identification strategy based on OLS with a proper set of controls. Accordingly, the problem of endogeneity of political institutions in the village arises. In particular, it is

[2] As an example, Vladimir Putin, President of Russia at that time, said in (2003): *"A strong and responsible government based on the consolidation of society is vital to preserve the country. Without strong power, it will also be impossible to move forward into the future."* Polls in Russia robustly show that about 70% people believe that a strong leader is currently or always beneficial for the country (Levada-Center, 2010, 2011), and the same is found for Ukraine (Rosbalt Ukraine, 2009). In the corporate governance framework, Lazarides (2009) claims that *"investors consider strong leadership, especially in times of financial or stock market crisis, a factor of firm's survival and development"*.

possible that more talented and wise leaders earn respect of villagers, concentrate power, and stay in power longer. To address this issue, I control for the human capital of elite.

I demonstrate that the impact of power concentration on public goods provision is heterogeneous. Depending on how public goods are provided, I classify them into two groups: decentralized and centralized ones.[3] The former require coordination between villagers (e.g., access to pure water from wells), while the latter largely depend on the initiative of the village leader (e.g., school education and professional medical care). I find that power concentration is harmful for decentralized public goods and does not influence production of the centralized ones. This indirectly supports the "accountability" and "coordination" hypotheses on the power concentration impact.

The key, and to some extent opposite, finding of the paper is that higher power concentration is associated with *lower* corruption, both actual and perceived by villagers. This relationship is robust to the data source, corruption proxy, and power concentration measure. Placebo tests support the robustness of this discovery by showing that, as expected, the dependence exists only for measures of corruption among local decision makers, not higher-level ones. The finding raises doubt on the common assumption of political science literature that separation of power and checks and balances are truly necessary to prevent expropriation of wealth (Brick, 2009b). Instead, it is consistent with the "stationary bandit" hypothesis. As an additional support to the importance of this channel, I find indication of the positive link between concentration and persistence of power, which is robust to reparameterization of the dependent and explanatory variables.

This paper contributes to several strands of literature. It adds to the discussion about the interdependence between political and economic institutions. In particular, it provides new evidence on the role of governance structure for socio-economic development of a community. The paper also continues the discussion of development of rural Afghanistan and

[3]Public goods have been classified along multiple dimensions (see Sandmo, 2008, Batina and Ihori, 2005, and Mazor, 2011). Throughout the paper I focus on local public goods which are produced and consumed within a community, such as infrastructure and school education.

gives some policy advice to the international and Afghan government bodies that provide aid and implement political reforms in the country.

My study is related to the research of Martinez-Bravo et al. (2011) and Ferraz and Finan (2009). Using data from rural China, the former study show that the introduction of village leader elections, which increases accountability of elite toward villagers, makes public good provision better aligned to the community needs. My results are consistent with this story, though for me accountability is only one of the channels through which power concentration affects the delivery of public goods. Ferraz and Finan (2009) show that stronger persistence of local power (elite capture) is associated with worse long-term development and provision of public goods in Brazil. I demonstrate (for Afghanistan, of course) that higher power concentration leads to stronger persistence of elites, so this channel may also explain part of the influence of power concentration on public goods.

The remainder of the paper is organized as follows. Section 2 introduces the structure of local governance in Afganistan and basic historical context. Then, I present the hypotheses which will be tested further in Section 3, the data used in empirical analysis in Section 4 and its methodology in Section 5. Sections 6 contain results and discussion, and Section 7 concludes.

2 Context: Local Governance in Afghanistan

Afghanistan is characterized as a failed, or at least weak, state by most experts. Brick (2009a) describes the relationship between the state and the nation as a historically developed "low-government equilibrium" in which people expect that any action of the government is transgressive, and the central government can do little with it.

At the same time, there are traditional local mechanisms of decision making and public goods provision which operate reasonably well in some villages. They have survived multiple attempts of central government to control local institutions (Brick, 2009b). The structure of

customary institutions is quite sophisticated and it significantly differs around the country and across villages. There are three main types of customary institutions: *maliks*, *shuras*, and *mullahs*. Malik is a village leader who is responsible for keeping peace and unity in the village. He is also a representative who communicates with the state on behalf of the village. Malik is an informal position which is typically gained by personality and not inherited (Tapper, 1983). Shura is an village elder or tribal council (again, informal) based on cooperation and consensus. Effectively, it is the deliberative body of the village which resolves disputes within the community (Brick, 2009a). Finally, mullah is a religious and judicial leader of a village (though in certain villages functions may be distributed differently). It is important that when these institutions coexist, they can constrain each other, thereby creating a system of checks and balances. Brick (2009a) explains that shura can depose a malik, mullah reports to shura but at the same time can veto its certain decisions, and so forth.

In 2001, when Taliban regime was removed in Afghanistan, the role of central government began to change. The Bonn Agreement started the current period of the country development and the government of Hamid Karzai with collaboration of international agencies initiated a new phase of state-building and transition toward democratic rules.[4]

An important component of the new policy is the National Solidarity Programme, which is the largest development program in Afghanistan (see Beath, Christia, Enikolopov, and Kabuli 2010). This community-based development program started in 2003. As of the end of 2010, it has been implemented in approximately 29,000 villages around Afghanistan (see colored areas on the map, Fig. 1 in the appendix). Realization of the program includes two key interventions in participating villages: creation of Community Development Councils (CDC) — democratically elected village councils balanced by gender — and funding projects chosen by these councils. These projects develop transportation (roads and bridges), drinking

[4]This process is continuously monitored by development agencies and independent scholars. In 2005, the Human Rights & Human Welfare journal published a review digest largely devoted to the situation in Afghanistan (Kawano and McGuire, 2005; Rowe, 2005), which provides an extensive summary on the issue. It outlines the material related to political and economic reconstruction, peace and security, health and education, ethnic heterogeneity, etc.

water facilities, irrigation systems, power sources, and other public goods in villages. NSP distributes up to $200 per family and $60,000 per village with the average amount of $33,000.

There is a debate on the efficiency of the program, see, for example, Beath et al. (2011c) for supportive and Brick (2009b) for critical view on the question.[5]

3 Hypotheses

There are multiple stories which can explain the influence of political power concentration on some aspects of socio-economic development, in particular on corruption and public goods provision.[6] Each story has its own testable predictions which I discuss in this section and reunite in Table 1.

The basic mechanism is related to elite capture and *accountability* of elites toward villagers. When the power is concentrated in hands of a few people, the system of checks and balances among them may work poorly. This may lead to abuse of power, in particular to corruption. When socially optimal decisions, for example on the level of public goods provision, are costly (or undesirable) for elites, checks and balances make elites more responsible to the villagers needs (Martinez-Bravo et al., 2011). At the local level of Chinese villages, Zhang et al. (2004) demonstrate that democratization and competition among authorities lead to more efficient public goods provision, though their identification strategy is quite weak. Martinez-Bravo et al. (2011) show that the introduction of village leader elections (even almost non-competitive) in rural China, which raises their accountability toward villagers, increases the policy efficiency.

Opposite consequences of concentrated political power can be derived in the Olson's (1993) *"stationary bandit"* framework. Local leaders with strong power may expect to survive in

[5] Additionally, see Beath et al. (2011a,b) for other research work based on NSP evaluation.

[6] Access to public goods, including healthcare and education, is interesting to study here as an important component of living standards. The relationship between power concentration and other components can also be potentially investigated. Though formal income, especially in monetary terms, is hard to measure and plays little role in rural Afghan villages, it is possible to construct synthetic measures of consumption and wealth, in particular, in livestock, land, and various household items (see Beath et al., 2010).

their role for longer, since it is easier for them to offset shocks which weaken their power, such as exogenous institutional changes (Acemoglu and Robinson, 2008). Therefore, since they get rents out of the village welfare and, unlike regular elite members, may even be substantially dependent on this source of livelihood, they may become more interested in long-term development of the community. Consequently, they will engage less in extractive activities and provide public goods more efficiently. One of the testable predictions of this explanation is that in villages with higher initial power concentration CDC will include a smaller share of "new" people, and the rate of survival of elites is higher, ceteris paribus.

Finally, another possible beneficial feature of highly concentrated power is low cost of communication and *coordination among elite members*. This may be important in implementing complex policies, in particular providing public goods which require significant effort and collective actions of the elite. I label such public goods as "centralized" and put school education, professional medical care, and infrastructure for transportation to the district center into this category. Such public goods as access to electricity and irrigation are partially centralized: for example, connection of the village as a whole to the electricity network requires activity of leaders, while connection of a house to the village network does not. This classification is, of course, somewhat subjective.[7] The importance of the coordination and trust among decision makers is stressed in the literature on united and divided governments in the United States (Epstein and O'Halloran, 1996; Alt and Lowry, 1994; Poterba, 1994).[8]

4 Description of the Data

The dataset which I adopt for empirical analysis comes from the Impact Evaluation Study of the National Solidarity Programme.[9] This is a large-scale field experiment which includes 500

[7]Moreover, involvement of elites and village residents in public goods projects may differ across villages, and the differences can be correlated with power concentration. These issues require further analysis.

[8]Also, elites may consider corruption as a substitute for legal ways of getting rent, such as taxation. If communities with higher power concentration have higher/lower fiscal capacity, corruption may be lower/higher there. I thank Frank Schilbach for this suggestion though I have no data to study this possibility explicitly.

[9]Much of the discussion here comes from Beath et al. (2010, 2011a,b,c). I am very grateful to Ruben Enikolopov for providing all the necessary information. Also, I take publicly available data from the NSP

randomly selected villages in 10 districts (dashed areas on the map, Fig. 1). Selected villages were equally divided into treatment and control group using a pair matching procedure which ensured the similarity of distributions of background characteristics in the two groups.[10] Except for the absence of insecure southern regions, participating villages are more or less representative for the geographical and ethno-linguistic diversity of the country. CDCs were created and funding provided in the treatment group villages, while NSP realization in control groups was postponed until the end of the experiment.

The key block of data comes from a sequence of comprehensive surveys conducted in the course of the experiment. The goal of these questionnaires is to obtain detailed information on political, economic, and social aspects of villagers life and attitudes. They allow me to construct power concentration measures and controls which are discussed in details in Section 4. Overall, over 15,000 individuals participated in the study, which makes the dataset truly unique. The first survey, referred to as period 1, was conducted in mid 2007 prior to the implementation of NSP. The second one, period 2, dates back to mid 2009, which is after election of CDCs members and during the time when projects were executed in most villages.[11] Surveys include forms for heads of randomly selected households and for their wives, each filled by 8 to 10 people in a village. Also, special focus groups were conducted with elite members and their spouses or relatives.[12]

I merge the data from these questionnaires with two special datasets. One is the list of CDC members which allows me to track persistence of power in the villages participating in the NSP. The other comes from the Village Benefit Distribution Analysis — a special exper-

website, `http://nspafghanistan.org`.

[10]The treatment group was further divided into subgroups in which NSP was implemented slightly differently. In particular, there was some variation in the rules of elections to CDC and selection of projects (see Beath et al., 2011a for more details). However, these differences are not important for our analysis.

[11]Unfortunately, data from the 2011 (second follow-up) questionnaire are not available yet, so I utilize only baseline and first follow-up surveys. Also, due to security reasons, period 2 survey did not include 26 villages, and data on female respondents is present for part of the villages only.

[12]The list of elite families was determined *prior* to the NSP implementation and does not include newly elected members of CDC, which allows comparisons between period 1 and period 2 data. At the same time, the composition of focus groups was quite arbitrary and could change from 2007 to 2009 for any reasons, so I do not base power persistence measures on these data.

iment conducted in late 2011 under the NSP Impact Evaluation to study how village leaders perform their public service (Beath et al., 2011b). In this experiment, wheat was distributed to the needy households through the village leaders. Then, surveys were administered to random samples of villagers in order to evaluate how the distribution was realized.

4.1 Measures of Power Concentration

To measure power concentration for each of the two time periods, I use the following question of the male questionnaire: *"What is/are the name(s) of person(s) who make decisions on behalf of the people in the village?"*. Respondents could give at most three answers, and majority of them did. Therefore, the data for one village typically consist of 8-10 answers with 1-3 names in each. If all respondents mention same people, it is an indication of concentrated power. If, instead, many different people are called, it is a clear sign of dispersed power in the village.

To implement this idea quantitatively, I construct a set D_{vt} of people who were mentioned by at least one respondent in a village v at time $t \in \{1, 2\}$.[13] For each of them, $j \in D_{vt}$, I calculate the number of respondents who consider him a key decision maker. If a respondent mentions less than 3 decision makers, each of his votes receives a higher weight, so that the weights sum up to 3. I denote the sum of (weighted) votes for decision maker j as N_j and his share as $s_j = N_j / \sum_{l \in D_{vt}} N_l$.[14] I sort village decision-makers by s_j in descending order: $s_1 \geq s_2 \geq \dots$. These portions can be interpreted as shares of actors in the market for political influence in the village. Therefore, to measure power concentration, I use three metrics which are common in the literature on market concentration. The most prevalent one, used for example by Ferraz and Finan (2009), is the *Herfindahl-Hirschman index*:

$$\widetilde{HH}_{vt} = \sum_{j \in D_{vt}} s_j^2.$$

[13] I ignore the ordering of the three mentioned decision makers though it could also provide valuable information on the concentration of power.

[14] I omit indices v and t for N_j and s_j for the sake of brevity.

Another index is the *concentration ratio* $\widetilde{CR}_{vt}$ which is the share of $k = 3$ most "popular" decision makers (similar to the measures used by Martinez-Bravo et al., 2011):[15]

$$\widetilde{CR}_{vt} = \sum_{j=1}^{k} s_j.$$

Higher values of both indexes are interpreted as more concentrated political power in the community.

Two adjustments are then made to $\widetilde{HH}$ and $\widetilde{CR}$ measures. For technical reasons, in some villages most respondents mentioned only 1 or 2 decision makers, or only 6-7 people instead of 8-10 participated in the survey. Correspondingly, power concentration measures are biased upward in these villages compared with the others. I filter this bias out by regressing PC measures on a second order polynomial of the total number of (unweighted) votes and taking the residuals. I also drop villages in which the number of votes is less than 20 (instead of expected 30). Then, to make the scale of PC measures comparable, I normalize them by the standard deviation across all villages, separately for each moment of time. I denote the resulting measures HH and CR, respectively.

Construction of these measures is quite complicated. Therefore, I add a rough but simple measure SL: a dummy for the presence a *"super-strong" leader* who is mentioned by all except possibly one respondent. Such a leader exists in 74% villages in period 1 and 64% in period 2 (with a minor difference between NSP-participating and non-participating villages).

Table 2 provides descriptive statistics for the measures. They indicate that a zero level of HH corresponds to $\widetilde{HH} = 0.246$ in period 1 and 0.211 in period 2. One standard deviation change in HH is 0.090 change in $\widetilde{HH}$ in period 1 and 0.059 in period 2. Similarly, zero level of CR is 0.757 and 0.709 in the two periods respectively, and one standard deviation change is 0.166 and 0.131. Both measures demonstrate a decrease in average power concentration

[15] I choose $k = 3$ for two reasons. Since every respondent could mention three people, I need $k \geq 3$ to guarantee that CR is distributed between 0 and 1. Also, the average number of decision makers in a village, d_{vt}, equals 7.5, so concentration ratios with k close to 7 would be almost equal to 1 in most villages and make little sense.

with time. Expectedly, the table also indicates that *across-time* correlations are much higher for non-NSP villages (where there was no exogenous institutional change) than for those participating in the program.[16] Panel B of the table demonstrates that *within* one time period different PC measures are strongly but imperfectly correlated, which is natural for different proxies for the same variable.

The geographical distribution of power concentration is illustrated on the map for the example of the period 1 HH 1 (Figure 2). One can infer from it that geographical characteristics are relevant for the political structure. In some districts HH is relatively high (Daulina and Farsi with averages 0.65 and 0.38 resp.), while in others it is rather low (Hisarak and Chesht-e-Sharif, –1.06 and –0.36 resp.). ANOVA confirms the significance of the cross-district differences. There are many potential sources of them, such as the war history and ethno-linguistic peculiarities. I control for all these factors by including district fixed effects to the regressions.

4.2 Measures of Corruption

Now, I turn to the construction of outcome variables measuring level of socio-economic condition of a community. I take two approaches broadly used to estimate corruption (see Olken 2009). One measures *objective* indicators from the Village Benefit Distribution experiment in which needy people were given wheat through the village leaders. Then, interviewers asked randomly selected villagers about the details of the process. Based on this survey, I construct a broad and a narrow dummies for corruption. If a respondent declares that some wheat was taken back from him or kept by village leaders, influential people, etc., I consider it a sign of corruption by both narrow and broad definition. If a respondent believes that distribution of wheat was generally unfair, broad (but not narrow) indicator equals 1 (see Table 4 for a detailed description). 15.9% and 25.7% of respondents reported corruption in the narrow

[16] In principle, one can think that NSP non-participating villages included in the NSP impact evaluation study (control group) are to some extent unintendedly affected by a sequence of conducted surveys. However, it is extremely unlikely that surveys changed the power structure of the village. Still, some influence of NSP-related monitoring on corruption can be imagined.

and broad senses, respectively. Of course, these variables are not truly objectively measured since they are reported by village residents. However, it seems quite reasonable to assume that villagers observe corrupt behavior of their leaders and, when asked direct and narrow questions, do not misreport too often.

The second approach measures self-reported *perceptions* of corruption from both main questionnaires and the Village Benefit Distribution survey. As recently shown by Olken (2009) for the case of road construction in rural Indonesia, perceptions are on average valid though correlation of corruption with other economic indicators may be substantially distorted by using perception-based proxies for corruption. Regarding correlation with power concentration, one concern is that when power is concentrated because village leaders have less outside opportunities, villagers may be more likely to view corruption as patronage and not perceive unfairness.[17] Still, studying the dependence between power concentration and perceived corruption may give additional evidence on the questions of interest.

I construct a binary variable based on the question that asks the respondent whose benefits and suggestions decision makers take into account, in her opinion: people in the village, people with influence, their own, or some combination thereof. The closures which do *not* include "people in the village" are treated as the indication of perceived corruption and the others as benevolent behavior of decision makers. While for most male and female questionnaires I only have data on general attitudes toward decision makers, data from the male period 2 survey are more detailed. I track perceptions of corruption separately for different groups of local and higher-level decision makers: village councils, maliks (village leaders and representatives), district and provincial governors, Afghan President, Government, and Parliament.

4.3 Measures of Public Good Provision

The second set of outcome variables quantifies local provision of public goods. It is worth noting that public goods in rural Afghanistan are quite different from those in developed

[17] I thank Paul Dower for this observation.

countries. For instance, drinking water is typically gathered from public wells, so it is (almost) nonexcludable and nonrivalrous. Beath et al. (2011c) and Brick (2009a) consider prevention and resolution of disputes, in particular related to land distribution, as an important public good in rural Afghanistan. Though my dataset provides some data on these issues too, I focus on a different class of public goods: access to utilities, infrastructure, and social services.[18] Traditionally they were delivered (or not delivered) by local authorities and improving quality of their provision is one of the primary goals of the NSP. For each of the public goods, I construct several measures of its availability based on the period 1 male questionnaire. For all measures, higher value means better provision, which is ensured by changing the sign of a variable where appropriate.

To measure access to *pure drinking water*, I construct two indices: one for the safety of water and the other for its accessibility. The former is a dummy which equals 1 if the primary source of household's drinking water is safe. The latter equals the negative of the time which household spends every week to collect water (on average, it is more than 10 hours). Access to *electricity* is parameterized by two variables. The simpler one is the dummy for whether a household used electricity during the previous year. The more comprehensive one is the amount of time (in hours per month) when a household uses electricity, estimated from the answers on frequency of usage within a day and across days of a typical week. *Irrigation* facilities are measured in three ways: by proportion of irrigated land, as a dummy which equals 1 if a respondent believes that his crops received enough water in the last cultivation season, and another dummy for whether the irrigation source is man-made (as opposed to a natural one). Opportunities for *transportation* to a district center are evaluated as the number of trips made in the previous month and the negative of the average duration of journey (in minutes). For *medical services*, I use only a dummy for whether the last illness or injury was treated in a formal medical facility, and for *schooling* — reported proportion of boys who attend school.

[18]The list of them is given in Table 5. These public goods are chosen following Beath et al. (2010), some of them were also considered by Ferraz and Finan (2009).

4.4 Measures of Persistence of Power

To estimate persistence of (de facto) power in a village, I measure "survival" of leaders between period 1 and period 2, that is how decision makers keep or lose their influence through time. For each time period $t = 1, 2$, I determine two groups of village v elite: "influential people" which is the set of those mentioned as decision makers by respondents, $D_{I,vt}$ and "key decision makers", $D_{K,vt}$ which includes only those who were mentioned frequently, by at least 3 respondents.[19] Then, I match these groups across time and calculate shares of period 1 elite members who stay in power and belong to the period 2 elite.[20] Using two definitions of elite in each case, I get four variables:

$$S_{v,gh} = \frac{|D_{h,v2} \cap D_{g,v1}|}{|D_{g,v1}|}, \qquad g, h \in \{K, I\}.$$

Naturally, key decision makers are more likely to persist in power than all influential people, on average (see the last column of Table 9, Panel A).

Additionally, for each NSP-participating village I calculate penetration of initial (period 1) elite to the Community Development Council as the share of CDC members who belong to each of the initial elite groups.[21]

5 Methodology

The ambitious though hardly attainable goal of my paper is to identify the causal effect of power concentration on certain outcome variables. The key problem of doing this is the endogeneity of village political structure in general and power concentration in particular. There are several approaches to address this problem in the literature. The most persuasive

[19] This definition follows Beath et al. (2010). Comparing with earlier notation, $D_{I,vt} = D_{vt}$.

[20] It would be equally reasonable to calculate the share of period 2 elite members who belonged to the period 1 elite, i.e. the share of "old blood" in the new elite.

[21] It would be more consistent with the other measures to calculate the share of initial elite members are get place in the CDC. However, available data on CDC membership is incomplete, and my approach may lead to less noisy variables.

one is to find a natural experiment—exogenous source of variation in PC—and use the instrumental variable approach. However, this strategy is not applicable in my situation. Since political institutions influence village life (corruption, public goods provision, etc.) through various channels, it is arguably impossible to find a source of changes in governance structure which affects power concentration *only*.[22] In particular, I cannot directly exploit the experimental design of the NSP Impact Evaluation study. Participation in the NSP is not a valid instrument because implementation of NSP in a village is a complex transformation of the institutional system of community which influences PC but far not limited to it.

Therefore, I choose a weaker but feasible approach: I use simple OLS for regressions of outcomes on power concentration controlling for as many alternative channels of influence as I can.[23] My basic regression specification is as follows:

$$Y_{jvrt} = \beta PC_{vt} + X'_{jvt}\gamma + \mu_r + \epsilon_{jvrt}. \tag{1}$$

Here Y_{jvrt} is the outcome variable as reported by respondent j in village v in district r at time t,[24] PC_{vt} is one of the power concentration measures (SL, HH, or CR), μ_r is the district fixed effect. The main object of interest is β. X_{jvt} is the vector of controls which are features of the village life that can influence the outcome variable and be potentially correlated with power concentration. The basic set of controls includes:

- *Size of the village*: log of the number of households and, for flexibility, its square;
- *Ethnic fractionalization* (ELF): Herfindahl-Hirschman index calculated for self-reported ethnicity of respondents;[25]

[22]Panel structure of the sample does not solve the problem either, to say nothing about the very short length of the panel and differences in period 1 and 2 survey questions.

[23]Some of the outcome variables are binary, so it would be possible to use logit or probit estimation but I use OLS for the sake of the uniformity of results.

[24]I treat regressions with the outcome variable from the Village Benefit Distribution experiment conducted in 2011 as corresponding to period 2 (which is 2009), since the most recent data on power concentration is available for that period.

[25]I tried several specifications of controls related to ethnic structure. First, ethnic polarization may be more important than polarization for the demand for power sharing. Second, while ELF reflects the probability of

- *Human capital of elites*: average of dummies for literacy, ability to count, and possession of formal education for all participants of the special focus groups, administered to elite members only.

Descriptive statistics for these variables are given in Table 3. Where I have such data, I also add relevant household-specific controls, such as age and education. Because PC measures and outcome variables are hardly comparable across time, I estimate regression equations *separately* for each time period (instead of including time effects) and then check consistency of results. For $t = 2$, I separate the effect of NSP-induced power concentration from the influence of historically developed PC — sort of short-term and long-term influence respectively. To do this, I include the dummy for NSP participation, NSP_v and its interaction term with power concentration:

$$Y_{jvrt} = PC_{vt} \cdot (\beta + \delta \cdot NSP_v) + [X_{jvt}, NSP_v]'\gamma + \mu_r + \epsilon_{jvrt}, \tag{2}$$

where β represents the long-term effect, while δ is responsible for the short-term one which is present in NSP-participating villages only.

It is natural to expect spatial correlation of errors due to some omitted geographical factors. With district fixed effects, it is not reasonable to include these factors (for example, latitude and longitude variables) to the regression specification. However, following Beath et al. (2010), I cluster standard errors at the level of village clusters—sets of closely located villages.[26] The unit of observation in equations (1) and (2) is a respondent, unless the outcome variable is directly defined at the village level (e.g., persistence of power).

two random villagers having the same ethnicity, I additionally controlled for the probability that the village resident shares nationality with a random person from the his district. It may proxy for the density of the village social network. Finally, I tried to include dummies for the ethnicities living in the village—pushtun and tajik (present in 52% and 58% of villages, respectively), treating others as the base category. Neither of these changes significantly affected the results.

[26] Overall, 500 villages are divided into 330 clusters.

6 Results

6.1 Power Concentration and Corruption

In this section I report results of regression analysis for testing the posed hypotheses. Table 6 presents specifications with objective measures of corruption as the outcome variable. Despite the lack of statistical significance, the marginal effect of power concentration (with any parameterization) on corruption is robustly *negative*, especially in NSP-participating villages. In other words, villages with concentrated power are less corrupt than average. Relative to the average of corruption indicator, these marginal effects have quite substantial size. Interestingly, ethnically heterogeneous villages have lower corruption than uni-ethnic ones (this result is consistent with Olken, 2009), and recipients of wheat have more frequently report corruption than others.

Panel A of Table 7 deals with perception of corruption indicators in similar regression specifications. For brevity, only coefficients at power concentration are reported. This set of results is in general concordance with the previous one: though only some coefficients are statistically significant, almost all of them are negative. One standard deviation increase in the Herfindahl-Hirchman index of power concentration is associated with about 1.2 percentage points fall in perceptions of corruption by both men and women and in both periods, which is an economically significant marginal effect. Coefficients at the interaction term between power concentration and NSP participation status for period 2 regressions (not presented in the table) show that the effect is stronger in non-participating villages (opposite to what I found for objective measures of corruption) but the difference is not significant.[27]

The data from the male period 2 survey allows me to conduct a portmanteu placebo test. Clearly, power concentration in a village cannot influence actual corruption among higher authorities: district and provincial governors and Afghan Government, Parliament,

[27]Also, regressions show that, in contract to the result for actual corruption, ethnic heterogeneity within a village *raises* corruption perceptions. The evidence for this finding is quite weak (only some coefficients are significant) but it is astonishingly fully consistent with Olken, 2009.

and President. Of course, PC can potentially influence the *perception* of corruption among these actors if villagers transfer their negative attitudes toward local leaders onto higher-level authorities or, instead, oppose village and upper-level elites. However, neither is likely in Afghanistan where people traditionally mistrust the state (Brick, 2009b) and do not really associate local and district or central authorities. Indeed, correlations between village-level and higher-level corruption perceptions are positive but not very large, and upper-level governors are much more often considered corrupt than local leaders. Therefore, I consider the placebo tests valid or at least suggestive. Panel B of the Table 7 presents the results of regressions where the outcome variable is perception of corruption within some upper-level institutions. Expectedly, there is no pronounced pattern in the coefficients: they are never close to significance and have mixed signs.

To sum up, my analysis suggests that there is a negative relationship between corruption and political power concentration. This conclusion is quite robust to the data source, corruption proxy, and power concentration measure. Figure 3 provides a simple graphical illustration for this result. It shows average values of five corruption indicators (narrow and broad objective measures, perceptions of corruption of malik and within councils, and general perceptions of corruption) for 5 quintiles of the power concentration measured by the Herfindahl-Hirschman index for the corresponding period of time. All graphs confirm a general tendency that villages with higher power concentration are less corrupt.

6.2 Power Concentration and Public Goods

The second empirical fact which I try to uncover relates power concentration to the level of public goods provision. As discussed above, I classify public goods into centralized, which depend mainly on the village leaders' activity, and decentralized, for which activity of ordinary people is crucial. The classification is presented in details in Table 5. Access to drinking water through wells is treated as decentralized, while abilities for transportation to the district center, professional medical care, and school education as centralized. Irrigation

systems include both village-level and household-specific elements so can be best explained as a mixed one. A similar argument applies to electricity access: it requires connection of the village as a whole and connection of a house to the village network.

Table 8 presents the estimates of marginal effect of power concentration on public goods measures for NSP non-participating (β) and participating ($\beta + \delta$) villages based on specification (2). Panel A is devoted to the availability of drinking water. It indicates that the effects are negative and sometimes significant, i.e. power concentration is harmful for access to this decentralized public good in both groups of villages. Panel B finds a harmful effect of power concentration on access to electricity but its size is tiny and it is statistically insignificant. For irrigation, the results in Panel C are inconclusive: though there are significant coefficients, their signs differ for alternative measures of irrigation quality. Finally, the estimates for the centralized group of public goods (transportation, medical care, and education) presented in Panels D and E suggest that there is no influence of power concentration on them: no coefficients in these panels are significant, and their signs alternate.

Additionally, many regressions show (though these coefficients are not presented in the table) that NSP-participating villages have higher quality of public goods, ceteris paribus. This is natural since one of the primary goals of NSP is to improve utilities, roads, etc. Estimates also indicate that villages with better educated elites achieve better public good provision.

Overall, the only nontrivial effect of power concentration is revealed for the access to pure water. Centralized public goods are totally uncorrelated with power concentration, controlling for other variables. This supports the conclusion that power concentration is harmful for decentralized public goods and not important for the others, though the evidence is quite weak.

6.3 Power Concentration and Persistence of Power

Here I test whether the heavier concentration of political power results in its greater persistence over time. Lacking a long panel of elite transformation, I compare initial elites (in 2007) with elite in 2009 and, for NSP-participating villages, composition of Community Development Councils. Panel A of Table 9 shows that in villages with high power concentration the probability for an elite member to stay in power is substantially and statistically significantly higher than in villages with low power concentration. For example, one standard deviation change of the Herfindahl-Hirschman index raises the share of year 2007 elite members, defined as key decision makers or influential people, among year 2009 key decision makers by over 8 percentage points (17% and 26% of the mean, respectively). Share of initial elite among 2009 influential people increases, too.[28] These results are consistent with the hypothesis that decision makers with strong power (in villages with concentrated power) can more efficiently offset political shocks and prevent outsiders from replacing them.

Panel B of the table presents marginal effects of power concentration on the penetration of initial elites to CDC under specification (1).[29] The pattern is more complex here. In concordance with the previous result, slightly higher share of CDC members comes from the period 1 key decision makers in villages with higher power concentration. On the contrary, the share of period 1 influential people in CDC is lower in such villages. A possible explanation is that when power is concentrated within a narrow circle of key decision makers, influential people outside of it may be rather incidental and non-powerful. They are unlikely to get an important CDC position, though they may retain their secondary role with time (as indicated by Panel A, regressions for S_{IK} and S_{II}). Still, the main conclusion of this section is that higher power concentration is indeed associated with significantly higher survival of leaders.

[28] It is worth noting that the differences between marginal effects in NSP-participating and non-participating villages (δ) are rather small and do not change the picture. This means that the results are not just a consequence of "exogenous" change in power structure due to NSP implementation.

[29] In these regressions, I additionally control for the size of CDC. Though it may be endogenous to the extent to which it is not determined by the village size and similar characteristics, exclusion of this factor does not change the results much.

6.4 Discussion

Empirical analysis presented above suggests that communities with higher power concentration are characterized by the following features:

- Lower corruption, both actual and perceived;
- More efficient provision of some public goods—probably those from the decentralized group;
- Higher persistence of decision makers in power.

Comparing these conclusions with the predictions of hypotheses discussed in Section 3 (see Table 1), one can find that no single one can explain all the revealed empirical facts. Instead, the composition of the stationary bandit, accountability, and coordination stories may be present in reality and in data. Still, the results do not contradict the reverse causality story: a wise elder who is less corrupt will accumulate trust of villagers, concentrate power in the village, and survive in power for longer. I try to identify the direct causal effect by controlling for human capital of elite but more detailed analysis of this issue is the major direction for further research. In order to uncover the true mechanism of how PC affects some outcomes, it is very important to differentiate between the sources of village governance structure. High power concentration may indicate, at least, two strikingly different situations: when a warlord controls a village by force and tries to extract villagers' wealth in his own benefit (Brick, 2009a provides a case study of a village in this situation) and when a village is lucky to have a wise elder who pursues benevolent policy.

Some other caveats to the results are worth noting. First, power concentration measures are proxies of at best moderate accuracy. Therefore, measurement error problems are serious in my study, which (abstracting from other issues) biases the estimated effects toward zero, so their true magnitude may be *larger* than I find. Second, to make the results more conclusive, stylized models which lie behind the tested hypotheses can be made more explicit. This will help to produce new non-trivial predictions, such as effects of interactions between power

concentration and controls on certain outcome variables. Testing these predictions will help to differentiate among mechanisms of influence.

7 Conclusion

In this paper, I study how concentration of political power influences some aspects of social and political life in rural Afghanistan: corruption and extractive behavior by local elites, provision of public goods, and persistence of political power. Empirical analysis is based on the results of a unique large-scale randomized field experiment that took place in 500 Afghan villages in 2007-2011.

Using the survey question about the respondents' perceptions of who are the decision makers in the village, I have constructed three proxies for power concentration. These are commonly used in the literature on market concentration Herfindahl-Hisrchman index, concentration ratio, and a dummy for the presence of a very influential village leader. Restricted by the absence of a truly exogenous variation in the concentration of power, I use OLS estimation with regional fixed effects and a battery of controls.

My analysis suggests that higher power concentration leads to *lower* perception of corruption of local decision makers. The results are robust with respect to the data source, power concentration measure, corruption proxy, and the institutional group of decision makers (village representative and council). Their validity is also supported by a placebo tests which show that there is no effect on the corruption of higher-level decision makers, as it is expected to be.

Also, I find that the influence of power concentration on provision of local public goods is very heterogeneous. There is a significantly negative for the access to safe drinking water (which is one of the most basic and important utilities unavailable in many villages) and, to some extent, electricity. At the same time, there is no specific pattern of that influence for irrigation systems, infrastructure for the out-of-village transportation, professional medical

care and school education. Though the evidence is limited, I suggest that the influence of power concentration depends on whether this public good is "decentralized" (requires coordination between villagers) or "centralized" (depends on the activity of the village leader, mainly). I provide some theoretical arguments for this distinction.

Finally, I demonstrate that key decision makers in villages with higher power concentration are more likely to persist in power for longer. Taken altogether, revealed stylized facts suggest that there are multiple mechanisms through which power concentration affects the socio-economic and political situation in rural villages of Afghanistan: "stationary bandit", "accountability", and "coordination among elites" hypotheses. At the same time, to date I am unable to rule out the reverse causality explanation that a fair, wise, and non-corrupt elder will concentrate power and stay in power for longer.

The results of this paper may provide policy advice for the bodies which implement development programs in the country, such as the Afghan government and the World Bank. The analysis humbly suggests that, when implanting "democratic" institutions which deconcentrate political power (e.g., Community Development Councils under the NSP program) into the traditional system of local governance, it is important to remember that such interventions might potentially intensify extractive behavior, rather than fight it.

It is also important that my results are obtained from the sample of villages in Afghanistan, a country with a very distinct tradition of local governance. Traditionally, Afghan villages had a complex structure of village-level institutions aimed to substitute for a failed central state and characterized by power sharing and checks and balances mechanisms. Afghanistan is further distinguished by large ethnic heterogeneity, severe climate, low level of development, etc. Therefore, the external validity of results—to what extent my results are transferable into other countries—is difficult to claim.

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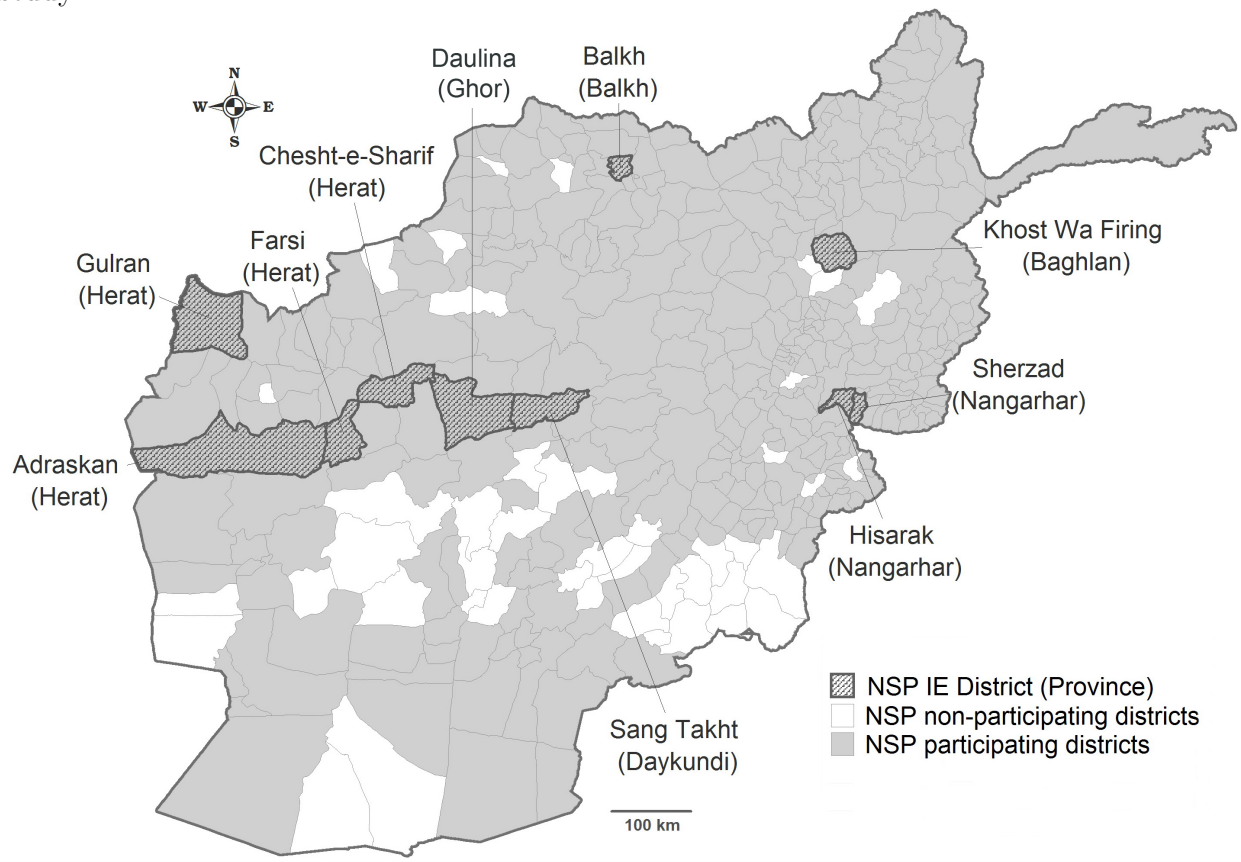
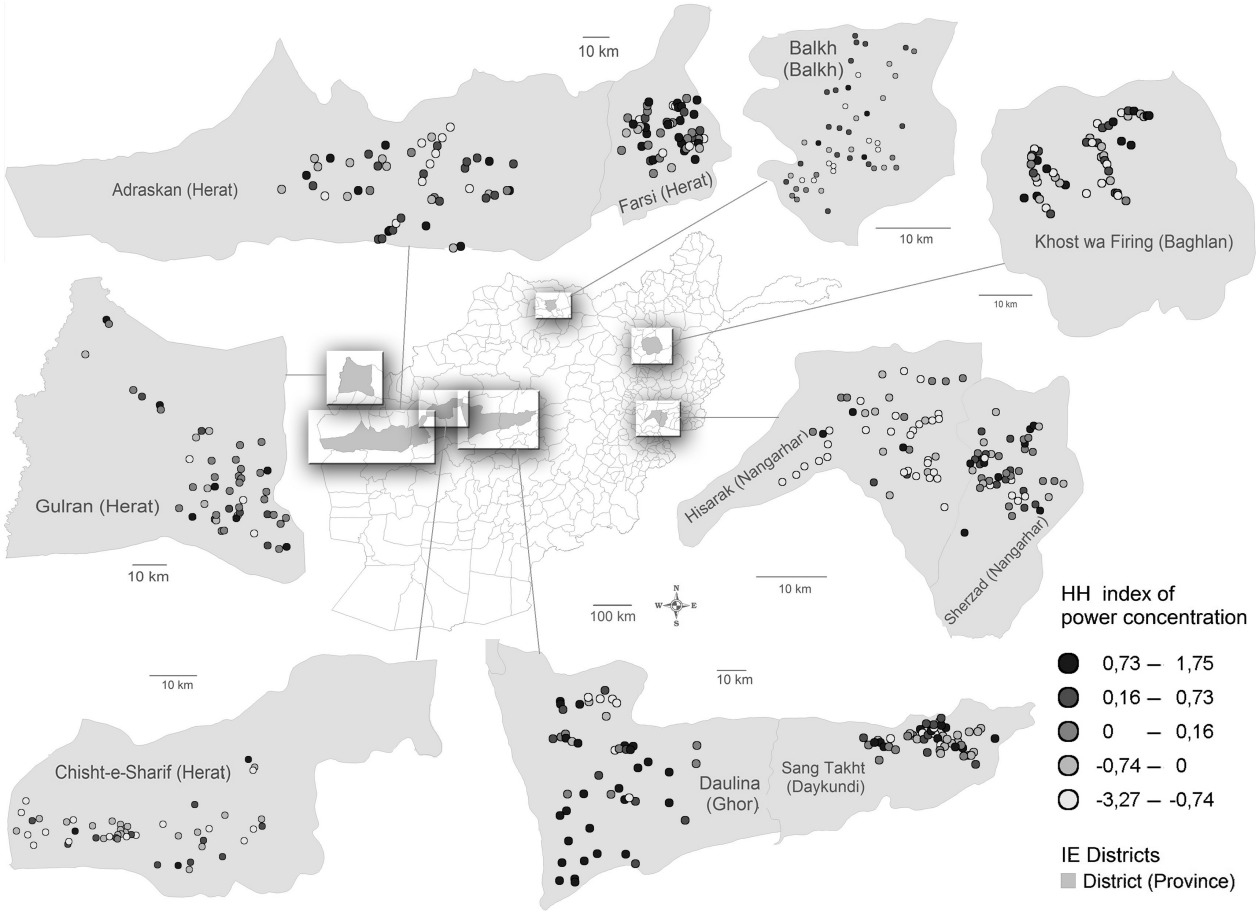
Appendix: Figures and Tables

Figure 1: Afghan Districts Participating in NSP and Surveyed by the Impact Evaluation study



Notes: Information on NSP-participating districts is shown as of the end of 2010, see `http://nspafghanistan.org/default.aspx?sel=31`.

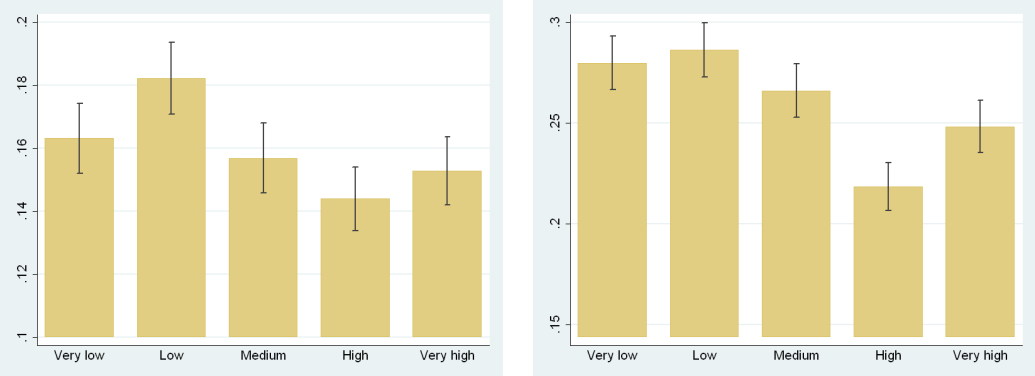
Figure 2: Power Concentration in Afghan Villages, Map Scheme



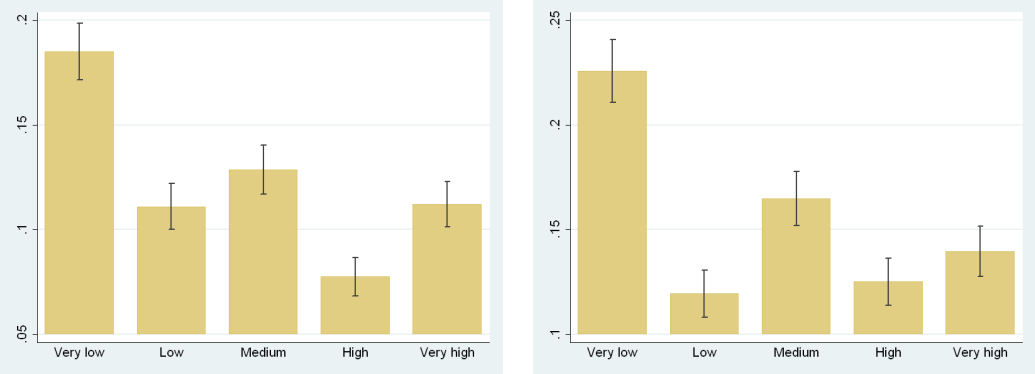
Notes: The map shows the geographical distribution of power concentration measured by the HH index for period 1.

Figure 3: Power Concentration and Measures of Corruption

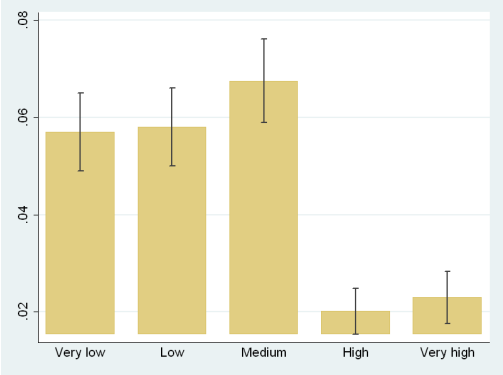
Panel A: Objective indicators, narrow (left) and broad (right)



Panel B: Perceptions of corruption of village council (left) and malik (right)



Panel C: General perceptions of corruption



Notes: This figure shows averages of five main corruption indicators for each quintile of HH measure of power concentration ("very low", "low", "medium", "high", and "very high"). Bands around averages show ± 1 standard deviation divided by $\sqrt{\#\text{ obs.}}$ range. Panel A is based on the Village Benefit Distribution experiment, Panel B on male period 2 survey, and Panel C on male period 1 survey.

Table 1: Predictions of the Main Hypotheses

Hypothesis	Consequence of higher PC	
	Corruption	Public goods
Accountability	$\Uparrow$	$\Downarrow$
Stationary bandit	$\Downarrow$	$\Uparrow$
Coordination among leaders	No	Centralized: $\Uparrow$ Decentralized: No

Notes: Hypotheses are discussed in detailed in Section 3. PC stands for power concentration.

Table 2: Summary Statistics for Measures of Power Concentration

Panel A: Means and Standard Deviations

Statistic	SL	CR	HH
$t = 1$, mean & st.dev.	0.741	0.757^a (0.166)	0.246^a (0.090)
$t = 2$, mean & st.dev.	0.643	0.709^a (0.131)	0.211^a (0.059)
Across-time correlation:			
NSP non-participating villages	0.209	0.232	0.203
NSP participating villages	0.025	0.177	0.144

Panel B: Correlations Between Measures

		Non-NSP villages			NSP villages		
		SL	CR	HH	SL	CR	HH
$t = 1$	SL	1.000			1.000		
	CR	0.625	1.000		0.714	1.000	
	HH	0.606	0.927	1.000	0.672	0.938	1.000
$t = 2$	SL	1.000			1.000		
	CR	0.689	1.000		0.684	1.000	
	HH	0.709	0.960	1.000	0.722	0.963	1.000

Notes: Calculations are based on 429 villages in period 1 and 454 villages in period 2.

[a] Statistics are given for measures *before* normalization, $\widetilde{CR}$ and $\widetilde{HH}$.

Table 3: Summary Statistics for Main Control Variables

Variable	Mean	St.Dev.	Min	Max
log Number of households	4.38	0.82	2.08	6.91
Human capital of elite	0.411	–	0	1
Ethnic heterogeneity (ELF)	0.070	0.144	0.000	0.711

Notes: All variables are available for period 1 only, which is not a problem since they are quite stable in time.

Table 4: Corruption Indicators from the Village Benefit Distribution Experiment

Indicator	Share of HH
Some wheat was taken back from household	0.4%
Village leaders kept wheat for themselves	8.6%
Wheat was taken by decision makers and influential people	7.8%
Wheat was given to households which bribed decision-makers	1.1%
Narrow indicator of corruption	**15.9%**
There are households that received wheat but should not	13.0%
Distribution was somewhat or very unfair	13.4%
Broad indicator of corruption	**25.7%**

Notes: "Share of HH" is the share of surveyed households for which either male or female respondent answered the question in the affirmative.

Table 5: Classification of Public Goods

Public good	Class
Access to drinking water	*Decentralized*
Access to electricity	*Decentralized* as connection of a house
	Centralized as connection of the village as a whole
Irrigation systems	*Decentralized* with respect to HH-specific components
	Centralized with respect to village-level components
Roads to the district center	*Centralized*
Professional medical care	*Centralized*
School education	*Centralized*

Table 6: Power Concentration and Objective Measures of Corruption

Dependent variable:	Narrow indicator			Broad indicator		
PC measure:	SL	CR	HH	SL	CR	HH
Power Concentration	−0.016	−0.008	−0.004	−0.002	−0.011	−0.006
	(−0.60)	(−0.63)	(−0.31)	(−0.07)	(−0.67)	(−0.35)
PC × NSP participation	−0.040	−0.014	−0.025	−0.070	−0.023	−0.033
	(−1.10)	(−0.83)	(−1.44)	(−1.63)	(−1.08)	(−1.58)
Recipient dummy	0.068***	0.066***	0.067***	0.072***	0.069***	0.070***
	(3.62)	(3.46)	(3.52)	(3.12)	(3.00)	(3.06)
Ethnic heterogeneity	−0.038	−0.039	−0.042	−0.071	−0.078	−0.082
	(−0.47)	(−0.46)	(−0.50)	(−0.69)	(−0.75)	(−0.80)
Mean dep.		0.159			0.258	
Number of obs.		5,207			5,207	

Notes: Robust t-statistics are shown in parentheses. "Mean dep." is the sample average of dependent variable. Hidden controls include the NSP participation dummy, dummy which equals 1 if a respondent is from the elder's family and its interaction with the recipient status, age, indicator of primary education, and village-level controls: log number of households in the village, its square, and human capital of elite. Neither of them is significant in any regression.

Table 7: Power Concentration and Perceptions of Corruption

Data Sample and Group of Decision Makers	PC Measure SL	PC Measure CR	PC Measure HH	*Mean dep.*
Panel A: Corruption among *Village-Level* Decision Makers				
Male survey, period 1	−0.025 (−1.57)	−0.013** (−2.06)	−0.021*** (−3.50)	*0.044*
Male survey, period 2:				
Village Council	−0.034 (−1.61)	−0.012 (−1.27)	−0.013 (−1.34)	*0.110*
Village Representative (Malik)	−0.038* (−1.66)	−0.013 (−1.17)	−0.014 (−1.29)	*0.142*
Female survey, period 1	0.004 (0.20)	−0.003 (−0.29)	−0.008 (−0.78)	*0.091*
Female survey, period 2	−0.007 (−0.20)	−0.012 (−0.69)	−0.016 (−0.95)	*0.563*
Village Benefit Distribution survey	−0.023 (−0.93)	−0.021 (−1.55)	−0.016 (−1.24)	*0.444*
Panel B: Corruption among *Higher-Level* Decision Makers				
Male survey, period 2:				
District Governor	−0.023 (−0.80)	0.001 (0.11)	0.003 (0.24)	*0.332*
Provincial Governor	0.010 (0.33)	0.011 (0.80)	0.012 (0.89)	*0.296*
Central Government	0.026 (0.85)	0.008 (0.54)	0.011 (0.71)	*0.318*
Afghan Parliament	0.006 (0.25)	0.002 (0.15)	0.001 (0.11)	*0.466*
Afghan President	0.021 (0.62)	−0.000 (−0.02)	−0.002 (−0.10)	*0.210*

Notes: Coefficients at power concentration and robust t-statistics are reported. "Mean. dep." is the sample average of dependent variable. The number of observations varies from 2,830 for period 1 female data to 5,207 for Village Benefit Distribution survey.

Table 8: Power Concentration and Public Goods Provision

Group of villages:	NSP non-participating			NSP-participating			*Mean dep.*
PC measure:	*SL*	*CR*	*HH*	*SL*	*CR*	*HH*	*(st.dev.)*
Panel A: Access to Drinking Water							
Source of water is protected	−0.033	−0.037**	−0.029	−0.009	−0.012	−0.012	*0.343*
	(−0.79)	(−2.00)	(−1.58)	(−0.22)	(−0.59)	(−0.58)	
– (Time collecting water)[a]	−0.848	−0.108	−0.010	0.248	−0.126	−0.127	*–10.16*
	(−1.17)	(−0.34)	(−0.03)	(0.27)	(−0.22)	(−0.20)	*(12.58)*
Panel B: Access to Electricity							
Dummy for electricity usage	0.001	−0.021	−0.019	−0.032	−0.021	−0.027	*0.330*
	(0.03)	(−0.94)	(−0.84)	(−0.77)	(−1.15)	(−1.29)	
Hours of electricity usage[b]	−8.766	−3.746	−5.576	−21.783	−12.122*	−15.502**	*57.3*
	(−0.58)	(−0.56)	(−0.80)	(−1.61)	(−1.96)	(−2.20)	*(129.4)*
Panel C: Irrigation Systems							
Proportion of irrigated land	−0.016	−0.026**	−0.024**	0.033	−0.000	0.004	*0.629*
	(−0.61)	(−2.28)	(−2.15)	(1.19)	(−0.03)	(0.28)	*(0.393)*
Sufficient irrigation dummy	0.048	0.034*	0.039**	0.040	0.018	0.023	*0.761*
	(1.37)	(1.88)	(1.99)	(1.17)	(1.08)	(1.33)	
Man-made irrigation system	0.028	0.016	0.020	0.037	0.023	0.025	*0.293*
	(0.79)	(0.91)	(1.07)	(1.06)	(1.23)	(1.17)	
Panel D: Transportation to the District Center							
Number of trips per month	0.591	0.122	0.072	−0.498	0.048	0.041	*5.25*
	(0.81)	(0.40)	(0.24)	(−0.88)	(0.19)	(0.14)	*(11.03)*
– (Average duration of journey)[c]	−0.996	6.644	6.163	−0.517	2.061	−0.588	*–127.0*
	(−0.09)	(1.34)	(1.32)	(−0.04)	(0.35)	(−0.11)	*(121.5)*
Panel E: Professional Medical Care and School Education							
Illness was treated professionally	0.020	0.011	0.011	−0.017	−0.008	−0.010	*0.932*
	(1.01)	(1.21)	(1.25)	(−0.89)	(−0.61)	(−0.84)	
Proportion of boys in school	−0.023	−0.012	−0.013	0.048	0.021	0.017	*0.797*
	(−0.67)	(−0.74)	(−0.79)	(1.55)	(1.60)	(1.38)	*(0.383)*

Notes: Coefficients at power concentration and robust t-statistics are reported. "Mean. dep." and "st.dev." are the sample average and standard deviation of an outcome variable. Standard deviation is not shown for binary variables. The number of observations varies from 2,399 for proportion of boys in school to 4,514 for the electricity usage dummy.

[a] In hours per week.

[b] In hours per month.

[c] In minutes per single journey.

Table 9: Power Concentration and Persistence of Power

	Dependent variable		PC Measure SL	PC Measure CR	PC Measure HH	*Mean dep.*
Panel A: Survival of Decision Makers Between Periods 1 and 2						
	Share of period 1...	who are period 2...				
S_{KK}	key decision makers	key decision makers	0.069	0.084***	0.092***	*0.493*
			(1.65)	(3.76)	(4.29)	
S_{KI}	key decision makers	influential people	0.025	0.022	0.031	*0.697*
			(0.64)	(1.12)	(1.48)	
S_{IK}	influential people	key decision makers	0.095***	0.089***	0.093***	*0.345*
			(4.21)	(6.97)	(6.35)	
S_{II}	influential people	influential people	0.088***	0.058***	0.062***	*0.555*
			(2.90)	(3.79)	(3.45)	
Panel B: Penetration of Initial Elite to CDC						
	Share of...	who were period 1...				
	CDC members	key decision makers	0.009	0.028**	0.017	*0.149*
			(0.32)	(2.55)	(1.44)	
	CDC members	influential people	−0.075**	−0.034**	−0.041***	*0.257*
			(−2.43)	(−2.32)	(−2.68)	

Notes: Coefficients at power concentration and robust t-statistics are reported. "Mean dep." is the sample average of dependent variable. Unit of observation is a village (in Panel B — only NSP-participating villages). Regressions in Panels A and B are based on 404 and 199 observations, respectively.