On-line Appendix: A simple model to motivate the empirics

To guide interpretation of our empirical results we now present a simple two-period model that highlights the key tradeoffs for the chief (as a manager, or otherwise). First, consider the case where the chief (or the elite, assuming away intra-elite coordination issues) is charged with the responsibility of managing a development project of size R. The chief has two choice variables: the share α of the project resources that will be diverted or grabbed for private gain, and the chief's managerial effort, e, to turn the project into a success. We assume the chief does not intrinsically care about the project, which is expected to yield a flow of benefits for the community at large (but the model is readily augmented to allow the valuation of project output by the chief). However, in case the project is a "success" we assume next period's power of the chief goes up, reflecting respect for his ability to accomplish important tasks for the village. The chief's problem reads as follows:

$$\text{Max } V = f(e) + \alpha R - c(e, \alpha; \tau) + p(e; E)\pi^*(\tau' \quad (e)) + (1 - p(e))\hat{\pi}, \qquad (1)$$

where $f(e)$ denotes the gain from effort allocated to the chief's private business (farm work, else), which is negatively affected by more time spent on management of the community project (hence: $\frac{\partial f}{\partial e} < 0, \frac{\partial^2 f}{\partial e^2} < 0$), $c(e;\alpha,\tau)$ is a measure of potential opposition from disgruntled villagers in case not enough managerial effort is supplied (jeopardizing the success of the project), or when too much of the project resources are taken by the chief. We assume $\frac{\partial c}{\partial e} < 0$ and $\frac{\partial^2 c}{\partial e^2} > 0$, and also $\frac{\partial c}{\partial \alpha} > 0$ and $\frac{\partial^2 c}{\partial \alpha^2} > 0$. The parameter τ is a measure of the chief's power, so we assume $\frac{\partial c}{\partial \tau} < 0$, $\frac{\partial^2 c}{\partial e \partial \tau} > 0$ and $\frac{\partial^2 c}{\partial \alpha \partial \tau} < 0$, or that more powerful managers have less opposition to fear – at the margin – than weak chiefs from undersupplying effort or input grabbing. The parameter E is a measure of experience, of managerial ability with which project inputs can be converted into successful project output. We denote the probability that the chief is invited by an NGO to manage next period's development project with $p(e;E)$, where $\frac{\partial p}{\partial e} > 0$ and $\frac{\partial^2 p}{\partial e^2} < 0$. We thus assume that more successful projects (implemented by hard-working and efficient managers) are likely to be followed by new projects. Finally, π^* denotes the (discounted) private payoffs in period 2 in case the chief assumes responsibility to manage the community project, and $\hat{\pi}$ denotes payoffs for the chief when the management responsibility, instead, is delegated to a committee of villagers. We assume the payoffs from being assigned as the manager are an (increasing) function of next period's power, τ', which in turn depends on current effort to turn the project into a success, i.e. $\frac{\partial \pi*}{\partial \tau'} > 0$ and $\frac{\partial \tau'}{\partial e} > 0$. The reason why next period's payoffs are increasing in next period's power is that enhanced power may facilitate the grabbing of project resources. Finally, we assume the scope for diverting project resources by the chief is higher when he is the manager: that is: $\pi^* > \hat{\pi}$.

The first order conditions for an optimal solution to the chief's problem are:

$$R - \frac{\partial c}{\partial \alpha} = 0, \text{ and} \tag{2}$$

$$\frac{\partial f}{\partial e} - \frac{\partial c}{\partial e} + \frac{\partial p}{\partial e}(\pi^* - \hat{\pi}) + p\frac{\partial \pi^*}{\partial \tau'}\frac{\partial \tau'}{\partial e} = 0, \tag{3}$$

where the final term on the LHS of (3) captures that extra effort in the first period to turn the project into a success is an investment for the chief that facilitates grabbing in the future. Taking a total differential of (2), we obtain

$$\frac{d\alpha}{d\tau} = \left(\frac{-\partial^2 c}{\partial \alpha \partial \tau}\right) / \left(\frac{\partial^2 c}{\partial \alpha^2}\right) > 0, \tag{4}$$

or, intuitively, that more powerful chiefs steal a greater fraction of the project inputs (the same logic explains why we assume that $\frac{\partial \pi*}{\partial \tau'} > 0$). The intuition for (4) is simply that powerful chiefs are to a greater extent insulated or protected from unhappy responses from their dissatisfied constituency. Similarly, taking the total differential of (3) and rewriting yields:

$$\frac{de}{d\tau} = \frac{\frac{\partial^2 c}{\partial e \partial \tau}}{\frac{\partial^2 f}{\partial e^2} - \frac{\partial^2 c}{\partial e^2} + \frac{\partial^2 p}{\partial e^2}(\pi^* - \hat{\pi}) + 2\frac{\partial p}{\partial e}\frac{\partial \pi^*}{\partial \tau'}\frac{\partial \tau'}{\partial e} + p\frac{\partial^2 \pi^*}{\partial \tau'^2}\left(\frac{\partial \tau'}{\partial e}\right)^2 + p\frac{\partial \pi^*}{\partial \tau'}\frac{\partial^2 \tau'}{\partial e^2}}. \tag{5}$$

The expression in (5) cannot, in general, be signed. That is, powerful chiefs may supply more or less effort to manage the project.

Next, consider the case where a council of villagers is charged with the responsibility of managing the community project. Performance by the committee is a function of committee effort q and management experience Q (where we may assume $Q<E$), and sabotage effort by the chief, s^* (see below). If committee members are randomly chosen by the NGO (and will be again in the future, so that current performance does not affect the likelihood of being elected as manager in the next period), then the committee should solve a simple static optimization problem:

$$\text{Max W} = f(q) + B(q; Q, s). \qquad (6)$$

where $f(q)$ represents the opportunity cost of management effort (foregone returns to working on the own farm), and $B(q;Q,s)$ capture project benefits for the villagers. From (6) follows $q^*=q(Q,s)$.

Turn to the chief's problem. Assume committee management restricts the chief's short-term scope for diverting project inputs – we consider for simplicity the extreme case where $\alpha=0$. Again, we denote by $p(\cdot)$ the probability that the chief is promoted to manager in the second period. If so, the chief can again grab project inputs ($\alpha>0$), so we again assume $\pi^* > \hat{\pi}$. We also assume the chief's probability of being invited to manage the future project is larger when the committee project fails in period 1. Denote by s any effort by the chief to sabotage, undermine, or derail the committee's project. He may achieve this, for example, by convincing fellow villagers not to work for the project, or by denying complementary resources under his control (including land). As before, we assume the villagers are unhappy about anti-social behavior of the chief, and that they are better able to express their unhappiness (at some cost $c(\cdot)$ to the chief) when the chief is not powerful. This results in the following maximization problem for the chief:

$$\text{Max } V = -c(s;\tau) + p(s)\pi^* + (1-p(s))\hat{\pi}. \qquad (6)$$

The first-order solution reads as

$$-\frac{\partial c}{\partial s}+\frac{\partial p}{\partial s}(\pi^{*}-\hat{\pi})=0, \qquad (7)$$

So that, from the total differential, it follows that:

$$\frac{ds}{d\tau}=\left(\frac{\partial^{2}c}{\partial s\partial\tau}\right)/\left(\frac{-\partial^{2}c}{\partial e^{2}}+\frac{\partial^{2}p}{\partial e^{2}}(\pi^{*}-\hat{\pi})\right)>0. \qquad (8)$$

In words: more powerful chiefs will behave worse, and try harder to sabotage the committee's project. The intuition, again, is that they are insulated from unhappy responses from disgruntled villagers. The theory thus predicts that, as chiefs are more powerful, the probability of project success unambiguously goes down when the committee is managing the project. The same is not true for cases where the chief is the manager (equation 5).

Note that our simple model does not produce an *ex ante* prediction of the expected performance of the chief versus the committee. This can be easily illustrated as follows. Assume that performance in case the chief is the manager is given by a function $Z^{chief} = Z(e^*,\alpha^*;\tau,E)$, where e^* and α^* follow from (2) and (3). Performance in case the committee manages the project is given by $Z^{committee} = Z(q^*;s^*,Q)$. It is immediately clear that $Z^{chief} - Z^{committee}$ cannot be signed: (i) effort levels and management experience are different across treatments, (ii) input diversion rates may be different, and (iii) sabotage will adversely affect performance in the committee case. The net effect will depend on specific functional forms.

To sum up, the model predicts that more powerful chiefs will (i) divert more project resources and (ii) work harder to undermine the performance of the committee. These unambiguous predictions speak to non-experimental outcomes. In contrast, we obtain an ambiguous prediction for the relative performance of the chief vis-à-vis the committee in our experiment. This comparison is complicated by various opposing effects, and ultimately an empirical matter.